Final Mitigated Negative Declaration

Balch Hydroelectric Project, FERC Project No. 175

July 2026

Prepared for:

State Water Resources Control Board
Division of Water Rights
1001 I Street, 14th Floor
Sacramento, California 95814

Prepared by:

Stantec Consulting Services Inc.
6780 North West Avenue, Suite 103
Fresno, California 93711

Final Mitigated Negative Declaration for the Balch Hydroelectric Project

Pursuant to:

California Environmental Quality Act, Public Resources Code Section 21000 et seq. (CEQA); California Code of Regulations, title 14, section 15000 et seq. (CEQA Guidelines)

Lead Agency:

State Water Resources Control Board

The Balch Hydroelectric Project Final Mitigated Negative Declaration (MND) is being made available to the public in accordance with CEQA.

Visit the State Water Board's Balch Hydroelectric Project webpage where you can view and download an electronic copy of this Final MND: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/balch.html.

To receive future email notifications regarding the proposed Balch Hydroelectric Project and other projects pursuing water quality certifications from the State Water Board, please subscribe to the Water Rights Water Quality Certification email subscription list.

Instructions on how to sign up for the State Water Board's Water Rights Water Quality Certification email subscription list are outlined below:

1. Visit https://public.govdelivery.com/accounts/CAWRCB/subscriber/new?qsp=ca_swrcb#rights
2. Provide your name and email address in the required fields.
3. In the categories below the email address and name fields, select "Water Rights," then "Water Rights Water Quality Certification."
4. Click on the "Subscribe" button.
5. An email will be sent to you. You must respond to the email message(s) to confirm your membership on the selected list(s).

Table of Contents

List of Tables

List of Figures

List of Appendices

Acronyms / Abbreviations

°C	Celsius
µg/L	micrograms per liter
µS/cm	microsiemens per centimeter
AB 32	California Global Warming Solutions Act
ac	acre
ac-ft	acre foot
ADS	automatic dispatch system
APLIC	Avian Powerline Interaction Committee
APP	PG&E's Avian Protection Program
ATV	All-terrain vehicle
Balch Project	Balch Hydroelectric Project, FERC Project No. 175
BEE	triclopyr butoxyethyl ester
BGEPA	federally protected under the Bald and Golden Eagle Protection Act
BMI	benthic macroinvertebrate
BMP	best management practice
CAISO	California Independent System Operator
CALFIRE	California Department of Forestry and Fire Protection
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CALVEG	Classification and Assessment with Landsat of Visible Ecological Groupings
CARB	California Air Resources Board
CDEC	California Data Exchange Center
CDFW	California Department of Fish and Wildlife
CDMG	California Department of Conservation, Division of Mines and Geology
CDPR	California Department of Pesticide Regulation
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO_2e	carbon dioxide equivalents
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSDs	Community Services Districts
CVRWQCB	California Regional Water Quality Control Board Central Valley Region
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
DOC	Department of Conservation
DPM	diesel particulate matter
DPS	Distinct Population Segment
DSOD	California Division of Safety of Dams
EIR	Environmental Impact Report
ESA	Endangered Species Act
FE	listed as endangered under the federal ESA
FERC	Federal Energy Regulatory Commission
FGDC	Federal Geographic Data Committee
FLA	Final License Application
FPA	Federal Powers Act
FPT	proposed as threatened under the federal

FRA	Federal Responsibility Area
FT	listed as threatened under the federal ESA
GHG	Greenhouse gases
GIS	Geographic Information System
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWMP	Groundwater Management Plan
GWP	global warming potential
H.T.	High Tension Line
HDCS	High Density Conductor System
hp	horsepower
HPMP	Historic Properties Management Plan
HPTP	Historic Properties Treatment Plan
IBI	Index of Biotic Integrity
IFIM	instream flow incremental methodology
IFG4	Instream Flow Group's fourth hydraulic simulation model iteration
IPaC	Information for Planning and Consultation
IS	Initial Study
kV	kilovolt
kVA	kilovolt-ampere
LLO	Low-Level Outlet
LMP	Land Management Plan
LOP	limited operating period
MCV	Manual of California Vegetation
mg/L	Milligrams per liter
MIF	Minimum Instream Flow
MND	Mitigated Negative Declaration
msl	mean sea level
MW	megawatt
MWh	megawatt-hour
NAHC	Native American Heritage Commission
NBMP	Nesting Bird Management Plan
NFS	National Forest System
NMWSE	Normal Maximum Water Surface Elevation
No.	number
NRCS	Natural Resources Conservation Service
NTU	nephelometric turbidity unit
NWI	National Wetlands Inventory
O	Open Conservation Land Use
O&M	operation and maintenance
O_3	ozone
OHV	off-highway vehicle
PAD	Pre-application Document
PCA	Pest Control Advisor
PCR	Pest Control Recommendation
PF	power factor
PG&E	Pacific Gas and Electric Company
PM	Particulate matter
PM&E	Protection Mitigation and Enhancement
ppm	parts per million
PRC	Public Resources Code
PUP	Pesticide Use Proposal
R-C	Resource and Conservation

ROS	Recreation Opportunity Spectrum
ROW	right-of-way
RM	river mile
RWQCB	Regional Water Quality Control Boards
s.u.	standard unit
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCAQMD	South Coast Air Quality Management District
SCAT	Sierra Nevada Red Fox Conservation Advisory Team
SCC	SNF or SQF Species of Conservation Concern (on NFS lands)
SCE	Southern California Edison
SCI	Stream Condition Index
SE	listed as endangered under the CESA
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Office
SLF	Sacred Lands File
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SNF	Sierra National Forest
SQF	Sequoia National Forest
sq-mi	square mile
SR	State listed as rare under the Native Plant Protection Act
SRA	State Responsibility Area
SSC	CDFW Species of Special Concern
SSURGO	Soil Survey Geographic Database
ST	listed as threatened under the CESA
State Water Board	California State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
tpy	tons per year
TSS	total suspended solids
Tulare Lake Basin Plan	Central Valley Regional Water Quality Control Board's Water Quality Control Plan for the Tulare Lake Basin
UAV	unmanned aerial vehicle
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UTV	utility task vehicles
V	volt
VMT	vehicle miles travelled
WMP	Waste Management Plan
WY	water year
YOY	Young of Year

1.0 Introduction

1.1 Background

This Final Mitigated Negative Declaration (MND) reflects an environmental analysis required by the California Environmental Quality Act (CEQA) regulations (Pub. Resources Code §21000 et seq.) and the CEQA Guidelines (Cal. Code Regs., tit. 14, §15000 et seq.) for the California State Water Resources Control Board's (State Water Board) issuance of water quality certification for the relicensing of the Balch Hydroelectric Project (Balch Project, Federal Energy Regulatory Commission [FERC] Project No. 175) as proposed by Pacific Gas and Electric (PG&E) in its Final License Application (FLA) (Proposed Project) filed with FERC on April 18, 2024.

For the purposes of this CEQA analysis, the discretionary permit review process being considered by the State Water Board is issuance of a water quality certification, pursuant to section 401 of the federal Clean Water Act (CWA), for the Proposed Project. The water quality certification will include appropriate conditions to ensure that the Proposed Project is operated in a manner that is protective of water quality, the designated beneficial uses of water, and in compliance with California water quality standards.

The Proposed Project under CEQA includes the continuation of existing operation and maintenance activities and proposed changes, including modification to existing Balch Project operations, new and modified environmental measures, modifications to the existing FERC Project Boundary, recreational facility enhancements, and additional maintenance activities. Section 2 provides a description of the existing and Proposed Project.

1.2 Intent and Scope of this Document

CEQA requires that public agencies analyze and acknowledge the environmental consequences of their actions and consider alternatives and mitigation measures that could avoid or reduce significant potential adverse impacts to the environment when avoidance or reduction is feasible.

This MND reflects an evaluation of the Proposed Project's environmental effects at a project level (Cal. Code Regs., tit. 14, § 15378). The State Water Board, as the CEQA Lead Agency, will consider the Proposed Project's potential environmental impacts when determining whether to approve the Proposed Project. The intent of this MND is to provide the public and decision-making agencies with information about the environmental impacts that could result from implementation of the Proposed Project.

This MND describes the Proposed Project and its environmental setting, including existing conditions; identifies the Proposed Project's potential environmental impacts, and presents mitigation measures that would be implemented to avoid, reduce, or mitigate potentially significant impacts.

1.3 Public Review Process

The CEQA compliance process provides an opportunity for agencies, other stakeholders, and the general public to comment on a Proposed Project's potential environmental effects. CEQA requires public disclosure of information about the Proposed Project and seeks to foster public participation and informed decision making.

2.0 Project Description

2.1 Proposed Project Description and Setting

PG&E owns and operates the existing Balch Hydroelectric Project, (Balch Project, FERC Project No. 175), located in Fresno County, California, approximately 45 miles northeast of the City of Fresno and on the North Fork Kings River (Figure 2-1). The Balch Project hydropower facilities have a combined capacity of 131.52 megawatts (MW) and have been in operation since 1927. Electricity generated by the Balch Project is exported via the Balch Project's approximately 22-mile-long Balch-Sanger transmission line. The current FERC license was issued on April 13, 1980, and expires on April 30, 2026.

The Balch Project is located downstream of PG&E's Haas-Kings River Hydroelectric Project, FERC Project No. 1988 and Helms Pumped Storage Project, FERC Project No. 2735, which both use the same reservoirs (Courtright Lake and Lake Wishon) for operations. The Balch Project is primarily operated as a peaking facility to generate power from water that is released from upstream storage to meet power demand and for irrigation purposes. All flows that pass through Balch Project hydropower facilities are discharged back into the North Fork Kings River. Balch Project operation is coordinated with the Haas-Kings River Hydroelectric Project, because releases from Lake Wishon largely control inflow to Black Rock Reservoir.

The existing Balch Project and the Proposed Project include Balch Diversion Dam (a 135-feet high concrete arch dam) and its associated reservoir, Black Rock Reservoir (967 usable acre-feet [ac-ft]) (Appendix B). Water released from, or spilled over, Balch Diversion Dam flows approximately 5 miles to Balch Afterbay Dam (a 165-foot-high concrete arch dam) and its associated reservoir, Balch Afterbay (135 usable ac-ft). At Black Rock Reservoir, a portion of the water is diverted via a series of tunnels and penstocks to the Balch No. 1 and 2 powerhouses that discharge into Balch Afterbay. Water in Balch Afterbay is either diverted to the FERC Project No. 1988 Kings River Powerhouse or continues down the North Fork Kings River to Pine Flat Reservoir. On average, the Balch Project generates 412,616 megawatt-hours (MWh) of electricity per year. PG&E is not currently proposing to add capacity or make any major modifications to the existing facilities or their operations.

The Balch Project includes Balch Diversion Dam, impounding Black Rock Reservoir, and Balch Afterbay Dam, impounding Balch Afterbay. Balch Diversion Dam captures a drainage area of 233.5 square miles (sq-mi), and Balch Afterbay Dam captures a drainage area of 247.3 sq-mi. The Kings River, which drains approximately 1,544 sq-mi, flows westward approximately 133 miles before joining the San Joaquin River. The North Fork Kings River begins at the White Divide in the John Muir Wilderness at an elevation of approximately 12,000 feet above mean sea level and travels 40 miles joining the Kings River at 973 feet. Almost all precipitation occurs as rain in the North Fork Kings River basin, typical to the central Sierra Nevada. Vegetation communities are dispersed along the river, consisting mainly of oak woodland and annual grasses, and transitions to primarily mixed chaparral at high elevations.

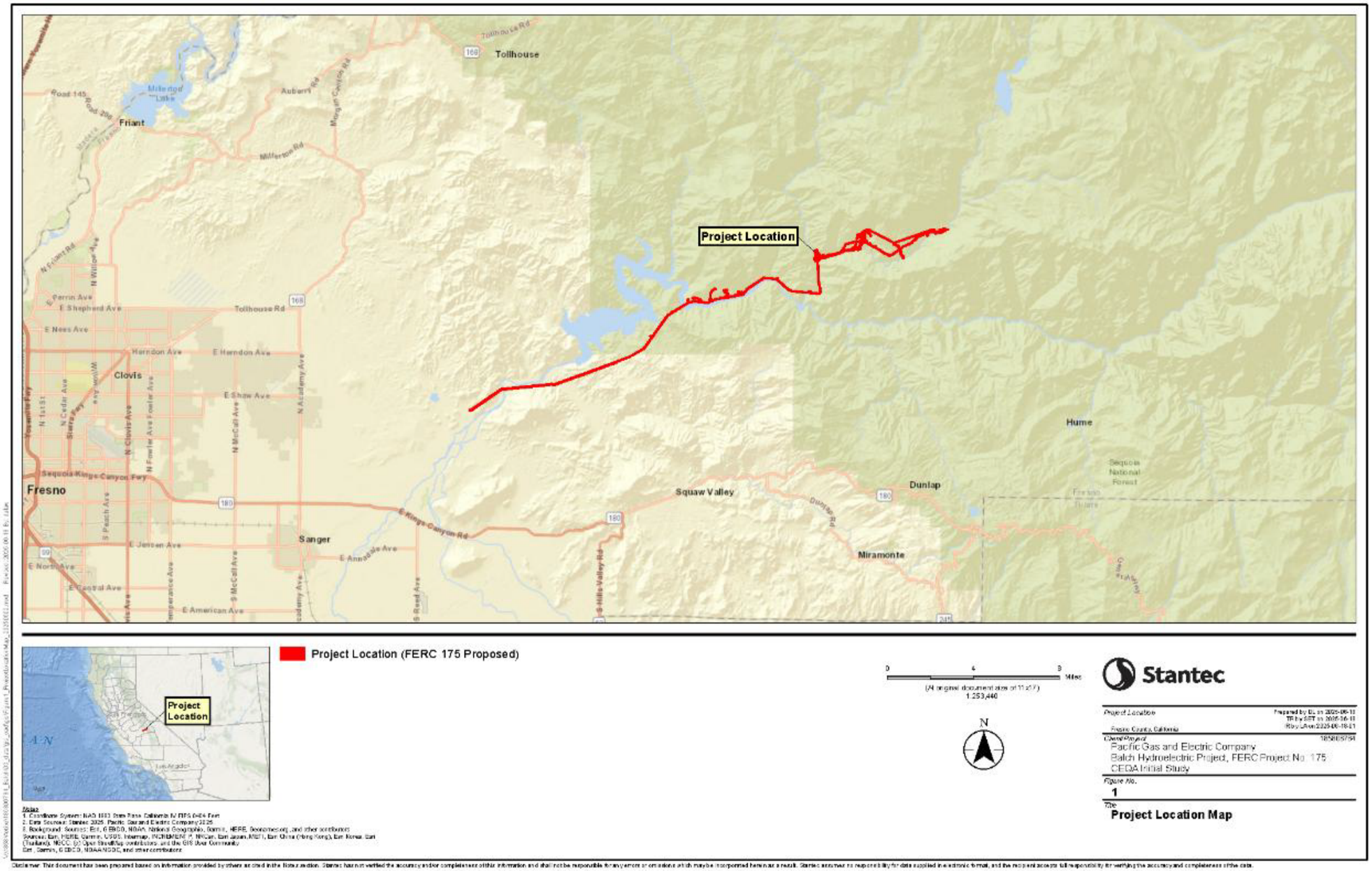

Figure 2-1. Balch Hydroelectric Project Location Map

2.1.1 EXISTING PROJECT FACILITIES

The Balch Project includes one development, Balch, which is comprised of two adjoining powerhouses that use the same water for power generation (i.e., Black Rock Reservoir) and discharge into the same afterbay (Balch Afterbay; Appendix B). The existing Balch Project facilities and features include:

- **Dams and Reservoirs.** The existing Balch Project includes the Balch Diversion Dam and the Balch Afterbay Dam, both located on the North Fork Kings River. The Balch Project also includes the Black Rock Reservoir, which is an impoundment formed by Balch Diversion Dam, and the Balch Afterbay, which is an impoundment formed by Balch Afterbay Dam.
- **Gaging Stations, Weirs, and Piezometers.** The Balch Project includes several gaging stations, weirs, and piezometers. These include:
  - The North Fork Kings River below Balch Diversion Dam, accessed via an off-highway vehicle trail from Blackrock Road, with United States Geological Survey (USGS) gage number 11216200 and PG&E gage number KI-9.
  - The North Fork Kings River above Dinkey Creek, accessed from Vomac Road near Balch Camp, with USGS gage number 11216500 and PG&E gage number KI-21.
  - The North Fork Kings River below Dinkey Creek, accessed via a cableway over the North Fork Kings River from Vomac Road, with USGS gage number 11218400 and PG&E gage number KI-22.
- **Intake and Water Conveyance Systems.** These include two sluice channels designed to flush rocks and sand from the tunnel before the turbines and two penstocks.
  - The first channel features a 205-foot-long, 3-foot-diameter steel pipe tapping into the tunnel 624 feet upstream of the surge chamber. The second channel includes a 350-foot-long, 2-foot-diameter steel pipe that taps into the penstock at the Balch Tunnel portal.
  - Balch Penstock No.1 is a 4,882-foot-long aboveground pipe, with the upper 4,581 feet being welded pipe and banded steel pipe varying in diameter from 60 inches to 48 inches. The lower 301 feet bifurcates into two 34-inch-diameter steel pipes. Balch Penstock No. 2 is a 4,952-foot-long aboveground pipe, made of welded steel with welded field joints, varying in diameter from 96 inches to 68 inches.
- **Powerhouses and Switchyards.** The Balch Project includes Balch No. 1 Powerhouse and Balch No. 2 Powerhouse.
- **Transmission and Distribution Lines.** The Balch Project includes the 22-mile 115 kilovolt (kV) Balch-Sanger Transmission line that transmits power from the Balch No. 1 Switchyard to PG&E's interconnected electric grid, and a 12 kV Distribution Line that connects Balch Camp with the Balch Diversion Dam.
- **Ancillary and Support Facilities.** The Balch Project includes ancillary and support facilities located at the junction of the North Fork Kings River and Dinkey Creek.

- **Helicopter Landing Zones.** Helicopter landing zones include the KI-3 Blackrock Reservoir Pad, Balch Camp Cookhouse Pad, and Balch Powerhouse Pad. Each are approximately 87 feet in diameter, constructed of asphalt, and located adjacent to a road.

Recreational Facilities and Non-Recreational Project Roads and Trails. Recreational facilities include Black Rock Campground, Black Rock Scenic Overlook, and Williams Creek Fishing Access parking areas. A total of 151 road and trail segments cover 16.64 miles, categorized into 70 truck segments (12.34 miles), 31 utility task vehicle (UTV) segments (1.81 miles), and 50-foot segments (2.49 miles). The Balch-Sanger 115 kV Transmission Line hosts 143 segments totaling 10.50 miles, comprising 64 truck segments (6.50 miles), 31 UTV segments (1.81 miles), and 48-foot segments (2.19 miles). Balch Project roads and trails are operated and maintained by PG&E for the purpose of accessing Balch Project facilities. Refer to FLA Exhibit A, Table A.3.1-2 for a list of Balch Project roads and trail segments compiled by PG&E. Roads and trails within Balch Project recreation facilities are considered part of recreation facilities and not listed in FLA Exhibit A.

2.1.2 PROJECT GENERATION

From 2015 through 2022, the Balch powerhouses generated an average of approximately 412,616 MWh of electricity per year with an average annual plant factor of 0.71. The annual minimum gross generation was 74,682 MWh in 2015 and the annual maximum gross generation was 757,081 MWh in 2019. The dependable capacity of a generating facility is defined as “the generating capacity that the plant can deliver under the most adverse water supply conditions to meet the needs of an electric power system with a given maximum demand” (Elliott et al. 1997). The most adverse monthly generation was in July 2015, a dry water year, when the Balch Project produced 34,116 MWh, during which the Balch No. 1 and Balch No. 2 powerhouses produced 9,952 MWh and 24,164 MWh, respectively.

2.1.3 EXISTING BALCH PROJECT OPERATIONS AND MAINTENANCE

Routine Balch Project operation and maintenance (O&M) activities occur regularly at Balch Project facilities and are of short duration, causing limited disturbance. Occasionally, greater disturbance activities may occur without a regular schedule, lasting several days and involving heavy equipment. Non-routine activities require formal project descriptions and separate FERC approval, often including new construction projects.

Operations staff are on duty seven days a week from 7:00 am to 5:30 pm, and maintenance staff from Monday to Thursday during the same hours. The generation facilities are visited multiple times weekly by PG&E staff to identify and correct or schedule repairs based on the severity of issues found.

Routine activities include powerhouse inspections, vegetation, pest, sediment, road and trail maintenance, and upkeep of recreational facilities and transmission lines. Routine O&M activities are described below.

2.1.3.1 Powerhouse Inspections and Maintenance

PG&E operates Balch No. 1 Powerhouse, using a Supervisory Control and Data Acquisition (SCADA) system, by remote control from PG&E’s Fresno Operating Center, and operates Balch No. 2 Powerhouse under both automatic dispatch system (ADS) controlled from PG&E’s office in San Francisco and from the Fresno Operation Center. The centers are staffed 24 hours a day 7 days a week. In addition, the Balch

Project can be manually operated on site. The Fresno Operations Center monitors and controls reservoir levels via the SCADA system. The SCADA system provides the center with high level, low level, and high rate-of-change alarms. If the Fresno Operations Center notes problems at any time, maintenance crews are immediately dispatched to identify the nature and extent of the problem and estimate the duration of any necessary repairs.

2.1.3.2 Vegetation Management

The management of woody debris generated from work activities will be guided by the Vegetation Management Plan and site constraints, employing various strategies. When feasible and when access allows, woody debris may be removed from the site, chipped and removed, or chipped and spread on site to mitigate other effects. If debris is not chipped or removed, it may be lopped and scattered. This practice involves cutting and distributing debris into small pieces close to the ground, thereby accelerating its decomposition rate. Debris may also be piled for burning, either at the landowner's request or at PG&E's discretion on PG&E property.

Wood management pertains to the treatment of tree stems or logs once the limbs have been removed, including any material too large to be treated as debris. Wood can either be left on site or removed. If left on site, logs are cut so that the bole is as close to the ground as possible, or they may be piled for future removal or burning. If removed, wood is transported off-site to a disposal facility, sawmill, or staging location. These activities might require permits or landowner approvals, which PG&E will obtain prior to wood removal.

Vegetation management within the Proposed Project area is carried out annually. Integrated vegetation management activities, such as herbicide application for incompatible vegetation, are conducted along the Transmission Corridor and Project roads on rotations ranging from two to five years, depending on inspection outcomes.

2.1.3.3 Pest Management and Herbicide Application

PG&E implements integrated pest management approaches, including non-chemical methods and pesticides, to control vertebrate pest populations that threaten Balch Project structures or human health and safety. PG&E inspects facility areas for pests, and use bait stations, traps, and physical exclusion methods year-round for interior spaces. For exterior pest control, PG&E considers climate, species, and food availability, employing ground squirrel bait stations, burrow baiting, sand slurry physical exclusion, vegetation management, non-rodenticide traps, and carbon monoxide gas. Non-restricted rodenticides, registered with the California Department of Pesticide Regulation (CDPR), are used inside control rooms and unoccupied buildings. Zinc phosphide use, preferred for exterior use due to its fast action and minimal secondary poisoning risk, is supervised by a registered Pest Control Advisor (PCA) and authorized under a Pesticide Use Proposal (PUP)/Pest Control Recommendation (PCR). Application methods for zinc phosphide include pre-baiting, burrow placement, covering burrows, checking for carcasses, and activity monitoring.

Herbicide application methods include pre-emergent, cut-stump, basal, frill/hack and squirt, and foliar applications, typically using backpack applicators. All-terrain vehicles (ATVs) are used minimally for application and transport. Applications are coordinated with other vegetation maintenance, with cycles in Hydro Operation Area including pre-emergent (Oct 1 - Apr 1), post-emergent (Apr 1 - Jun 30), and

additional treatments if needed (Jul 1 - Sep 30). Transmission Corridor applications occur every two to five years, with annual cut-stump treatments. Application rates are based on selective, directed hand spray or limited broadcast spray, adhering to resource buffers and disposal regulations.

2.1.3.4 Sediment Management

PG&E intends to continue operations at the Balch Project by promptly notifying the California Department of Fish and Wildlife (CDFW) whenever low-level outlets (LLOs) are used, per the 1980 FERC license. PG&E revised the LLO Operation Protocol, approved by CDFW in April 2018. Sediment upstream of the dam may be released downstream during outlet test operations or high-flow events. High-flow operations are unplanned, required to manage reservoir levels during high inflows. Average daily inflows to Blackrock Reservoir from 1981-2022 were 393 cubic feet per second (cfs), with a maximum daily flow of 6,627 cfs.

2.1.3.5 Road Maintenance

Balch Project access roads are regularly inspected. Minor repairs are conducted on an as-needed basis and major repairs are implemented annually during late summer/fall. Minor Balch Project road maintenance generally includes the following types of activities: debris removal; basic repairs; repair, replacement, or installation of access control structures such as posts, cables, rails, gates, and barrier rock; and repair and replacement of signage. Major Balch Project road maintenance generally includes the following types of activities: placement or replacement of culverts and other drainage features; bridge deck replacement; grading; sealing; resurfacing; and road replacement. Vegetation management may be conducted concurrently with road and trail maintenance on an as-needed basis.

2.1.3.6 Trail Maintenance

Balch Project trails are regularly inspected during the course of routine Balch Project O&M activities. Maintenance is conducted as needed. Maintenance generally includes the following types of activities: debris removal; basic repairs, including minor brushing; maintenance of erosion control features, such as water bars; repair, replacement, or installation of access control structures such as barrier rock; and repair and replacement of signage. Vegetation management may be conducted independently or concurrently with trail maintenance on an as-needed basis.

2.1.3.7 Recreational Facility Maintenance

Balch Project recreational facilities are operated and maintained by PG&E, including day-to-day O&M activities, such as fee collection, cleaning restrooms and campsites, and garbage pick-up. In addition, PG&E is responsible for routine maintenance of fixed assets, including restroom buildings, fee stations, water delivery systems, and site amenities. Contractors or PG&E personnel complete heavy maintenance duties, as needed. These activities include the use of a grader, excavator, or backhoe (e.g., recreation road work, sign replacement and repair of water pipes). PG&E coordinates recreation-related maintenance activities with the U.S. Forest Service (USFS).

2.1.3.8 Transmission, Power, and Communication Line Maintenance

Transmission, power, and communication line maintenance includes replacement of damaged poles on an as-needed basis, transmission tower cleaning, concrete foundation repairs, and reconductoring and undergrounding work. New poles are placed in, or immediately adjacent to, previously existing holes using line trucks. Vegetation management is also conducted along transmission, power, and communication line corridors, and at repeaters.

Routine repair and maintenance activities are typically identified on an as-needed basis during facility patrols and inspections. These activities usually require at least a standard light-duty truck and bucket truck and may be performed while the line is energized (i.e., while the power lines are operating) or de-energized, depending on access, loading, and safety. These activities are typically of short duration (less than one day), require minimal staging space, and typically occur within the analysis area. Minor vegetation management (pole/tower clearing or pruning vegetation) may be needed to ensure safe access and facility clearance.

2.1.3.9 Debris and Trash Maintenance

Woody debris management at Black Rock Reservoir and Balch Afterbay involves maintaining log booms and cleaning trash racks to prevent debris buildup and protect intake structures. During high-flow events, debris naturally passes over the dams' spillways. The woody debris that accumulates in the impoundments naturally passes over the dams' uncontrolled spillways during high-flow events, and annually, the accumulated woody debris is removed and returned to the channel over the dams. Additionally, every winter, when reservoir levels are lowest, crews rake the intake screens, gather the accumulated woody debris by boat, and remove. PG&E does not have any record of the size and volume of any material physically passed over the dams. PG&E routinely inspects and repairs log booms and maintains lands within the FERC Project Boundary, ensuring they are free of trash related to Balch Project operations and recreation activities.

2.1.3.10 Routine Patrols and Inspections

PG&E's Balch Project O&M staff inspect non-linear facilities weekly and transmission lines monthly via helicopter or fixed-wing aircraft to identify and correct potential problems. Annual mechanical and electrical inspections ensure the integrity of generation and transmission facilities, and lead to scheduled maintenance, repairs, or equipment replacements by field crews. Patrol frequencies vary based on infrastructure accessibility, age, environmental conditions, and elevation, but occur at least annually. Rapid assessments after weather or fire events use aerial patrols with helicopters, fixed-wing aircraft, and unmanned aerial vehicles. Ground patrols typically use vehicles or foot patrols. Environmental factors like dirt, dust, bird activity, vandalism, wind severity, and conditions such as fires, floods, and earthquakes influence patrol frequency. Inspections focus on vegetation clearances, fire hazards, erosion, and structural conditions. Maintenance on Balch Project penstocks occurs as needed, with all valves operated annually to verify integrity. Crews aim to restore units as swiftly as possible during unplanned outages for market availability and grid stabilization.

2.1.3.11 Outages

During planned annual outages, crews perform routine maintenance, typically lasting three weeks per unit. Balch Project O&M staff conduct annual inspections of generation and transmission facilities to verify structural integrity and identify potential disruptions. Unplanned outages require swift action to restore units for market and grid stability. Facilities can be dewatered by closing intake gates, and penstock maintenance is done as needed. Annual tests verify the Turbine Shutoff Valve and bypass system functionality.

2.1.4 REGULATORY REQUIREMENTS – FERC LICENSE ARTICLES

The initial April 18, 1980, Order Issuing the License for the Balch Hydroelectric Project included 52 articles, including 37 articles from FERC's Form L-5 (FERC 1980), Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters and Lands of the United States. Of these, Articles 39, 47, and 48 are considered "expired" or "out-of-date" because the articles pertain to an activity that has been completed or is no longer pertinent. As a result, the existing license contains 49 active articles. The general topic of each active article is listed in Table 2.1-1.

Table 2.1-1. List of Active Articles in the Existing FERC License for the Balch Hydroelectric Project

Article	Description	Article	Description
I	Compliance with license	26	Payment for timber cleared
2	No substantial changes without approval	27	Fire control and suppression
3	Conformity with exhibits	28	Use of water for fire suppression
4	FERC inspections	29	Destruction of United States property
5	Acquire title in fee or land use for project	30	Construction of facilities by United States
6	Make good any defect of title	31	Approvals for construction of facilities
7	FERC determines cost of project	32	United States communication lines or facilities
8	Install and monitor stream gages	33	United States transmission rights-of-way (ROW)
9	Install additional capacity or other changes	34	Disposal of materials and vegetation
10	Coordinate operations with other projects	35	Operation license in good faith
11	Headwater or other project benefits	36	Use or occupancy
12	Navigable waters and public use releases	37	License will not impair Federal Power Act
13	Reasonable use of reservoir or lands	38	Minimum flows
14	Transmission lines	40	Recreation Plan
15	Protective devices for fish and wildlife	41	Installation of warning and safety devices
16	Free use to United States for fish and wildlife	42	Endangered Bird Management Plan
17	Recreational facilities	43	Consult with State Historic Preservation Office (SHPO) prior to construction
18	Public access to project waters	44	Sluicing operations
19	Prevent soil erosion	45	Flood period operations
20	Clearing of lands	46	Solid Waste Management Plan
21	Dredging and filling	49	Annual charges
22	United States improvement of navigation	50	Emergency Action Plan
23	Operation of navigation facilities	51	Reasonable rate of return
24	United States power free of cost to navigation	52	Use and occupancy
25	Maintenance of navigation lights and signals		

2.1.5 WATER RIGHTS

All of PG&E's water rights on the North Fork Kings River are subordinate to the downstream water rights of the Kings River water users (specifically, water rights granted under Application 360 covering Pine Flat Reservoir). Under a 1954 agreement with the Kings River Water Association and a 1955 agreement with the Kings River Conservation District, PG&E obtained the right to use, under certain specific conditions, the waters of the North Fork Kings River and its tributaries for power purposes related to PG&E's hydropower projects on the North Fork Kings River.

Table 2.1-2 shows that PG&E owns, by virtue of applications filed with and permits and licenses granted and issued thereunder by the State of California, the following listed rights to divert, by direct diversion or diversion to storage, the natural flow of the North Fork Kings River and its tributaries for power purposes at the Balch Project powerhouses.

Table 2.1-2. Water Rights Held by PG&E for Power Purposes at the Balch Hydroelectric Project

Application No.	Permit No.	License No.	Priority Date	Storage Reservoirs (ac-ft per annum)[2]		Direct Diversions at Balch Diversion Dam[3] (cfs)
				Courtright Lake	Lake Wishon	
722	980	9105	6/16/1917		112,500	250
1920	984	9106	7/17/1920			250
4703	2495	9107	7/16/1925			220
5685[1]	2996	1180	9/10/1927			6[3]
12242	10317	9103	1/14/1948	61,500		
12243	10318	9104	1/14/1948			40
12724	10319	9770	10/1/1948		22,288	250
12726	10321	10747	10/1/1948	41,000		
18227	12344	10748	7/22/1958	6,335		
			Total	**108,835**	**134,788**	**1,016[4]**

Notes:
1 PG&E intends to request revocation of Application No. 5685 as part of decommissioning of the Black Rock and Weir Creek Feeders.
2 Storage to be collected from November 1 of each year to July 31 of the succeeding year.
3 Except for Applications 5685 and 24512, all diversions are at Balch Diversion Dam.
4 Maximum simultaneous diversions under the separate filings limited to this amount.

2.1.6 EXISTING PROJECT ENVIRONMENTAL MEASURES

Existing Balch Project environmental measures are the existing FERC articles, which are listed in Section 2.1 above. Proposed PG&E provisions are part of the new license and are therefore discussed under the Proposed Project under Section 3 below.

2.2 Proposed Project

This Final MND evaluates the potential environmental impacts of relicensing for a 30- to 50- year term of continued operation of the Balch Project under a new license (herein referred to as the Proposed Project). The Proposed Project includes PG&E's recommendations for continued O&M of the Balch Project; implementation of PG&E's proposed protection, mitigation, and enhancement measures; and decommissioning the Black Rock Creek and Weir Creek feeder facilities, as described in PG&E's FLA and supplemental filings (PG&E 2024).

Under the Proposed Project, PG&E would maintain the O&M activities of the existing license, with a few exceptions described below (Appendix B). No new facilities or substantial modification of existing facilities are proposed at this time. PG&E's proposed changes or modifications to the existing Balch Project, as part of the Proposed Project, are described in detail in the following subsections.

2.2.1 PROPOSED MODIFICATIONS TO THE EXISTING FERC PROJECT BOUNDARY

PG&E proposes several changes to the FERC Project Boundary described in the existing license to more accurately define lands necessary for the safe Proposed Project O&M activities and other purposes, such as recreation and protection of environmental resources. Four categories of proposed FERC Project Boundary changes are as follows:

- Addition of lands to the existing FERC Project Boundary that are currently used mostly for Proposed Project O&M.
- Removal of lands from the existing FERC Project Boundary that do not enclose Proposed Project facilities and are not used or necessary for Proposed Project O&M.
- Changes to the existing FERC Project Boundary around Black Rock Reservoir and Balch Afterbay from surveyed coordinates to a contour located above the Normal Maximum Water Surface Elevation. These changes are consistent with FERC's preferred method of defining the FERC Project Boundary around reservoirs as outlined in the *FERC Drawing Guide* (FERC 2014), and better represent lands required for Proposed Project O&M around the reservoirs.
- Changes to the existing FERC Project Boundary based on updated data and Geographic Information System (GIS) methods which are more accurate than the data used to create the current license application drawings.

The Proposed Project includes decreasing the area within the existing FERC Project Boundary by 59.75 acres (ac) from 708.28 ac to 648.53 ac. Table 2.2-1 summarizes land ownership within PG&E's proposed FERC Project Boundary and the difference between PG&E's proposed FERC Project Boundary and the existing FERC Project Boundary. Note, there is overlap between the Balch Project and PG&E's Haas-Kings River Hydroelectric Project, FERC Project No. 1988.

Table 2.2-1. Area Within the Proposed FERC Project Boundary for the Balch Hydroelectric Project by Landowner and Difference as Compared to the Existing FERC Project Boundary

Area Within FERC Project Boundary (Project)	Area by Landowner (acres)				Total	
	Federal [1]		Other			
	Sierra National Forest	Sequoia National Forest	PG&E	Other	Acres	Percent of Total
Proposed FERC Project Boundary [2]						
Balch and P-1988 Overlap	6.57	0	0	0	*6.57*	*1%*
Overlap Subtotal	*6.57*		*0*			
Balch Only	336.19	56.93	0	202.00	*595.12*	*99%*
Balch Only Subtotal	*393.12*		*202.00*			
Total	**399.69**		**202.00**		**601.69**	**100%**
Difference Between Existing Project Boundary and Proposed FERC Project Boundary						
Balch and P-1988 Overlap	-14.08	0	0	0	*-14.08*	*-2%*
Overlap Subtotal	*-14.08*		*0*			
Balch Only	-92.51	0	0	0	*-92.51*	*-15%*
Balch Only Subtotal	*-92.51*		*0*			
Total	**-106.59**		**0**		**-106.59**	**-18%**

Notes:
1. Forest Service- both Sierra and Sequoia National Forests
2. PG&E calculated the area within the FERC Project Boundary in the existing license using the existing Exhibits J and K and updated GIS data derived from PG&E's relicensing GIS database.

2.2.2 PROPOSED PROJECT FACILITY ENHANCEMENTS

Proposed facility enhancements and decommissioning include:

- **Black Rock Creek and Weir Creek Feeders.** PG&E proposes not to include in the new license the Black Rock Creek Feeder and the Weir Creek Feeder. These facilities have not operated since 2013, are in need of extensive repairs if they were to be returned to operation, and the volume of water they contribute to the Balch Project for power generation is minor. PG&E proposes decommissioning these facilities.
- **Recreational Facilities.** PG&E proposes to include in the new license all existing Balch Project recreational facilities, with modifications to some facilities as described in PG&E's Proposed Measure No. 2, Recreation Management Plan.
- **Roads and Trails.** PG&E proposes to include in the new license, 14.15 miles of vehicular roads and 2.49 miles of trails that are used almost exclusively to access the Balch Project, are operated and maintained exclusively by PG&E for Balch Project purposes and are included within PG&E's proposed FERC Project Boundary. The existing license does not include a clear list of such roads and trails, and some roads within the FERC Project Boundary in the existing license are not Balch Project roads (e.g., are joint use roads that are owned, operated, and maintained by a third party). Refer to FLA Exhibit A, Table A.3.1-2 for a list of non-recreational Proposed Project roads and trails.

2.2.3 MAINTENANCE MODIFICATIONS

Routine Balch Project O&M activities are those that occur regularly at Project facilities and features, are of short duration, and create limited disturbance. Routine Balch Project O&M activities could also occur occasionally, but without a regular schedule, and involve greater levels of disturbance, such as activities that occur over several days, include ground disturbance, or require use of heavy equipment. All maintenance activities described in Section 2.1.3 above will be continuing as part of the Proposed Project.

2.2.4 PROPOSED PROJECT OPERATIONS

The Balch Project is operated according to existing FERC license articles, water rights, and a Coordinated Operations Agreement with the Kings River Water Association, initially executed in 1954 with updates in 1972 and 1999. The Agreement limits PG&E's total combined storage in project reservoirs when Pine Flat Reservoir is below 110,000 ac-ft, which typically only occurs during drought conditions and otherwise does not impact PG&E's operations.

Key aspects of water operations and management under the Proposed Project include maintaining minimum instream flows based on season and water year type, consistent with the current license. Flood period operations ensure peak river flow below Balch Afterbay does not exceed unimpaired flows. Sediment management involves operating LLOs when high inflows require additional releases to maintain reservoir levels, consistent with FERC license Article 44.

PG&E is currently required to maintain continuous minimum regulated flows in the North Fork Kings River. For normal years, flows are from Black Rock Reservoir (5 cfs from June 1 to November 30 and 2.5 cfs from December 1 to May 31), from Balch Afterbay (15 cfs from June 1 to November 30 and 10 cfs from December 1 to May 31), and river flow (30 cfs year-round). In dry years, flows are adjusted to 2.5 cfs from Black Rock Reservoir, 10 cfs from Balch Afterbay, and 20 cfs for river flow year-round. These flows can be temporarily modified for required maintenance, operating emergencies beyond PG&E's control, and public safety, with prior notification to the CDFW Region IV manager.

PG&E operates LLOs at Black Rock Reservoir and Balch Afterbay when high inflows require additional releases to maintain reservoir levels. This operation is guided by the Protocol for Operation of LLO, which ensures spill conditions and meets the Minimum Total River Flow. Each gate may be operated independently, and PG&E will contact CDFW prior to exercising LLOs. Annual operation of LLOs is required to meet safety standards and testing requirements set by California Division of Safety of Dams (DSOD) or FERC.

The Black Rock Reservoir has various LLOs to control flow: one 30-inch gate (250 cfs), two 30-inch gates (500 cfs), one 60-inch gate (900 cfs), one 30-inch and one 60-inch gate (1,150 cfs), and all gates (1,400 cfs). Balch Afterbay's outlets include: one 30-inch gate (230 cfs), one 60-inch gate (840 cfs), and both gates (1,070 cfs). Protocols allow up to 1,400 cfs and 1,070 cfs to be released through the LLOs at Balch Diversion Dam and Balch Afterbay Dam, respectively, during high inflows to maintain reservoir levels and spill conditions. During flood periods, PG&E operates the Balch Project to ensure peak river flow below Balch Afterbay does not exceed unimpaired flows.

2.2.5 PROPOSED ENVIRONMENTAL MEASURES AND MANAGEMENT PLANS

As part of the Proposed Project, PG&E has developed or intends to develop resource management plans to be implemented once the license is issued. The intent of these plans and measures is to protect or enhance the existing environment or to mitigate Project-related effects to existing resources. Table 2.2-2 lists those plans and measures, the resources they are associated with, if they are Proposed, or Modified. Plans listed as Proposed have been developed as part of the current relicensing effort and have been filed with FERC as part of the FLA; those identified as Modified were originally developed as part of the current license and have been updated or revised to be implemented as part of the new license; those identified as Existing are currently in place under the Balch Project and would continue to be implemented under the Proposed Project. Summaries of each management plan are provided in the text that follows the table. For the purposes of this CEQA analysis, these plans and measures are considered to be part of the Proposed Project.

Table 2.2-2. Management Plans and Measures Developed for the Proposed Project

CEQA Environmental Resource Area(s)	Plan or Measure Name	Plan or Measure Status
Aesthetics	PG&E Modified Measure No.9, Visual Resources Management	Proposed
Biological Resources	PG&E Modified Measure No.3, Biological Resources Management Plan	Modified
Biological Resources, Hydrology and Water Quality	PG&E Modified Measure No.6, Flood Period Operations	Modified
Biological Resources, Hydrology and Water Quality	PG&E Modified Measure No.5, Low-Level Outlet Operations	Modified
Biological Resources, Hydrology and Water Quality	PG&E Modified Measure No.1, Minimum Flows and Water Year Types	Modified
Cultural Resources, Tribal and Cultural Resources	PG&E Modified Measure No.14, Historic Properties Management Plan	Modified
Hazards and Hazardous Materials	PG&E Modified Measure No.7, Hazardous Substance Plan	Proposed
Hydrology/ Water Quality	PG&E Modified Measure No.8, Gaging Plan	Proposed
Recreation, Geology and Soils, Land Use and Planning	PG&E Modified Measure No.2, Recreation Management Plan	Modified
Transportation	PG&E Modified Measure No.11, Transportation System Management Plan	Proposed
Wildfire	PG&E Modified Measure No.10, Fire Management and Response Plan	Proposed

2.2.5.1 Visual Resources Management Plan

PG&E, prior to modification, including addition of Proposed Project facilities on USFS lands that may result in changes to the visual environment, will consult with the USFS. PG&E will notify the USFS in writing of the planned modification and identify any potential adverse effects to the visual environment at least 60-90 days prior to the proposed work.

2.2.5.2 Biological Resources Management Plan

The *Biological Resources Management Plan* was prepared for the Proposed Project to define measures to avoid or minimize potential adverse effects on listed sensitive biological resources including special status plant species, wetlands, special status amphibian and aquatic reptile species, and special status bird and mammal species during routine Proposed Project operations. This plan also details measures to reduce the spread of, or adverse effects from, invasive weeds resulting from routine Proposed Project operations. PG&E will implement the plan within 12 months of license issuance.

2.2.5.3 Flood Period Operations

PG&E will, during flood periods, operate the Proposed Project to ensure that peak river flow below Balch Afterbay does not exceed unimpaired flows which would have occurred in the absence of the Proposed Project.

2.2.5.4 Low-Level Outlet Operations

PG&E operates the LLO at Black Rock Reservoir and Balch Afterbay to manage high inflows and maintain reservoir levels. The operation is guided by a protocol that ensures the combination of LLO flows and supplemental flows (spill flows and releases from needle valves) can meet the specified Minimum Total River Flow. Each gate can be operated independently, but if inflows allow, multiple gates may be opened simultaneously.

PG&E will inform the CDFW before using the LLOs. When hydrologic conditions or operational issues provide advance notice, PG&E will give CDFW as much advance notice as possible. Additionally, PG&E operates the LLOs annually or more frequently for safety standards and to meet California DSOD and/or FERC testing requirements. During these tests, the gates are exercised from fully closed to fully open and back. These operations should ideally coincide with the listed river flows, but emergency situations or mandatory testing without the listed flows may occur.

2.2.5.5 Minimum Flows and Water Year Types

PG&E is required to maintain specific minimum flows in the North Fork Kings River for fishery protection, with adjustments allowed for dam maintenance, emergencies, and public safety. The flows, ranging from 2.5-30 cfs, are mandated by the FERC license and are included in PG&E's Proposed Measure No. 1. Any deviations must be reported to the CDFW at least two days in advance, except in emergencies. A dry year is defined by the total runoff forecast for the Kings River at Pine Flat Reservoir by the California Department of Water Resources for the water year period from October 1 to September 30. PG&E will operate the Proposed Project during flood periods to control peak river flow.

2.2.5.6 Historic Properties Management Plan

FERC requires PG&E to develop a *Historic Properties Management Plan* (HPMP) that identifies historic properties, anticipated effects on known historic properties, and proposed measures to protect known and inadvertently discovered historic properties. The purpose of the HPMP is to prescribe specific actions and processes for PG&E to manage historic properties within the FERC Project Boundary once the new license has been issued by FERC. The HPMP provides specific management measures for archaeological sites, built environment resources, and tribal resources identified within the FERC Project

Boundary. On December 20, 2024, PG&E submitted a final HPMP to the California State Historic Preservation Officer (SHPO). PG&E filed the final HPMP via electronic submittal (E-File) with FERC on January 28, 2025 (PG&E 2025).

2.2.5.7 Hazardous Substance Plan

PG&E proposes to file a *Hazardous Substance Plan* with FERC within 12 months after license issuance. The plan will be developed in consultation with the USFS and the State Water Board and include evidence of consultation with the USFS. It will also provide a rationale for any recommendations by the USFS that PG&E does not adopt.

The plan will address substances that pose a significant hazard to human health, safety, or the environment if released. It will cover the storage, transportation, spill prevention, cleanup, and disposal of hazardous substances related to Proposed Project activities. Key components of the proposed plan include:

- A list of hazardous substances and quantities normally stored at each facility, along with containment measures.
- A list of hazardous substances and quantities normally transported between facilities, and measures to ensure safe transportation.
- A description of spill cleanup equipment maintained at facilities where hazardous substances are stored, in vehicles used for transport, and on site during field activities.
- Procedures for reporting spills to the USFS, including details on magnitude, nature, time, date, location, and actions taken.
- Procedures for cleanup and disposal of hazardous substances.
- Procedures for periodic revision of the plan as needed.

PG&E will implement the Hazardous Substance Plan upon approval by FERC.

2.2.5.8 Gaging Plan

PG&E will develop in consultation with the USFS and State Water Board a Gaging Plan which will be filed with FERC within 12 months of license issuance. The plan will detail compliance gages required by the new license. The plan will cover the O&M of these gages, including details on gage ownership, deployment, operation, maintenance, and calibration. Additionally, it will outline data retrieval methods, quality assurance procedures, data storage, and how this information is shared with FERC, USFS, State Water Resources Control Board (SWRCB), and the public. If gages need modification or additional gages are needed to ensure compliance, PG&E will include plans and schedules for these changes. The plan will exclude gages not related to license compliance. PG&E will implement the Gaging Plan upon approval by FERC.

2.2.5.9 Recreation Management Plan

The *Recreation Management Plan* was developed for the Proposed Project, including a list of recreation improvements and reconstruction areas, requirements for planning, design, and construction of the recreation areas, O&M activities, and requirements for a recreation monitoring program. Recreation sites

may be closed for planned or unplanned events, such as construction or repairs, and routine maintenance includes minor repairs, painting, preventive measures, and heavy maintenance of various surfaces. Planned events might include site facility repair or replacement, site reconstruction, and road closures. PG&E's trained staff report law violations to appropriate authorities.

2.2.5.10 Transportation System Management Plan

PG&E proposes filing a *Transportation System Management Plan* with FERC within 12 months after license issuance. Developed in consultation with several federal and state agencies, the plan will cover non-recreation vehicular roads within the FERC Project Boundary used exclusively for Project activities. The plan will include a detailed inventory of Balch Project roads and trails, their current conditions, inspection procedures, maintenance and repair routines, and periodic revisions. PG&E will implement the plan upon FERC's approval. Additionally, PG&E will submit an annual operating plan to the USFS for the O&M activities at all Project recreation sites. This includes routine and heavy maintenance during the recreation season and more frequent upkeep during peak holidays.

2.2.5.11 Fire Management and Response Plan

PG&E's Proposed Measure No. 7, *Fire Management and Response Plan*, aims to reduce fire risk within the FERC Project Boundary by implementing various protective measures. This includes developing a Wildlife Risk Analysis Report, adhering to federal, state, and local laws, regulations, codes, and agreements, and following PG&E Utility Standards related to fire risk management. When working on USFS lands, PG&E will comply with USFS-specific fire prevention requirements, acquire necessary approvals for Proposed Project-related burning, and follow fire prevention actions for fire management tools and equipment. PG&E's personnel will perform vegetation management treatments at Proposed Project facilities to prevent wildfires.

During Project-related activities, PG&E's O&M personnel and contractors will follow all applicable fire prevention and protection laws, regulations, codes, and agreements. PG&E's O&M personnel and contractors will follow utility standards and specific fire prevention measures during the fire precautionary period. On federal lands, PG&E's O&M personnel and contractors will use the USGS Utility Fire Potential Index forecast daily, and on non-federal lands, adhere to CAL FIRE's fire ratings and obtain Hot Work Permits for welding and cutting operations. Vegetation management will follow the *Biological Resources Management Plan*. Fire safety measures will be implemented at recreational facilities, and personnel will report and extinguish fires promptly while cooperating with authorities on fire investigations. The *Transportation System Management Plan* will address Project roads and trails maintenance, and the Fire Management and Response Plan will be reviewed and updated in consultation with relevant agencies when significant changes occur.

2.2.5.12 Pesticide and Herbicide Application

PG&E has not proposed a standalone pesticide and herbicide plan, but pesticide administration will be supervised by a licensed PCA according to a PCR as mandated by the CDPR. Applications will follow a PUP and related environmental analysis for all applications on USFS lands in the Sierra National Forest (SNF). Pesticides will be applied per label instructions, with spill containment and cleanup materials available at job sites. Only United States Environmental Protection Agency (USEPA), CDPR, and federal land manager-approved pesticides will be used, with formulations for aquatic habitats applied only to

those environments. Second-generation anticoagulant rodenticides will not be used. Rodenticide-treated areas will be access-restricted for 24 hours, with burrows covered and carcasses disposed of properly. Vegetation management activities will comply with the *Historic Properties Management Plan*, coordinated with the PG&E Cultural Resource Specialist. Herbicide applications will occur during daylight, dry conditions, with wind speeds below 5 mph, avoiding large-scale broad applications. Treated areas will be marked with signs detailing pesticide information.

3.0 Impact Analysis

This section provides an overview of the existing physical environment and regulatory requirements for each of the resources that may be affected by the Proposed Project. For each resource, there is a discussion of the environmental setting, followed by an evaluation of the potential environmental impacts on the resource. The environmental factors listed below are analyzed herein.

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

3.1 Evaluation and Environmental Impacts

This section presents the impact designations used in the environmental checklist form found in Appendix G of the CEQA Guidelines (State of California 2024). The checklist form is used to describe the potential environmental impacts of the Proposed Project.

For the checklist, the following impact designations are used:

- **Potentially Significant Impact**: An impact that could be significant and for which mitigation has not been identified. If any potentially significant impacts are identified, an Environmental Impact Report (EIR) must be prepared. An Initial Study/Mitigated Negative Declaration (IS/MND) cannot be used if there are potentially significant impacts that cannot be mitigated.
- **Less Than Significant with Mitigation Incorporated**: This designation applies when applicable and feasible mitigation measures, including applicant proposed measures, can reduce an effect from “Potentially Significant Impact” to a “Less Than Significant Impact”.
- **Less Than Significant Impact**: Any impact that would not be considered significant under CEQA, relative to existing standards.
- **No Impact**: The Proposed Project would not have any impact.

3.2 Aesthetics

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

3.2.1 ENVIRONMENTAL SETTING

The upper portion of the Proposed Project is located at an elevation of approximately 4,100 to 1,500 feet, on the western slope of the Sierra Nevada within the SNF. Overall, the land in the upper portion of the Proposed Project is steep river canyons and densely forested areas. The lower portion of the Proposed Project extends from an elevation of approximately 1,500 feet to 500 feet near the town of Piedra. This area is gently sloping with a southerly aspect. Public views within the Proposed Project area would be limited to views from recreational areas (e.g., campgrounds, trails), sporadic residences, and along public access roadways.

Scenic corridors are lands comprised of scenic and natural features visible from designated highway rights-of-way. Boundaries of a scenic corridor are determined by the visible landscape as defined by topography, vegetation, viewing distance, and/or jurisdictional lines. A search of the Caltrans Scenic Highway Mapping System indicates that no designated or eligible National Scenic Byways occur in the Proposed Project area (Caltrans 2025). In addition, Fresno County designated one scenic highway in the Balch Project vicinity – State Highway 180 from Trimmer Springs Road to the Tulare County boundary. This highway does not provide views of the Proposed Project.

3.2.2 IMPACT ANALYSIS

a) Would the project have a substantial adverse effect on a scenic vista? (Less Than Significant Impact)

Aside from minor modifications to existing recreational facilities infrastructure and the decommissioning of the Black Rock Creek and Weir Creek feeder facilities, the Proposed Project does not involve any new construction of structures that would impact scenic vistas in the area. Existing O&M activities would continue within the Proposed Project area, as under current conditions. Improvements to the recreational areas and decommissioning activities may have a temporary visual impact to recreational users within the Balch Project area as vehicles and equipment mobilize and demobilize to work areas; however, construction equipment and materials are expected to be minimal. Specifically for recreational areas, where viewer sensitivity is higher and fixed, PG&E plans to undertake construction activities during periods outside of the sites' peak recreation season, when possible, to limit impacts to recreational users. Further, recreational area improvements will be phased over several years and across recreational sites, thus limiting visual impacts to recreational users for prolonged periods of time. Therefore, the Proposed Project would result in a less than significant impact related to impacts on a scenic resource.

b) Would the project substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway? (No Impact)

There are no state scenic highways within the Proposed Project area. Therefore, there is no impact.

c) In non**-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). 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)**

Public views within the Proposed Project area would be limited to views from recreational areas (e.g., campgrounds, trails) and along public access roadways. Viewer sensitivity would be higher in recreational areas where positions are more stationary when compared to views for motorists that are passing through an area. As discussed under Section 3.2.2(a) above, construction activities associated with the Proposed Project are limited to recreational area improvements and the decommissioning of the Black Rock Creek and Weir Creek feeder facilities. Specifically for recreational areas, where viewer sensitivity is higher and fixed, PG&E plans to undertake construction activities during periods outside of the sites' peak recreation season, when possible, to limit impacts to recreational users and their associated visual sensitivity. Further, recreational area improvements will be phased over several years and across recreational sites, thus limiting visual impacts to recreational users for prolonged periods of time. Therefore, the Proposed Project would result in a less than significant impact related to degradation of existing visual character and quality of the area.

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

Proposed Project construction activities are limited to recreational area improvements and the decommissioning of the Black Rock Creek and Weir Creek feeder facilities. Construction activities

have the potential to include additional lighting as work is being completed and additional glare from vehicles in the area. It is not anticipated that any nighttime work would be required for recreational improvements, and daytime lighting and glare impacts would be limited in nature depending on exact location and time of day. Any additional lighting and glare associated with construction activities is anticipated to blend with the existing developed nature of the recreational areas and would not result in substantial impacts. Improvements associated with the recreational area include installing animal resistant food lockers, vehicle barriers, and additional and improved signage. Once constructed, these features would blend with the existing recreational facilities in the area and would not result in substantial new sources of lighting or glare. Therefore, the Proposed Project would result in a less than significant impact related to new sources of lighting and glare in the area.

3.3 Agriculture and Forest Resources

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined by Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production as defined by Government Code Section 51104(g))?			X	
d) Result in loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use, or conversion of forest land to non-forest use?				X

3.3.1 ENVIRONMENTAL SETTING

The area surrounding the Proposed Project is sparsely populated, primarily consisting of personnel associated with hydroelectric operations and a few seasonal residents. The infrastructure within the area is limited and primarily serves the operational needs of the Balch Project. Surrounding land uses provide access for recreational activities such as hiking, fishing, and camping, particularly in the nearby SNF.

The agricultural land in proximity to the Proposed Project is primarily located adjacent to (or directly overlapping with) the transmission line components, approximately 17 miles to the southwest of the reservoir. The transmission line portion of the Proposed Project traverses a variety of land types which, as it approaches the hydroelectric components of the Proposed Project to the east, transition from primarily flat parcels of monoculture to more topographically variable Sierra Nevada foothills, featuring a mix of conifers, oak woodlands, and chaparral. Land within and adjacent to the FERC Project Boundary is not used or zoned for forestry purposes. Vegetation management activities are proposed to reduce wildfire risk, protect Proposed Project facilities, protect sensitive resources, manage target invasive weeds, improve the health, sustainability, habitat value, and improve fire resilience of vegetation within the FERC Project Boundary. Vegetation management work would include pruning and removal of nuisance

vegetation that may encroach into PG&E's minimum clearance distances, presents a potential fire hazard, impedes access, or obscures the inspection of facilities.

PG&E proposes including 14.15 miles of vehicular roads and 2.49 miles of trails within the FERC Project Boundary, all maintained for Balch Project purposes. There is a plan to install food lockers at Black Rock Campground, improve accessibility and signage at Black Rock Scenic Overlook, and enhance vehicle barriers and parking at Williams Creek Fishing Access. Additionally, PG&E aims to decommission a dispersed camping site along Black Rock Reservoir Road to reduce resource impacts and wildfire risks.

3.3.2 IMPACT ANALYSIS

a) Would the project convert Prime, Unique or Statewide Importance Farmland to non-agricultural use? (Less Than Significant Impact)

The transmission line component of the Proposed Project overlaps Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in Fresno County, as mapped by the Farmland Mapping and Monitoring Program of the California Resources Agency (California Department of Conservation [DOC] 2022). However, aside from minor modifications to existing recreational facilities infrastructure at both the Black Rock Scenic Overlook and Williams Creek Fishing Access, (PG&E 2024) which are not in agricultural areas, the Proposed Project does not involve any new construction or expansion. Construction is thus not expected to occur on any of the important farmlands with which the FERC Project Boundary overlaps. Although the scope of work pertaining to the transmission line components of the Proposed Project primarily have to do with refining existing FERC boundaries, routine O&M activities to transmission infrastructure is assumed to occur in the future. Therefore, the Proposed Project would not convert any such farmland to non-agricultural use and the impact would be less than significant.

b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract? (No Impact)

Minor modifications are proposed to the existing recreational facilities infrastructure at both the Black Rock Scenic Overlook and Williams Creek Fishing Access, which are not in agricultural areas. The Proposed Project parcels at these locations are zoned by the County of Fresno as RC (Resource Conservation) (County of Fresno 2022) and do not overlap with lands subject to Williamson Act consideration (DOC 2024). The transmission line components of the Proposed Project between the community of Piedra and the Pine Flat Reservoir do overlap with lands under Williamson Act contracts, although no ground-disturbing or otherwise land converting activities are proposed at these locations. Therefore, the Proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, there would be no impact.

c) Would the 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))? (Less Than Significant Impact)

While the Proposed Project setting is compatible with the definition of forest land per the definition stipulated in Public Resources Code Section 12220(g), (California Public Resources Code 2007). Since the scope of relicensing is primarily for an overall correction and reduction in the FERC

Project Boundary parameters, it would not cause a change in lands zoned as forest land, timberland, or timberland zoned Timberland Production and the impact would be less than significant.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use? (No Impact)

Aside from minor modifications to existing recreational facilities, the Proposed Project does not involve any new construction or expansion that would result in the loss of forest land or conversion of forest land to non-forest use. The existing infrastructure would continue to be used without significant changes to the surrounding forest land. Therefore, there would be no impact.

e) Would the 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? (No Impact)

The Proposed Project does not involve any changes that would result in the conversion of farmland to non-agricultural use; the facility modifications are in a mountainous region which does not overlap with farmland. Further, as described above (Section 3.3(c)), the net result of the Proposed Project relicensing would be no change in available forest land. Therefore, there would be no impact.

3.4 Air Quality

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

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

3.4.1 ENVIRONMENTAL SETTING

The Proposed Project site is located within the San Joaquin Valley Air Basin (SJVAB) and is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD).

The SJVAB has an “inland Mediterranean” climate and is characterized by long, hot, dry summers and short, wet winters. The mountains surrounding the SJVAB form natural horizontal barriers to the dispersion of air contaminants. Air pollution in the SJVAB can be attributed to both human-related (anthropogenic) and natural (non-anthropogenic) activities that produce emissions. Air pollutants from significant anthropogenic activities in the SJVAB include a variety of industrial-based sources as well as on- and off-road mobile sources. Activities that tend to increase mobile activity include increases in population, increases in general traffic activities (including automobiles, trucks, aircraft, and rail), urban sprawl (which will increase commuter driving distances), and general local land management practices as they pertain to modes of commuter transportation. These sources, coupled with geographical and meteorological conditions unique to the area, stimulate the formation of unhealthy air.

The USEPA and California Air Resources Board (CARB) designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. The SJVAB is designated as nonattainment for federal standards for ozone (O_3) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) as well as state standards for O_3, $PM_{2.5}$, and particulate matter less than 10 microns in diameter PM_{10} (SJVAPCD 2025). Accordingly, the SJVAPCD has prepared air quality plans, including the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards and the 2022 Ozone Plan, to achieve attainment of the applicable O_3 and $PM_{2.5}$ standards.

The SJVAPCD recommends that its quantitative air pollution thresholds, shown in Table 3.4-1, be used to determine the significance of project emissions in CEQA analyses. If the Lead Agency finds that a project

has the potential to exceed these air pollution thresholds, a project should be considered to have significant air quality impacts.

Table 3.4-1. SJVAPCD Significance Thresholds

Pollutant	Significance Threshold (tons per year [tpy])	
	Construction Emissions	Operational Emission
ROG	10	10
NO_X	10	10
CO	100	100
SO_X	27	27
PM_{10}	15	15
$PM_{2.5}$	15	15

Source: SJVAPCD 2015.

3.4.2 IMPACT ANALYSIS

a) Would the project conflict with or obstruct implementation of the applicable air quality plan? (Less Than Significant Impact)

Air districts are required to prepare air quality plans to identify strategies to bring regional emissions into compliance with state and federal air quality standards. Air districts establish emissions thresholds for individual projects to demonstrate the point at which a project would be considered to increase the air quality violations. A project would conflict with the applicable air quality plan if they exceeded any emissions thresholds for which the region is in nonattainment.

As noted previously, the SJVAB, in which the Proposed Project site is located, is designated as a nonattainment for federal standards for O_3 and $PM_{2.5}$ as well as state standards for O_3, $PM_{2.5}$, and PM_{10} (SJVAPCD 2025). As a result, the SJVAPCD has prepared air quality plans, including the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards and the 2022 Ozone Plan, to achieve attainment of the applicable O_3 and $PM_{2.5}$ standards. The SJVAPCD's Guidance states that projects that fall below the thresholds of significance for criteria air pollutants would be determined to not conflict with the SJVAPCD's air quality plans. Projects that exceed the thresholds would be considered to conflict with the applicable air quality plans (SJVAPCD 2015).

As described under Impact (b), below, the Proposed Project would not exceed the thresholds established by the SJVAPCD. In developing thresholds of significance for air pollutants, the SJVAPCD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions.

Construction activities result in emissions of criteria pollutants due to the use of off-road equipment, heavy-duty haul trucks, and employee commutes. In addition, fugitive dust is generated from earth-moving activities. For this analysis, demonstrative emissions modeling was conducted to reflect construction activities that would be associated with the proposed

decommissioning of the Black Rock Creek Feeder and the Weir Creek Feeder, and modifications to some facilities as described in PG&E's proposed *Recreation Management Plan*. The construction details are not known at this time. As a result, the emissions modeling conducted for this Proposed Project is based on the assumed disturbance area for the proposed facility modifications and relies on model default values for the construction schedule, equipment types and hours of use, and worker and haul truck trips. This estimate is conservative and represents a good-faith effort to provide a quantitative analysis. It was assumed that all facility modifications would occur at the same time to account for any potential overlap in construction activities. CalEEMod Version 2022.1.1.29 was used to estimate construction emissions from the Proposed Project. The estimated criteria for pollutant emissions associated with Proposed Project construction are presented in Table 3.4-2.

Table 3.4-2. Construction Criteria Pollutant Emissions (Unmitigated)

	Emissions (tpy)					
Construction Year	**ROG**	**NOx**	**CO**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
2029	0.15	1.34	1.85	<0.005	0.22	0.13
2030	0.02	0.16	0.26	<0.005	0.01	<0.005
SJVAPCD Thresholds	**10**	**10**	**100**	**27**	**15**	**15**
Exceed Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod calculations are available upon request.

As a result, the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan, and impacts would be less than significant.

b) Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard? (Less Than Significant Impact)

As shown in the table above, the modeled Proposed Project construction emissions would not exceed SJVAPCD thresholds of significance. Actual emissions are expected to be fewer than what is presented in Table 3.4-2. Nonetheless, the details of decommissioning the Black Rock Creek and Weir Creek feeders and other improvements will be defined through future planning efforts and will be subject to further environmental review as part of the permitting process, and construction activities will comply with all applicable best management practices (BMPs) to reduce criteria pollutant emissions.

Implementation of the Proposed Project would include minor improvements and modifications to existing facilities and would not result in a permanent increase in population, housing, employment, or vehicle trips in the region. As a result, the Proposed Project's operational emissions would be similar to existing conditions.

Based on the discussion above, implementation of the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is

nonattainment under an applicable federal or state ambient air quality standard, and the impact would be less than significant.

c) Would the project expose sensitive receptors to substantial pollutant concentrations? (Less Than Significant Impact)

Sensitive receptors are defined as populations that are more susceptible to the effects of pollution than the population at large. Sensitive receptors are facilities occupied by children, the elderly, and people with illnesses or others who are especially sensitive to the effects of air pollutants. Land uses identified to be sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The Project area is located approximately 45 miles northeast of the City of Fresno in a rural, forested area. Sensitive receptors are not located in the immediate vicinity of the planned improvements.

SJVAPCD has established a screening threshold for localized impacts of criteria air pollutants of 100 pounds per day. Proposed Project emissions would fall below the screening threshold for all applicable criteria pollutants, and localized impacts would not occur. Nevertheless, the following discussion includes a qualitative evaluation of whether fugitive dust, Valley fever spores, or diesel particulate matter (DPM) emissions from construction equipment may adversely affect receptors that may be present in the Balch Project area.

Fugitive dust would be generated during Proposed Project construction and, specifically, earth-moving activities. Most of this fugitive dust would remain localized and would be deposited near the Proposed Project site. Additionally, SJVAPCD Regulation VIII, Fugitive PM_{10} Prohibitions, is designed to reduce PM_{10} emissions generated by human activity, including construction activities. The Proposed Project would be subject to all applicable requirements under Regulation VIII. Finally, as demonstrated in Table 3.4-2, PM_{10} emissions from construction would not exceed the applicable threshold of significance.

Valley fever is an infection caused by inhalation of the spores of a fungus that lives in soil. Activities or conditions that increase the amount of fugitive dust contribute to greater exposure, and they include dust storms, grading, and recreational off-road activities. The San Joaquin Valley is considered an endemic area for Valley fever. Construction activities included as part of the Proposed Project would generate fugitive dust that could contain *C. immitis* spores. However, as noted above, the Proposed Project would minimize the generation of fugitive dust during construction activities by complying with SJVAPCD's Regulation VIII. Consistent with Regulation VIII, during construction, water trucks would be used during phases with exposed soils to further reduce dust emissions and the associated exposure to *C. immitis* spores. Overall, implementation of the Proposed Project would not expose receptors to Valley fever.

Exposure to DPM from diesel vehicles and off-road construction equipment can result in health risks to receptors. Although the Proposed Project would involve the use of diesel-fueled vehicles and off-road equipment, construction would be intermittent and temporary. According to CARB, DPM emissions have also been shown to be highly dispersive in the atmosphere with the DPM concentration decreasing with distance from the source (CARB 2005). Therefore, given the substantial distance to the nearest receptors, the concentration of DPM at reaching receptors

would be substantially reduced, and construction of the Proposed Project would not result in a health risk exposure from DPM.

The Proposed Project site is not located near any known serpentine rock formations (USGS 2011), and receptor exposure to naturally occurring asbestos would not occur.

Based on the discussion above, the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations, and the impact would be less than significant.

d) Would the project create objectionable odors affecting a substantial number of people? (Less Than Significant Impact)

While offensive odors rarely cause any physical harm, they can still be unpleasant, leading to distress among the public and often generating citizen complaints. The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source, the wind speed and direction, and the sensitivity of the receptor.

Construction activities associated with the Proposed Project could result in short-term odorous emissions from diesel exhaust associated with diesel-fueled equipment. However, these emissions would be intermittent and would dissipate rapidly from the source. Additionally, construction activities would be minimal, and emissions would disperse rapidly from the Proposed Project site. SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJVAB, which include wastewater treatment facilities, landfills, petroleum refineries, chemical manufacturing, and others (SJVAPCD 2015). The Proposed Project would not involve the implementation of any such land uses. Furthermore, SJVAPCD regulates objectionable odors through Rule 4102, Nuisance. Thus, although not anticipated, if odor complaints are made after the Proposed Project is developed, SJVAPCD would ensure that such odors are addressed, and any potential odor effects are minimized or eliminated.

Overall, the Proposed Project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people, and the impact would be less than significant.

3.5 Biological Resources

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

3.5.1 ENVIRONMENTAL SETTING

3.5.1.1 Fish and Aquatic Wildlife

This section discusses fish and other aquatic resources, wildlife, and botanical resources; this includes Endangered Species Act (ESA)-listed and other special status species present or with potential to occur within the proposed FERC Project Boundary. Section 3.2.2 describes PG&E's proposed measures related to fish, wildlife, and botanical resources and assesses the potential impacts to these resources, including ESA-listed and other special status species, under PG&E's Proposed Project, and presents impact

determinations. The descriptions use existing, relevant, and reasonably available information and include results from the relicensing studies conducted by PG&E.

Aquatic Habitat

Reservoir Habitat

Black Rock Reservoir and Balch Afterbay are small, oligotrophic storage reservoirs that exhibit little to no thermal or chemical variation throughout the water column, reflecting short residence times and good upstream water quality conditions (PG&E 2024, Section E.4.6.1.1). *In situ* water quality profiles taken during 2023 water quality sampling were generally within the tolerance range of salmonids (i.e., <20°C and >7 milligrams per liter (mg/L) for temperature and dissolved oxygen, respectively) (Moyle 2002, PG&E 2024, Section E.4.6.1.1). Dissolved oxygen measurements ranged from 8.8 to 10.0 mg/L in Black Rock Reservoir and 9.8 to 10.4 mg/L in Balch Afterbay. Surface water temperatures were less than 15°C in both reservoirs (PG&E 2024, Section E.3.2.3.2).

In addition to inflow from the North Fork Kings River and its main tributaries in the reach upstream of Black Rock Reservoir (i.e., Long Meadow, Teakettle, and Rancheria creeks), Black Rock Reservoir receives relatively large volumes of water from the hypolimnion of Lake Wishon via P-1988's Haas Powerhouse. The discharge from the powerhouse is generally cool (<14.5°C), with dissolved oxygen levels at or near saturation (PG&E 1986a). Dissolved oxygen concentrations (>7 mg/L) were suitable for trout (Moyle 2002, PG&E 2024, Section E.3.2.3.2). No major groundwater aquifers are known to exist in the higher elevation of the Proposed Project area (PG&E 1986a).

Stream Habitat

Aquatic habitat within potentially impacted Proposed Project stream reaches is generally confined within the steep North Fork Kings River canyon with brush-covered slopes, bedrock substrates, and cold water. The watershed was formed by deep incision into predominantly granitic bedrock; streams flow over bare granitic rock and through boulders and gravels in stream canyons (PG&E 1986a). Mobile channel sediment deposits range from small boulder to cobble, gravel, and sand, derived from weathered bedrock, including decomposed granite.

Streams within the Proposed Project area exhibit a wide variety of habitat types, including runs, riffles, fast-current pools, deep pools and low- and high- gradient cascades (PG&E 1986a). The reach between Wishon Dam and Black Rock Reservoir is variable, with low-gradient sections comprised primarily of runs, pools, and riffles dispersed with higher-gradient stretches of cascades and large pools (PG&E 1986a). Three major tributaries enter the North Fork Kings River between Wishon Dam and Black Rock Reservoir: Long Meadow Creek, Teakettle Creek and Rancheria Creek. Both Long Meadow and Teakettle creeks are small, perennial streams entering the western slope of North Fork Kings River canyon either as a fall (i.e. Long Meadow) or a high-gradient cascade (i.e. Teakettle). Rancheria Creek is a larger perennial stream and enters the North Fork Kings River from the east slope of the canyon as a series of waterfalls.

The reach between Balch Diversion Dam and Balch Afterbay (approximately 1,703–3,963 feet in elevation) is steep (average gradient of 10 percent [%]) and dominated with numerous falls and pools that limit fish passage (PG&E 1986, PG&E 2024). No major tributaries enter the river through this stretch. The substrate is primarily bedrock and boulder, with significant deposits of sand and silt (PG&E 1986a).

Balch Project facilities at Balch Diversion Dam and Balch Afterbay Dam regulate flows in stream reaches. PG&E releases flows from Black Rock Reservoir to the North Fork Kings River at Balch Diversion Dam, and from Balch Afterbay into the North Fork Kings River at the Balch Afterbay Dam. This stream reach is also fed by Black Rock, Weir, and Patterson creeks along the 5.0-mile reach before entering Balch Afterbay, which also receives inflow from both Balch powerhouses. From 1980 – 2022, seasonal median flow below Balch Diversion Dam was approximately 9.9 cfs between December – May, and 7.3 cfs between June – November; maximum recorded flows occurred in June 2017 at 7,140 cfs, and minimum recorded flows occurred in October 2000 at 0.62 cfs. Below Balch Afterbay Dam, seasonal median flow between 1980-2022 was 19 cfs between December – May, and 18 cfs between June – November; maximum recorded flows occurred in June 2017 at 5,180 cfs, and minimum recorded flows occurred in November 1986 at 6.6 cfs.

Current minimum instream flow release requirements range from 2.5–5.0 cfs downstream of Balch Diversion Dam into the North Fork Kings River and range from 10–15 cfs downstream of Balch Afterbay Dam. FERC's historical determination was that these flows were adequate to ensure protection of aquatic life (FERC 1980). However, since 2000, there have been several records of minimum instream flows at USGS Gage No. 11216200 and PG&E Gage No. KI-9 downstream of Black Rock Reservoir below the 2.5 cfs minimum requirement. For additional information, see Section 3.3.1.2 of this document.

The current streamflow requirement schedule was informed by the *Fisheries Resources Agreement* between PG&E and California Department of Fish and Game (1976). Based on this agreement, FERC adopted the current minimum instream flow releases to protect and/or enhance fish populations downstream of Balch Diversion Dam. FERC's determination on these flows found that the terms of the agreement (incorporated in part in Articles 38 and 39 of the existing license) were adequate to ensure protection of aquatic fish and their habitats (FERC 1980).

A subsequent instream flow incremental methodology (IFIM) study was conducted in 1985 to further evaluate available stream habitat in the North Fork Kings River (PG&E 2021). The IFIM study consisted of four main components: (1) habitat mapping to identify the relative location of habitat types in stream reaches, including the North Fork Kings River from Balch Diversion Dam to Balch Afterbay and Balch Afterbay Dam to Dinkey Creek; (2) collection of hydraulic data at one IFIM site within the North Fork Kings River between Balch Afterbay Dam and Dinkey Creek; (3) development of an IFG4 hydraulic simulation model; and (4) application of habitat utilization data for resident trout within the IFIM study reach using the habitat evaluation model HABTAT (PG&E 2021).

Due to the high gradient (10%) of the reach downstream of Balch Diversion Dam, the IFIM study reach was located within the 1.5-mile reach between Balch Afterbay Dam and the confluence with Dinkey Creek (approximately 1,245–1,539 feet in elevation) (PG&E 2021). The study reach has a mean streambed width of about 60 feet and contains a significant proportion of boulder substrate. Ten transects were established within the reach where dominant substrate, cover type, depth, and velocity were measured (PG&E 2021). Unlike the steep, bedrock/boulder-dominated reach between Balch Diversion Dam and Balch Afterbay (approximately 1,703–3,963 feet in elevation), the study reach downstream of Balch Afterbay has a moderate gradient (3.5%) with rubble riffles, boulder runs, and long, slow moving pool habitats. The study included site-specific habitat suitability criteria curves developed for juvenile and adult brown and rainbow trout (PG&E 2021). Although the reach is predominantly comprised of transitional

zone fish species (i.e., native minnows and Sacramento sucker), flow-related habitat for these species was not evaluated.

IFIM results indicated that brown trout juvenile and fry habitat values decreased rapidly at flows greater than the lowest measured flows of about 5 cfs, while adult and spawning habitat peaked between about 10 and 30 cfs (PG&E 2021). Rainbow trout fry habitat value also decreased rapidly at flows greater than the lowest measured flows of about 5 cfs, but rainbow trout juvenile habitat peaked near 10 cfs and maintained relatively high values up to approximately 65 cfs (PG&E 2021). Rainbow trout adult habitat value increased until 60 cfs and then leveled off, and spawning habitat increased at flows greater than about 100 cfs, peaking between approximately 130 and 140 cfs.

Following FERC license issuance in 1980, additional water temperature and stream habitat monitoring was conducted downstream of Balch Diversion Dam and Balch Afterbay Dam (PG&E 1986a), and the Water Temperature Study of the North Fork Kings River below Balch Afterbay was completed (PG&E 1994). The studies included additional recommendations for streamflow releases downstream of Balch Afterbay Dam and from the Dinkey Creek Siphon for the protection and enhancement of fishery resources in the Kings River bypassed reach (P-1988), which were adopted into the P-1988 FERC license (FERC 2001).

Balch Project operations appear to support preferred thermal conditions for trout downstream of Balch Diversion Dam and a transitional zone fish assemblage downstream of Balch Afterbay Dam, and Balch Project operations that influence water temperatures do not adversely impact fish populations in potentially impacted stream reaches. Stream water temperatures are generally cold immediately downstream of Balch Diversion Dam and increase downstream to Balch Afterbay, as the water is warmed by ambient air temperatures (PG&E 2024). Stream water temperatures immediately downstream of Balch Afterbay are generally cool (<17.6°C) due to the cold-water inputs from the Balch powerhouses. Stream water temperatures in the approximately 1.5-mile reach downstream of Balch Afterbay Dam to Dinkey Creek follow a similar warming pattern as those downstream of Balch Diversion Dam. North Fork Kings River stream temperatures reached a mean daily maximum temperature of 21.5°C just upstream of the confluence with Dinkey Creek between in August 2022 (dry water year), and a mean daily maximum temperature of 14.8°C in August 2023 (normal water year) (PG&E 2024). Project operations appear to support preferred thermal conditions for trout downstream of Balch Diversion Dam and a transitional zone fish assemblage downstream of Balch Afterbay Dam (including hardhead, a CDFW Species of Special Concern and USFS SCC) (PG&E 2024).

Spawning Habitat

Spawning habitat for trout in Black Rock Reservoir is available within the North Fork Kings River and its tributary streams upstream of Black Rock Reservoir. These sections of the stream include high-gradient sections of cascades and plunge pools that flow through granite gorges and low-gradient sections consisting primarily of runs, pools, and riffles (PG&E 2024, Section E.4.1.1.4). Based on monitoring efforts conducted upstream of Black Rock Reservoir since the 1980s, fish abundance and biomass in these sections are reduced as elevation increases, suggesting movement may be limited by passage barriers as elevation increases (PG&E 2013). Available spawning habitat in this area may be limited. Balch Afterbay does not have a significant littoral zone that would provide potential juvenile fish habitat due to the steep canyon walls along its shores (PG&E 1986a). The near-vertical canyon walls and multiple physical passage barriers throughout the North Fork Kings River, including one less than 500

feet upstream of the impoundment, restrict access for rainbow and brown trout in the impoundment to spawning habitat and generally cause a one-direction, downstream movement of fish into Balch Afterbay from the upstream reach.

Studies identified sites directly below Black Rock Reservoir and at the confluence of the North Fork Kings River and Weir Creek as viable spawning habitat for both rainbow and brown trout (PG&E 2021). Population densities at the upper site, directly below Black Rock Reservoir, were six times denser than populations estimated at the lower site, likely due to difference in habitat types and amounts of cover (PG&E 2021). In the North Fork Kings River downstream of Balch Diversion Dam and upstream of Balch Afterbay, high-gradient stream habitat likely limits available spawning and juvenile rearing habitat. Increased available spawning and habitat is likely present downstream of Balch Afterbay Dam. The North Fork Kings River continues to flow through a steep canyon to the confluence with Dinkey Creek where lower-gradient sections and large pools are prevalent (Cardno ENTRIX 2012a).

Project-related influences on gravel supply do not appear to adversely impact fish recruitment in the North Fork Kings River downstream of Balch Diversion Dam and between Balch Afterbay Dam and the confluence with Dinkey Creek (PG&E 2024). The presence of young of year (YOY) brown and rainbow trout in potentially impacted stream reaches during 2022 surveys indicates that spawnable sediment is present within these two reaches to provide for natural recruitment. Additionally, the typical age-class structure of fish observed in potentially impacted stream reaches indicates that successful recruitment has occurred over several years (PG&E 2024).

Fish

Common Fish Species

As part of PG&E relicensing Study AR-1, Fish Sampling, and PG&E's P-1988 fish population monitoring in 2022, reservoir gillnetting, boat electrofishing, backpack electrofishing and snorkeling were conducted in Black Rock Reservoir, Balch Afterbay, and stream reaches. The length-frequency distribution of brown trout (*Salmo trutta*) captured indicates that multiple age classes are present, from YOY to age 3+ fish, whereas rainbow trout (*Oncorhynchus mykiss*) captured were likely from the 2+ and 3+ age classes. Four fish species were observed in the Balch Project area. Brown trout (were the most abundant in Black Rock Reservoir, followed by rainbow trout. In Balch Afterbay, a lower abundance of brown and rainbow trout was observed and higher abundances of unidentified native cyprinids (minnows), Sacramento pikeminnow (*Ptychocheilus grandis*), and Sacramento sucker (*Catostomus occidentalis*).

Of these four species, Sacramento pikeminnow and Sacramento sucker are native to California, while brown trout are introduced; however, rainbow trout are native to the North Fork Kings River downstream of Balch Afterbay but were introduced to upstream waters. Current populations in potentially impacted reaches are likely naturalized from populations previously stocked to support angling; however Balch Afterbay is now closed to angling and all surface recreation (PG&E 1986a). Although historically stocked to support angling, no current stocking program exists in Balch Project impoundments or potentially impacted stream reaches. Fish composition in Balch Afterbay is expected to reflect populations in the upstream reach (i.e., brown and rainbow trout) because fish can only migrate downstream from the North Fork Kings River due to the numerous passage barriers upstream of the afterbay and Balch Diversion Dam itself (PG&E 2024).

Within Black Rock Reservoir, fish population surveys were conducted along reservoir shoreline locations and along reservoir margins at depths ranging from 5 to 38 feet. Fish captured were generally in good condition with an average condition factor of 1.2 and 1.1 for brown and rainbow trout, respectively, which reflects a healthy nutritional state related to size and growth based on habitat conditions, including water temperature, water quality, and food resources. During the 2022 reservoir fish surveys, 15 fish were captured in the vicinity of the Balch Tunnel Intake. Limited distribution of fish and swim speed calculations suggest a low risk of involuntary entrainment into the Balch Tunnel Intake (PG&E 2024, Section E.4.6.1.1).

Stream fish surveys were conducted downstream of Balch Diversion Dam at the reach 0.5 miles below Balch Diversion Dam and immediately upstream of the confluence with Weir Creek. During the 2022 stream sampling, 115 brown and rainbow trout were observed. Brown trout was the more abundant fish species at the upstream site, while rainbow trout was more abundant at the downstream site. Brown and rainbow trout observed in the North Fork Kings River downstream of Balch Diversion Dam represented YOY, 1+, 2+, and 3+ age classes, and were generally in good condition with an average condition factor of 1.1 and 1.3 for brown and rainbow trout, respectively. The age-class distribution is typical for stream fish populations and indicates successful recruitment in the reach (Moyle 2002, PG&E 2024).

Balch Project-affected stream reaches support a cold-water fish assemblage between Balch Diversion Dam and Balch Afterbay, with both cold water rainbow trout and transitional zone pikeminnow-hardhead-sucker fish assemblages present between Balch Afterbay Dam and the confluence with the Kings River. Weir, Black Rock, and Patterson creeks are ephemeral or intermittent and were fishless during surveys in 1975 and 1985. Patterson Creek is intermittent with numerous passage barriers over steep, sheer bedrock, likely precluding establishment of trout populations.

Downstream of Dinkey Creek to the confluence with the mainstem Kings River, temperatures in the North Fork Kings River increase, and the fish assemblage transitions to include more warmwater fish species such as hardhead, smallmouth bass (*Micropterus dolomieu*; introduced), largemouth bass (*Micropterus salmoides*; introduced), spotted bass (*Micropterus punctulatus;* introduced), speckled dace (*Rhinichthys osculus;* native), California roach (*Hesperoleucus symmetricus;* native), riffle sculpin (*Cottus gulosus;* native), and prickly sculpin (*Cottus asper*; native) (PG&E 1985, 1986, 2003, 2008, 2013, 2018a, 2023; Tetra Tech 1986).

The 2022 fish survey results indicate that the current instream flow releases from Balch Project dams support healthy and self-sustaining trout populations between Balch Diversion Dam and Balch Afterbay, and a transitional zone fish assemblage between Balch Afterbay Dam and Dinkey Creek (PG&E 2024). The presence of fish in good condition, multiple age classes of trout, including YOY fish, and a typical age-class structure in the reach between Balch Diversion Dam and Balch Afterbay indicate successful recruitment in recent years.

Similar to previous survey years, brown trout was the more abundant fish species at the upstream site, while rainbow trout was the more abundant fish species at the downstream site. Fish captured between Balch Diversion Dam and Balch Afterbay had average condition factors ranging from 1.1 for brown trout to 1.3 for rainbow trout, reflecting a healthy nutritional state generally indicative of suitable habitat conditions, including water temperature, water quality, and food resources. Fish abundance and biomass in the North Fork Kings River between Balch Diversion Dam and Balch Afterbay were lower in 2022

relative to 1985, whereas fish population levels between Balch Afterbay Dam and the confluence with Dinkey Creek were similar to historical populations.

Special Status Fishes

No anadromous or catadromous fish species, ESA-listed or California Endangered Species Act (CESA)-listed fish species, ESA-designated critical habitat for fish, essential fish habitat as defined by the Magnuson-Stevens Fishery Conservation and Management Act, or migratory fish occur within Blackrock Reservoir or Balch Afterbay, or potentially impacted stream reaches.

One special status fish species—hardhead (*Mylopharodon conocephalus*; CDFW Species of Special Concern [SSC] and SNF and SQF Species of Conservation Concern [SCC])—is known to occur in the North Fork Kings River downstream of the Dinkey Creek confluence (PG&E 2023). Hardheads have the potential to migrate upstream of the Dinkey Creek confluence and inhabit the reach of the North Fork Kings River downstream of Balch Afterbay. This is further supported by observations of hardhead reported in studies conducted in 1968, 1970, and 1985 (PG&E 1986a).

Amphibians and Aquatic Reptiles

Common Species

Several common amphibian and aquatic reptile species occur or may potentially occur within the proposed FERC Project Boundary. Species observed during 2022–2023 herpetofaunal surveys included Sierra newt (*Taricha sierrae*), California toad (*Anaxyrus boreas halophilus*), Sierran treefrog (*Pseudacris sierra*), Sierra garter snake (*Thamnophis couchii*), mountain garter snake (*Thamnophis elegans elegans*), and valley garter snake (*Thamnophis sirtalis fitchi*). Sierra newt, California toad, and Sierran treefrog use streams, ponds, and/or other waterbodies for breeding, and adults also spend time in upland habitats. Sierra and mountain garter snakes forage in a wide variety of aquatic habitats; valley garter snake is primarily terrestrial but will forage in water. Sierra Nevada ensatina (*Ensatina eschscholtzii platensis*), have ranges and habitats overlapping with the proposed FERC Project Boundary and may occur; however, they occur in moist upland habitats and do not require standing or flowing surface waters for reproduction.

Special- Status Amphibians and Aquatic Reptiles

A list of special status amphibian and aquatic reptile species with the potential to occur within the proposed FERC Project Boundary was identified by querying the following sources:

- U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) portal (USFWS 2023a)
- CDFW's California Natural Diversity Database (CNDDB) (CDFW 2023a, 2025)
- Lists of SNF and SQF Species of Special Concern (SCC) (USFS 2023a, 2023b)
- Documented observations by biologists during 2022 and 2023 relicensing studies as part of Study AR-2, Special-Status Amphibians and Reptiles (PG&E 2024, Attachment E3)

Query results identified four special status amphibian and aquatic reptile species with the potential to occur in the proposed FERC Project Boundary: California tiger salamander (*Ambystoma californiense*), gregarious slender salamander (*Batrachoseps gregarius*), Kings River slender salamander (*Batrachoseps*

regius), and northwestern pond turtle (*Actinemys marmorata*). The query also identified seven special status amphibians that are not expected to occur within the proposed FERC Project Boundary. Table 3.5-1 lists these species, their regulatory status, suitable habitats, and occurrence information, including a summary of relicensing study results where applicable. No designated critical habitat for amphibians or reptiles is present within the proposed FERC Project Boundary.

Mollusks

Mollusks were not observed within Proposed Project impoundments or potentially impacted stream reaches during relicensing studies conducted in 2022. No ESA-listed mollusk species or mollusk species listed under the CESA or as an SCC in the SNF or SQF have the potential to occur in Proposed Project impoundments or potentially impacted stream reaches (USFS 2023a, 2023b). Additionally, no invasive dreissenid mussels (*Dreissena* spp.) or Asian clams (*Corbicula fluminea*) have been observed within Balch Project impoundments or stream reaches.

Branchiopods

A list of special status branchiopod species with the potential to occur within the proposed FERC Project Boundary was identified by querying the following sources:

- United States Fish and Wildlife Service's (USFWS's) IPaC portal (USFWS 2023a)
- CDFW's California Natural Diversity Database (CNDDB) (CDFW 2023a, 2025)
- The list of SNF Species of Conservation Concern (SCC) (USFS 2023a)
- Observations by biologists during 2022 and 2023 relicensing studies as part of Study BR-3, *Wetland Characterization and Habitat Assessment for ESA-listed Branchiopods* (PG&E 2024, Attachment E3).

Query results identified two special status branchiopod species with the potential to occur in the proposed FERC Project Boundary – vernal pool tadpole shrimp (*Lepidurus packardi* [FE]) and vernal pool fairy shrimp (*Branchinecta lynchi* [FT]). However, no vernal pools, and therefore no vernal pool habitat potentially suitable for special status branchiopods, was identified within the FERC Project Boundary during relicensing Study BR-3. No critical habitat for special status branchiopods is mapped within the proposed FERC Project Boundary.

Benthic Macroinvertebrates

Historical benthic macroinvertebrate (BMI) community data collected by PG&E in the Proposed Project area and vicinity is available from nine sites within three reaches along the North Fork Kings River between Balch Diversion Dam and the confluence with the Kings River: Balch Diversion Dam to Balch Afterbay, Balch Afterbay Dam to Dinkey Creek, and Dinkey Creek to the Kings River (PG&E 1986a). A total of 748 organisms were collected in 27 distinct genera, representing eight orders of macroinvertebrates (PG&E 1986a). The most abundant order of organisms collected by PG&E within the Project-impacted stream reaches was Diptera, with orders Ephemeroptera, Plecoptera, and Trichoptera also present. Many of these taxa prefer habitat with interstices of cobble and rubble substrates, however, some taxa observed during 1986 sampling prefer silt bottom environments (PG&E 1986a). It is expected

that aquatic macroinvertebrates within the Proposed Project area shift depending on the season, flow, water temperature, and sediment availability in Project reaches (PG&E 1986a).

Although BMI data collected in 1986 provides useful biological context, the study was not designed to produce statistical estimates of biomass and species diversity (PG&E 1986a), and metrics such as an Index of Biotic Integrity (IBI) or a Stream Condition Index (SCI) were not performed. General analysis of the available data indicates a trend towards fewer total numbers of organisms and species moving downstream below Black Rock Reservoir to the North Fork Kings River confluence with the Kings River (PG&E 1986a). Upstream waters are also characterized by low mineralization and productivity, with limited terrestrial input to provide carbon sources, which may constrain macroinvertebrate community richness and abundance. Furthermore, whereas most of the North Fork Kings River within the Balch Project area is confined by a steep canyon with brush-covered slopes and bedrock substrates, the reach downstream of Dinkey Creek is lower gradient with a more open channel and large pools, which may also contribute to a lower BMI density (PG&E 2014).

Aquatic Invasive Species

No aquatic invasive species, including dreissenid mussels or Asian clams (*Corbicula fluminea*), were observed within Balch Project impoundments or potentially impacted stream reaches or in the North Fork Kings River upstream of Balch Afterbay during monitoring between 2002 and 2022 (USGS 2020; PG&E 2024, Attachment E3 *Incidental Observations*). Non-native, invasive spotted bass and smallmouth bass, and other unidentified centrarchids are present in the North Fork Kings River downstream of Dinkey Creek (PG&E 2023). Non-native American bullfrog (Lithobates catesbeianus) has range and habitats overlapping with the proposed FERC Project Boundary and may occur; however, the species was not observed during the 2022 and 2023 relicensing studies.

Dreissenid mussels, including quagga (*Dreissena bugensis*) and zebra (*Dreissena polymorpha*) mussels, are harmful, highly invasive freshwater species. As required by Fish and Game Code 2302, PG&E developed and initiated a *Quagga and Zebra Mussel Vulnerability Assessment and Prevention Program* in 2009 that aims to prevent the spread of quagga and zebra mussels into PG&E waters while continuing to provide FERC license-required recreational use of PG&E lakes and reservoirs (PG&E 2020). Under the program, PG&E regularly assesses the vulnerability of the reservoirs for the introduction of quagga and zebra mussels and has implemented steps designed to prevent the introduction of these mussel species (PG&E 2020). Recreational boating is prohibited on Balch Project impoundments due to safety considerations, so the risk of introduction of invasive mussels is low. Nevertheless, the prevention program also includes public education, monitoring, and management of activities that are permitted on Balch Project impoundments, in collaboration with local, state, and federal agencies, other utilities, and recreational facility operators, as necessary (PG&E 2020). As required by California Code of Regulations, title 14 section 672.1(b)(5), PG&E submits to CDFW annual reports that summarize any changes in a reservoir's vulnerability, monitoring results, and management activities of the prior calendar year.

Water quality data indicates that conditions in Black Rock Reservoir and Balch Afterbay are not suitable to support the development or growth of dreissenid mussels. Quagga and zebra mussels require calcium levels greater than 15 mg/L and pH greater than 7.8 for survival (Ramcharan et al. 1992, Hincks and Mackie 1997, McMahon 1996, Karatayev 1995, Karatayev et al. 2015, Prescott et al. 2014). Waterbodies with calcium levels generally less than 12–15 mg/L have a very low risk of infestation (Claudi and Prescott

2011, Claudi et al. 2012, Cohen 2008, Whittier et al. 2008). The rocks underlying the Balch Project impoundments are predominantly granitic with low calcium content (Diggles et al. 1996, PG&E 2019). Calcium concentrations and pH measurements collected in Black Rock Reservoir (0.94–1.7 mg/L and 4.9–6.3 standard units (s.u.), respectively) and Balch Afterbay (1.3–1.8 mg/L and 5.8–6.9 s.u., respectively) in 2023 indicate that Balch Project impoundments are unlikely to support dreissenid mussels (PG&E 2024 Section E.3.2.3; Attachment E3, *Study Data Summary WR-1*).

Suitable habitat may be present in the Proposed Project area for golden mussels (*Limnoperna fortunei*), which can tolerate a wider range of environmental conditions including less calcium requirements and higher tolerances for salinity and water temperatures.

Table 3.5-1. Special Status Amphibians and Aquatic Reptiles with Potential to Occur in the Proposed Balch Hydroelectric FERC Project Boundary

Common Name *Scientific Name*	Status	Habitat in Proposed FERC Project Boundary	Potential to Occur in Proposed FERC Project Boundary
Amphibians			
California tiger salamander, Central California DPS *Ambystoma californiense*	ST, FT	Suitable breeding habitat (e.g., vernal pools, ponds) and associated upland habitat (e.g., grassland, oak savannah) was identified near the western end of the Balch-Sanger 115 kV Transmission Line during relicensing Study AR-2 (PG&E 2024 [Attachment E3, Study Data Summary AR-2]). Critical habitat for the species is not present within the proposed FERC Project Boundary (USFWS 2023b). Aquatic breeder, but uses upland subterranean or sheltering habitats such as rodent burrows, rock crevices, and friable soil when not actively breeding.	Potential to occur; species was observed in breeding habitats near the west end of the Balch-Sanger 115 kV Transmission Line during relicensing Study AR-2 (PG&E 2024 [Attachment E3, Study Data Summary AR-2]).
Yellow-blotched salamander *Ensatina eschcholtzii croceater*	SCC	Found under surface debris such as rocks, logs, and fallen bark in evergreen and deciduous forests.	Not expected to occur; proposed FERC Project Boundary is outside the species' known range.
Fairview slender salamander *Batrachoseps bramei*	SCC	Prefers talus-covered north-facing slopes in narrow canyons.	Not expected to occur; proposed FERC Project Boundary is outside the species' known range.
Kern Plateau salamander *Batrachoseps robustus*	SCC	Found under debris such as logs, bark, and rocks in pine/fir forests (moist habitats) or sagebrush or oak (drier habitats).	Not expected to occur; proposed FERC Project Boundary is outside the species' known range.
Limestone salamander *Hydromantes brunus*	SCC, SFP, ST	Inhabits mossy limestone crevices and talus in gray pine, oak, buckeye, or chaparral habitats and on occasion in abandoned mine tunnels.	Not expected to occur; proposed FERC Project Boundary is outside the species' known range.
Gregarious slender salamander *Batrachoseps gregarius*	SCC	Inhabits oak woodlands, high-elevation coniferous forest, and grasslands from 1,000 to 5,000 feet in elevation. The species breeds and lays eggs during rain events in communal nests in moist places under rocks, bark, logs, or leaf litter. Commonly shelters under rocks, logs, leaf litter, or root tangles.	Potential to occur; no documented occurrences within the proposed FERC Project Boundary (CDFW 2023a; Attachment E3, *Study Data Summary AR-2*). The species' range overlaps with the proposed FERC Project Boundary.

Common Name *Scientific Name*	Status	Habitat in Proposed FERC Project Boundary	Potential to Occur in Proposed FERC Project Boundary
Kings River slender salamander *Batrachoseps regius*	SCC	Suitable habitat for the species was identified during relicensing Study AR-2 (PG&E 2024 [Attachment E3, Study Data Summary AR-2]). Commonly found sheltering under rocks, logs, leaf litter, or root tangles in shaded areas of mixed chaparral, oak, or pine woodlands.	Known to occur; there are three documented occurrences within or near the FERC Project Boundary between Balch Afterbay and Bailey Bridge (less than 2.5 miles south of Balch Camp; CDFW 2023a; PG&E 2024 [Attachment E3, Study Data Summary AR-2]).
Hell Hollow slender salamander *Batrachoseps diabolicus*	SCC	Riparian zones in close proximity to large rivers and streams (mainly in pine-oak woodland and chaparral habitats).	Not expected to occur; proposed FERC Project Boundary is outside the species' known range.
Western spadefoot *Spea hammondii*	SSC, FPT	Suitable breeding habitat (e.g., vernal pools, ponds) and associated upland habitat (e.g., grassland, chaparral, or pine-oak woodlands) was identified near the western end of the Balch-Sanger 115 kV Transmission Line during relicensing Study AR-2 (PG&E 2024 [Attachment E3, Study Data Summary AR-2]). Critical habitat has not been proposed or designated for this species (USFWS 2023b).	Not expected to occur; not found during relicensing Study AR-2 (PG&E 2024 [Attachment E3, Study Data Summary AR-2]). Nearest documented occurrences from 2005 are approximately 4 miles west of the FERC Project Boundary, near Watts Valley Road and Round Mountain.
Foothill yellow-legged frog, South Sierra DPS *Rana boylii*	SCC, SE, FE	Marginally suitable breeding habitat for the species was documented in portions of the North Fork Kings River during relicensing Study AR-2 (PG&E 2024 [Attachment E3, Study Data Summary AR-2]). Critical habitat has not been proposed or designated for this species (USFWS 2023b).	Not expected to occur; not found during relicensing Study AR-2 (PG&E 2024 [Attachment E3, Study Data Summary AR-2]). Foothill yellow-legged frogs were historically documented within the FERC Project Boundary in 1970 on the North Fork Kings River near Balch Camp, now considered extirpated (CDFW 2023a).

Common Name *Scientific Name*	Status	Habitat in Proposed FERC Project Boundary	Potential to Occur in Proposed FERC Project Boundary
Aquatic Reptiles			
Northwestern pond turtle *Actinemys marmorata*	SCC, FPT	Suitable aquatic habitat (e.g., permanent, slow moving, fresh water) and associated uplands were observed scattered throughout the FERC Project Boundary during relicensing Study AR-2 (PG&E 2024 [Attachment E3, Study Data Summary AR-2]). Critical habitat has not been proposed or designated for this species (USFWS 2023b).	Known to occur; documented occurrences of adult and subadult turtles in the FERC Project Boundary in the North Fork Kings River between Balch Camp and the Kings River confluence during 2002, 2007, 2012, and 2017 surveys (PG&E 2023). Species was also observed approximately 0.35 mile from the FERC Project Boundary in a pond near White Deer Road during relicensing Study AR-2 (PG&E 2024 [Attachment E3, Study Data Summary AR-2]).

Status: FE – listed as endangered under the federal ESA
FPT – proposed as threatened under the federal ESA
FT – listed as threatened under the federal ESA
SCC – SNF or SQF Species of Special Concern (on USFS Lands)
SE – listed as endangered under the CESA or the Native Plant Protection Act
SFP – CDFW Fully Protected Species
SSC – CDFW Species of Special Concern
ST – listed as threatened under the CESA

3.5.1.2 Terrestrial Wildlife

This section describes terrestrial wildlife occurring, or with the potential to occur, within the proposed FERC Project Boundary, including wildlife habitat and common associated species and special status wildlife. The descriptions use existing, relevant, and reasonably available information, including reliably documented occurrences within the proposed FERC Project Boundary.

Where breeding habitat suitability information was not available or had not been field-verified for target special status wildlife species, PG&E conducted the following five studies to identify potentially suitable habitat:

- Study BR-3, Wetland Characterization and Habitat Assessment for ESA-Listed Branchiopods
- Study TR-1, Habitat Assessment for State and Federal ESA-Listed Mesocarnivores
- Study TR-2, Habitat Assessment for State ESA-Listed Passerines
- Study TR-3, Habitat Assessment for Special Status Raptors
- Study TR-4, Special Status Bats Survey

These studies identified suitable breeding habitat for target wildlife species and/or documented occurrences of special status bats in the vicinity of Balch Project facilities; these species and their current distributions in the region are described below.

Wildlife Habitat and Common Associated Species

The area within the proposed FERC Project Boundary supports a diversity of habitats, reflecting variations in topography, slope, and soils, which in turn shape the distribution of plant communities (see *Botanical Resources* below) and diversity of terrestrial wildlife species. Habitat types in the proposed FERC Project Boundary and surrounding 0.5 mile were classified using the California Wildlife Habitat Relationships (CWHR) system based on vegetation community mapping obtained during relicensing Study BR-1. Nineteen CWHR habitat types were delineated; the more common types include Annual Grassland, Blue Oak Woodland, and Montane Hardwood.

The CWHR system uses spatial information to model expected wildlife occurrence in an area based on each species' range and the presence of habitat types. Based on the large size of the proposed FERC Project Boundary and the wide variety of habitat types present within it, a CWHR query identified 379 terrestrial wildlife species with the potential to occur (i.e., the habitat types present in the proposed FERC Project Boundary are at least moderately suitable for reproduction, feeding, or cover for these wildlife species in Fresno County) (CDFW 2021). These species include 255 birds, 94 mammals, and 30 reptiles.

Special Status Wildlife

A list of special status wildlife species with the potential to occur within the proposed FERC Project Boundary was identified by querying the following sources:

- USFWS's IPaC portal (USFWS 2023a)
- CDFW's CNDDB (CDFW 2023a, 2025)
- The lists of SNF and SQF SCC (USFS 2023a, 2023b)
- Documented observations by biologists during 2022 and 2023 relicensing studies (PG&E 2024, Attachment E3)

Query results identified 34 special status terrestrial wildlife species with the potential to occur in the proposed FERC Project Boundary. Ten ESA-listed terrestrial wildlife species were identified in the query results. These species and four additional CESA-listed wildlife species are discussed.

Table 3.5-2. Special Status Terrestrial Wildlife Species with the Potential to Occur Within the Proposed Balch Project Boundary

Common Name *Scientific Name*	Status	Suitable Habitat	Potential Occurrence in Proposed FERC Project Boundary
Invertebrates			
Crotch's bumble bee *Bombus crotchii*	SCE	Grasslands and shrublands including coastal sage scrub, annual grasslands, and wildland urban interfaces from coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary.
Marbled harvestman *Calcina macula*	SA	Serpentine oak grasslands.	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary.
Piedra harvestman *Calcina piedra*	SA	Serpentine oak grasslands.	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary.
Tulare cuckoo wasp *Chrysis tularensis*	SA	Grassland and shrubland; foothills of San Joaquin Valley	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary.
Yosemite sideband *Monadenia yosemitensis*	SCC	The proposed FERC Project Boundary is outside the species' range in Mariposa County.	Not expected to occur; proposed FERC Project Boundary is outside the species' range in Mariposa County.
Merced Canyon shoulderband *Helminthoglypta allynsmithi*	SCC	The proposed FERC Project Boundary is outside the species' range in Mariposa County.	Not expected to occur; proposed FERC Project Boundary is outside the species' range in Mariposa County.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	No suitable vernal pool habitat identified within the FERC Project Boundary during relicensing Study BR-3 (Attachment E3, Study Data Summary BR-3). Critical habitat is absent from the proposed FERC Project Boundary (present in Fresno County approximately 15 miles northwest) (USFWS 2023b).	Not expected to occur; no suitable vernal pool habitat identified within the proposed FERC Project Boundary.

Common Name *Scientific Name*	Status	Suitable Habitat	Potential Occurrence in Proposed FERC Project Boundary
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	No suitable vernal pool habitat identified within the FERC Project Boundary during relicensing Study BR-3 (Attachment E3, Study Data Summary BR-3). Critical habitat is not present in the proposed FERC Project Boundary (present in Fresno County approximately 20 miles northwest) (USFWS 2023b).	Not expected to occur; no suitable vernal pool habitat identified within the proposed FERC Project Boundary.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	The species' known range is outside the proposed FERC Project Boundary, and no critical habitat is present within the boundary or vicinity. Critical habitat has been designated in Sacramento County approximately 170 miles north (USFWS 2023b).	Not expected to occur; proposed FERC Project Boundary is outside the species' known range.
Behr's metalmark *Apodemia virgulti davenporti*	SCC	Proposed FERC Project Boundary is outside the subspecies' range in Tulare and Kern counties.	Not expected to occur; proposed FERC Project Boundary is outside the subspecies' range in Tulare and Kern counties.
Evius blue *Plebejus icarioides evius*	SCC	Proposed FERC Project Boundary is outside the subspecies' range in the Greenhorn, Piute, and Tehachapi mountains; Frazier Park; Mt. Pinos; and Sageland-Kelso Valley.	Not expected to occur; proposed FERC Project Boundary is outside the subspecies' range in the Greenhorn, Piute, and Tehachapi mountains; Frazier Park; Mt. Pinos; and Sageland-Kelso Valley.
Greenish blue *Plebejus saepiolus aehaja*	SCC	Little suitable wet meadow or riparian streambed habitat is present within the proposed FERC Project Boundary.	Not expected to occur; little suitable wet meadow or riparian streambed habitat is present within the proposed FERC Project Boundary; within SQF, the subspecies primarily occur on the Kern Plateau or in the southern Greenhorn Mountains.
Tehachapi fritillary *Speyeria egleis tehachapina*	SCC	The proposed FERC Project Boundary is outside the species' range in Kern County.	Not expected to occur; proposed FERC Project Boundary is outside the species' range in Kern County.

Common Name *Scientific Name*	Status	Suitable Habitat	Potential Occurrence in Proposed FERC Project Boundary
Birds			
Mount Pinos sooty grouse *Dendragapus fuliginosus howardi*	SCC, SSC	Proposed FERC Project Boundary is outside the subspecies' known range, which is largely south of Kings Canyon National Park.	Not expected to occur; proposed FERC Project Boundary is outside the subspecies' known range, which is largely south of Kings Canyon National Park.
Prairie falcon *Falco mexicanus*	WL	Uncommon permanent resident that ranges from southeastern deserts northwest throughout the Central Valley and along the inner Coast Ranges and Sierra Nevada. Distributed from annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Mostly absent from northern coastal fog belt. Not found in upper elevations of Sierra Nevada.	Potential to occur; documented occurrence in 1985 within FERC Project Boundary (CDFW 2023a). No incidental observations of species during relicensing studies.
California condor *Gymnogyps californianus*	SFP, SE, FE,	Suitable nesting habitat (e.g., cliffs, rock outcrops, or large trees in steep mountainous or canyon terrain) was identified in and near the FERC Project Boundary during relicensing Study TR-3 (Attachment E3, Study Data Summary TR-3). Critical habitat is not present in the proposed FERC Project Boundary (present in Tulare County approximately 30 miles south) (USFWS 2023b).	Potential to occur; telemetry data collected within and near the FERC Project Boundary (from 2003–2016) documented a low level of condor activity (flying or foraging) near the Balch-Sanger 115 kV Transmission Line and Pine Flat Reservoir. The species was documented foraging along Blackrock Road near Balch Camp in 1971 (Forest Service 2023c) and near Tulare, approximately 35 miles south of the FERC Project Boundary in 1976 (CDFW 2023a).
Golden eagle *Aquila chrysaetos*	BGEPA, SFP	Open woodlands and oak savannahs, grasslands, chaparral, sagebrush flats; nests on steep cliffs or large, prominent trees near suitable foraging areas. Desktop analysis for relicensing Study TR-3 identified approximately 8,500 ac of potentially suitable nesting habitat within 0.25 mile of Project facilities. Field- verification surveys confirmed suitable nesting habitat in six CWHR types containing steep cliffs or open, rocky habitat, primarily near Balch Camp (Attachment E3, Study Data Summary TR-3).	Known to occur; historical records of golden eagle nesting near Balch Camp (Read 2012, 2013; Burkholder 2014) and species incidentally observed above Blackrock Road near Balch Camp and near Pine Flat Reservoir during 2022 and 2023 relicensing studies, respectively (Attachment E3, Incidental Observations summary).

Common Name *Scientific Name*	Status	Suitable Habitat	Potential Occurrence in Proposed FERC Project Boundary
Northern harrier *Circus hudsonius*	SSC	Study BR-1 mapped eight CWHR habitat types[1] in or adjacent to the proposed FERC Project Boundary that are potentially suitable for northern harrier foraging or nesting (Attachment E3, *Study Data Summary BR- 1*).	Known to occur; incidentally observed at low elevations along the Balch-Sanger 115 kV Transmission Line corridor during 2022–2023 relicensing studies (Attachment E3, *Incidental Observations* summary).
American goshawk *Accipiter atricapillus*	SCC, SSC	Breeds in mid- to late successional stands of coniferous or mixed coniferous forest with dense overstory and relatively open understory or near an opening. Typically forages in younger forests or edge habitats (e.g., meadows, burns, powerline corridors, trails). Desktop analysis for relicensing Study TR-3 identified 3,000 ac of potential suitable nesting habitat within 0.25 mile of Project facilities. Field-verification surveys confirmed a limited amount of suitable nesting habitat in three CWHR types, primarily near Black Rock Reservoir (Attachment E3, *Study Data Summary TR-3*).	Potential to occur; documented occurrences approximately 3 miles north of Black Rock Reservoir (eBird 2023, CDFW 2023a). No incidental observations of species during relicensing studies.
Western burrowing owl *Athene cunicularia hypugaea*	SSC, SCE	Nests and forages in low-gradient, open habitat (e.g., grassland, grazed pasture, scattered oak woodland) with available burrows. Desktop analysis for relicensing Study TR-3 identified approximately 4,300 ac of potentially suitable nesting habitat within 0.25 mile of Project facilities. Field-verification surveys confirmed suitable nesting habitat in Annual Grassland and a limited amount of Blue Oak Woodland habitats along the Balch-Sanger 115 kV Transmission Line west of Pine Flat Reservoir (Attachment E3, *Study Data Summary TR-3*).	Potential to occur; documented occurrence approximately 4 miles west of Pine Flat Reservoir (CDFW 2023a, eBird 2023). No incidental observations of species during relicensing studies.
California spotted owl, Sierra Nevada DPS *Strix occidentalis occidentalis*	SCC, SSC, FPT	Suitable nesting habitat (e.g., older forested habitats with complex stands, dominated by conifers) was identified in and near the FERC Project Boundary during relicensing Study TR-3 (Attachment E3, *Study Data Summary TR-3*). Critical habitat has not been designated or proposed for the species (USFWS 2023b).	Known to occur; several occurrences have been documented near Balch Camp (CDFW 2023b, Forest Service 2023c). Areas designated as Protected Activity Centers by the Forest Service overlap the proposed FERC Project Boundary.

Common Name *Scientific Name*	Status	Suitable Habitat	Potential Occurrence in Proposed FERC Project Boundary
Great gray owl *Strix nebulosa*	SCC, SE	Dense, montane coniferous and mixed hardwood coniferous forest, almost always near a meadow for foraging; typically nests in large, broken-topped snags. Relicensing Study BR-1 mapped approximately 200 ac of one CWHR habitat type (Sierran Mixed Conifer) potentially suitable for great gray owl foraging or nesting; however, these areas lack nearby meadows (FLA Attachment E3, Study Data Summary BR-1).	Not expected to occur; nearest documented occurrence from 2016 is approximately 6 miles north (Forest Service 2023c), and limited suitable habitat is present in the proposed FERC Project Boundary.
American peregrine falcon *Falco peregrinus anatum*	SA	Inhabits a variety of open habitats including wetlands, woodlands, and agricultural fields. It is also found in urban areas. Typically nests along high cliffs but also known to use human-made structures or predominant snags or trees. Often uses riparian areas and wetlands for foraging. Relicensing Study BR-1 mapped 16 CWHR habitat types2 in or adjacent to the proposed FERC Project Boundary that are potentially suitable for foraging or nesting.	Potential to occur; historical records of nesting at Patterson Bluffs north of the Balch-Sanger 115 kV Transmission Line (Forest Service 2023c), though a recent survey in the area did not detect the species (Colibri Ecological Consulting 2022). Documented occurrences at and near Pine Flat Reservoir (eBird 2023). No incidental observations of species during relicensing studies.
Willow flycatcher *Empidonax traillii brewsteri*	SSC, SE	Nests and forages in dense brushy thickets within riparian woodland often dominated by willows and/or alder, near permanent standing water. Relicensing Study BR-1 mapped 2 CWHR habitat types[2] in or adjacent to the FERC Project Boundary that are potentially suitable for foraging or nesting.	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary.
Kern red-winged blackbird *Agelaius phoeniceus aciculatus*	SSC	The proposed FERC Project Boundary is outside the subspecies' range in Kern County.	Not expected to occur; proposed FERC Project Boundary is outside the subspecies' range in Kern County.
Tricolored blackbird *Agelaius tricolor*	SSC, ST	Nests within protected nesting substrate (including flooded or thorny vegetation) over open accessible water; forages in nearby grasslands and agriculture fields with adequate insect prey. Relicensing Study BR-1 mapped 2 CWHR habitat types[2] in or adjacent to the FERC Project Boundary that are potentially suitable for foraging or nesting. During field-verification surveys no suitable habitat was identified within 500 feet of Project facilities (*Study Data Summary TR-2*).	Not expected to occur; no suitable habitat identified in the proposed FERC Project Boundary.

Common Name *Scientific Name*	Status	Suitable Habitat	Potential Occurrence in Proposed FERC Project Boundary
Mammals			
Fresno kangaroo rat *Dipodomys nitratoides exilis*	SE, FE	Species is considered extirpated from the proposed FERC Project Boundary (USFWS 2020a). Critical habitat for the species is limited to a small area near Mendota, California, outside the proposed FERC Project Boundary (USFWS 2023b).	Not expected to occur; there are currently no known extant populations of the species. The last observation of the species was in 1992 in the Alkali Sink Ecological Reserve (USFWS 2020a), west of Fresno.
Western mastiff bat *Eumops perotis*	SSC	Crevice-roosting, primarily on cliffs. Found in rock features, often steep slopes or rock outcrops associated with river drainages, under slabs of exfoliating granite, or in basaltic columns. May be found in crevices in large boulders and tall buildings. Typical colony size usually less than 100 individuals, composed of females and young (Ahlborn 2021). Relicensing Study TR-4 identified suitable roosting habitat at buildings (Attachment E3, *Study Data Summary TR-4*).	Known to occur; documented acoustically at Balch Camp, Balch Dam Afterbay, and Balch-Sanger 115 kV Transmission Line corridor.
Fringed myotis *Myotis thysanodes*	SCC	Crevice, cavity, and foliage-roosting. Roosts in a wide variety of habitats including rock crevices, caves, mines, buildings, and bridges, and early to mid-stage large diameter snags. Maternity colonies up to 200 individuals, composed of females and young (Harris 2021a). Relicensing Study TR-4 identified suitable roosting habitat to include trees with foliage, buildings, tunnels, and snags (Attachment E3, *Study Data Summary TR-4*).	Known to occur; documented acoustically at Balch Dam Afterbay and Balch-Sanger 115 kV Transmission Line corridor.
Pallid bat *Antrozous pallidus*	SCC, SSC	Crevice-roosting in rocks, live or dead tree hollows, mines, caves, and a variety of vacant and occupied structures or buildings. Maternity colony size 20–200 individuals, including females and young, and male day roosts up to 60 individuals (Oregon Wildlife Institute 2016, Harris 2021b). Relicensing Study TR-4 identified suitable roosting habitat at buildings, tunnels, and dead and live trees with peeling bark and cavities (Attachment E3, *Study Data Summary TR-4*).	Known to occur; documented acoustically at Balch Camp, Balch Dam Afterbay, and Balch-Sanger 115 kV Transmission Line corridor.

Common Name *Scientific Name*	Status	Suitable Habitat	Potential Occurrence in Proposed FERC Project Boundary
Western red bat *Lasiurus frantzii*	SSC	Foliage-roosting, primarily in trees and less often in shrubs (Harris 2023). Roosts individually or in small groups. Relicensing Study TR-4 identified suitable roosting habitat at trees with foliage (Attachment E3, *Study Data Summary TR-4*).	Known to occur; documented acoustically at Balch Camp, North Fork Kings River near Dinkey Creek Gaging Station, Balch Dam Afterbay, and Balch-Sanger 115 kV Transmission Line corridor.
Townsend's big-eared bat *Corynorhinus townsendii*	SCC, SSC	Cavity-roosting, most often in tunnels, caves, mines, and buildings, but also rock shelters, preferentially close to water. Maternity colony size 35–300 individuals, comprised of females and young, and hibernacula 30–1,000+ individuals (Gruver and Keinath 2006, Harris 2021c). Relicensing Study TR-4 identified suitable roosting habitat at buildings and tunnels (Attachment E3, *Study Data Summary TR-4*).	Known to occur; documented day roosts at Weir Creek Adit (Site B-11) and Black Rock Adit (B-7). Documented acoustically at Balch Dam Afterbay and Balch-Sanger 115 kV Transmission Line corridor.
Spotted bat *Euderma maculatum*	SCC, SSC	Crevice-roosting, usually cliffs and rock (often steep slopes or rock outcrops associated with river drainages), although may occasionally use caves and buildings. Non-colonial (Harris 2021d). Relicensing Study TR-4 identified suitable roosting habitat at buildings and tunnels (Attachment E3, *Study Data Summary TR-4*).	Known to occur; documented acoustically at Balch-Sanger 115 kV Transmission Line corridor.
San Joaquin kit fox *Vulpes macrotis mutica*	ST, FE	The proposed FERC Project Boundary is outside the species' known range (USFWS 2020b). Critical habitat has not been proposed or designated for the species (USFWS 2023b).	Not expected to occur; the range for San Joaquin kit fox has been recently refined and no longer overlaps with the proposed FERC Project Boundary (USFWS 2020b).
Sierra Nevada red fox, Sierra Nevada DPS *Vulpes vulpes necator*	SCC, ST, FE	The proposed FERC Project Boundary is outside the elevational range of the species (typically found in areas above ~7,000 feet in Sierra Nevada Mountains; Grinnell et al. 1937, as cited in SCAT 2022). Critical habitat has not been proposed or designated for this species (USFWS 2023b).	Not expected to occur; the proposed FERC Project Boundary is outside the elevational range of the species.
North American wolverine *Gulo gulo luscus*	SCC, SFP, ST, FT	Species is considered extirpated from the proposed FERC Project Boundary. Critical habitat has not been proposed or designated for this species (USFWS 2023b).	Not expected to occur; the species is thought to be extirpated from most of California, including the proposed FERC Project Boundary, with only two individuals confirmed in California within the last 100 years (in Tahoe National Forest and Inyo National Forest).

Common Name *Scientific Name*	Status	Suitable Habitat	Potential Occurrence in Proposed FERC Project Boundary
Sierra marten *Martes caurina sierrae*	SCC	Advanced successional or mature forest stands; species will den in cavities of large trees, snags, logs, burrows, or on occasion in caves or rocky crevices at elevations above 4,000 feet. Relicensing Study BR-1 identified five CWHR habitat types[3] in or adjacent to the FERC Project Boundary that are potentially suitable for marten foraging or denning, although limited suitable habitat is present within the species elevation range (Attachment E3, *Study Data Summary BR-1*).	Unlikely to occur; there are no known occurrences in the vicinity of PG&E's Proposed Project, and limited suitable habitat is present within the proposed FERC Project Boundary.
Fisher, Southern Sierra Nevada DPS *Pekania pennanti*	SCC, SSC, FE, ST	Discrete areas of suitable breeding habitat (e.g., dense, complex conifer forests) were identified within the northeastern portion of the FERC Project Boundary during relicensing Study TR-1 (Attachment E3, Study Data Summary TR-1). Proposed critical habitat is not located within the proposed FERC Project Boundary (USFWS 2023b).	Potential to occur; species was documented south of Black Rock Reservoir in 2003 and near Ross Creek in 1996, less than 2 and 4 miles (respectively) from the FERC Project Boundary (CDFW 2023a).

Source: CNDDB 2023a, 2025

Status: BGEPA – federally protected under the Bald and Golden Eagle Protection Act
FE – listed as endangered under the federal ESA
FPT – proposed as threatened under the federal ESA
FT – listed as threatened under the federal ESA
SCC – SNF or SQF Species of Special Concern (on USFS Lands)
SA – CDFW special animal
SE – listed as endangered under the CESA or the Native Plant Protection Act
SFP – CDFW Fully Protected Species
SSC – CDFW Species of Special Concern
ST – listed as threatened under the CESA
CWHR habitats in or adjacent to the proposed FERC Project Boundary that are potentially suitable for foraging or breeding by:
[1] Northern harrier include: Annual Grassland, Blue Oak Woodland, Blue Oak-Foothill Pine, Fresh Emergent Wetland, Lacustrine, Riverine, Valley Foothill Riparian, and Valley Oak Woodland.
[2] American peregrine falcon include: Annual Grassland, Barren, Blue Oak Woodland, Blue Oak-Foothill Pine, Fresh Emergent Wetland, Lacustrine, Mixed Chaparral, Montane Chaparral, Montane Hardwood, Montane Hardwood-Conifer, Montane Riparian, Ponderosa Pine, Riverine, Sierran Mixed Conifer, Valley Foothill Riparian, and Valley Oak Woodland.
[3] Sierra marten include: Barren, Montane Hardwood-Conifer, Montane Riparian, Ponderosa Pine, and Sierran Mixed Conifer.

3.5.1.3 Botanical Resources

This section describes vegetation communities,[1] wetlands,[2] special status plant and lichen species,[3] and non-native invasive plants occurring or with the potential to occur in or near the proposed FERC Project Boundary. The descriptions use existing, relevant, and reasonably available information and include results from the following three studies conducted where existing information was not adequate to describe the resources:

- Study BR-1, Vegetation Community Mapping
- Study BR-2, Special status and Non-Native Invasive Plant Surveys
- Study BR-3, Wetland Characterization and Habitat Assessment for ESA-Listed Branchiopods

Vegetation Communities

Relicensing Study BR-1 included an extensive mapping effort to classify and quantify existing vegetation community types within the proposed FERC Project Boundary and a surrounding 0.5-mile buffer at a finer scale (i.e., at a minimum mapping unit of 1.0-ac overall and 0.25-ac for sensitive natural communities[4]) than previously available. A preliminary, coarse-scale vegetation map by the *Classification and Assessment with Landsat of Visible Ecological Groupings* (CALVEG; USFS 2021a) was reviewed against available imagery in GIS, and supplemental sources such as National Wetlands Inventory (NWI) (USFWS 2021), CDFW's CNDDB (CDFW 2022a), Fire Perimeters (CALFIRE 2021) and SNF Fire History GIS layers (USFS 2021b), and Soil Survey Geographic Database (SSURGO) (NRCS 2021) were used to determine potential boundaries of wetlands, identify documented sensitive natural communities, assess large-scale changes in the landscape due to fire, and support identifying signatures of different vegetation types, respectively. Field validation was then conducted at more than 450 vegetation data collection locations, and each polygon was assigned a vegetation alliance based on the *Manual of California Vegetation* (MCV; California Native Plant Society [CNPS] 2022).

A total of 38 MCV vegetation communities, covering 20,372.5 ac, were mapped, including 18,176.4 ac of upland communities, 453.5 ac of wetland communities, 343.3 ac of agriculture, and 1,399.3 ac of unvegetated land (i.e., 348.9 ac of barren areas, 145.7 ac of developed/disturbed areas, 684.6 ac of open

---

1 Vegetation communities are described based on the classification system in *A Manual of California Vegetation* (CNPS 2022).

2 Wetlands are defined as areas that appear to support a prevalence of vegetation typically adapted for life in saturated soil conditions; federal and state-jurisdictional wetland boundaries were not formally delineated.

3 Special status plants and lichens are defined as those listed, proposed, or under status review for listing as rare, threatened, or endangered by the federal government and/or the state of California; managed by CDFW as SSC; designated by the SNF or SQF as SCC when they occur on USFS lands; or included on the CDFW's Special Vascular Plants, Bryophytes, and Lichens List with a California Rare Plant Rank of 1 or 2 (CDFW 2023b).

4 Sensitive natural communities are defined as those with a state ranking of S1, S2, or S3 (critically imperiled, imperiled, or vulnerable; respectively) on the CDFW's California Sensitive Natural Communities List (CDFW 2022b).

water, and 220.1 ac of roads).[5] The mapped area is dominated by upland forested communities (43%; 12,571.1 ac), of which *Quercus douglasii* Forest and Woodland Alliance (blue oak woodland and forest) is the most prevalent vegetation type. Thirteen of these vegetation communities, covering 1,876.3 ac (9.2%), are sensitive natural communities with a state ranking of S2 (imperiled) or S3 (vulnerable). The remaining 25 vegetation communities have a state ranking of S4 (apparently secure) or S5 (secure) and are at fairly low to no risk of extirpation in California or do not currently have a state ranking. Nineteen CWHR habitat types were delineated within the FERC Project Boundary and surrounding 0.5 mile; the more common types include Annual Grassland, Blue Oak Woodland, and Montane Hardwood.

Wetlands

During relicensing Studies BR-1 and BR-3, biologists identified wetlands within the proposed FERC Project Boundary and surrounding 0.5 mile via review of available data sources (i.e., aerial imagery, CALVEG [USFS 2021a], NWI [USFWS 2021], CNDDB [CDFW 2022a]), and in coordination with field surveys for Study BR-2. Available coarse-scale mapping (e.g., CALVEG, NWI) in this area was refined as part of relicensing Study BR-1 to map 12 wetland MCV communities totaling 453.4 ac. During Study BR-3, biologists subsequently characterized five wetlands within the proposed FERC Project Boundary during field surveys using criteria outlined in *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee [FGDC] 2013). Few wetlands are located within the proposed FERC Project Boundary, and most are associated with tributary streams to the North Fork and mainstem Kings River. Five representative wetlands, including three riverine and two palustrine systems, were characterized during relicensing field surveys. No vernal pools were identified within the proposed FERC Project Boundary.

Special Status Plants

PG&E developed a list of special status plant and lichen species with the potential to occur within the proposed FERC Project Boundary as part of relicensing Study BR-2 using the following existing sources:

- USFWS's IPaC portal (USFWS 2023a)
- CDFW's CNDDB (CDFW 2023a, 2025)
- CNPS online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2023)
- Lists of SNF and SQF SCC (USFS 2023a, 2023b)
- USFS Natural Resource Information System Data (USFS 2023c)

The resulting list of species documented in the Balch Project vicinity was reviewed and compared against existing habitat information and elevation breaks to determine which species have the potential to be present within the proposed FERC Project Boundary.

[5] Includes all moderately developed roads visible in aerial imagery; roads overgrown with vegetation were assigned the appropriate vegetation community type.

Table 3.5-3. Special Status Plant Species with the Potential to Occur Within the Balch Project Vicinity

Common Name *Scientific Name*	Status	Lifeform	Elevation Range (feet)	Blooming Period[1]	Habitat Associations	Potential Occurrence in the Proposed FERC Project Boundary
Succulent owl's-clover *Castilleja campestris* var. *succulenta*	FT, SE, CRPR 1B.2	Annual herb (hemiparasitic)	160–2,460	(March) April–May	Often acidic vernal pools	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present. Critical habitat is not present in the proposed FERC Project Boundary (USFWS 2023b).
Tree-anemone *Carpenteria californica*	ST, SCC, CRPR 1B.2	Perennial evergreen shrub	1,115–4,395	(April) May–July	Usually, granitic areas of chaparral and cismontane woodland	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
Palmate-bracted bird's-beak *Chloropyron palmatum*	FE, SE, CRPR 1B.1	Annual herb (hemiparasitic)	15–510	May–October	Alkaline areas in chenopod scrub, and valley and foothill grassland	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present. Critical habitat has not been proposed or designated for this species (USFWS 2023b).
American manna grass *Glyceria gradis*	CRPR 2B.3	Perennial grass	3480-6200	June-August	Riparian, streambanks, lake-margins, meadows, bogs/fens, edges	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
Winter's sunflower *Helianthus winteri*	CRPR 1B.2	Perennial shrub	655-1475	January-December	Openings on relatively steep south-facing slopes, granitic, often rocky areas, often roadsides of cismontane woodland, and valley and foothill grassland	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
Forked hare-leaf *Lagophylla dichotoma*	CRPR 1B.1	Annual herb	145–1,100	April–May	Sometimes clay areas of cismontane woodland, and valley and foothill grassland	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.

Common Name *Scientific Name*	Status	Lifeform	Elevation Range (feet)	Blooming Period[1]	Habitat Associations	Potential Occurrence in the Proposed FERC Project Boundary
Madera leptosiphon *Leptosiphon serrulatus*	SCC, CRPR 1B.2	Annual herb	980-4,265	April–May	Cismontane woodland, and lower montane coniferous forest	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	FT, SE, CRPR 1B.1	Annual herb	30–2,475	April–September	Vernal pools	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present. Critical habitat is not present in the proposed FERC Project Boundary (USFWS 2023b).
Whitebark pine *Pinus albicaulis*	FT	Evergreen tree	6,562–12,139	N/A	Upper red-fir forest to timberline, and especially subalpine forest	The proposed FERC Project Boundary is outside the elevation range for the species. The species was not observed during 2022–2023 relicensing studies. Critical habitat has not been proposed or designated for this species (USFWS 2023b).
Yosemite bog orchid *Platanthera yosemitensis*	SCC, 1B.1	Perennial herb	6,890-7495	July-August	Meadows and seeps	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
San Joaquin adobe sunburst *Pseudobahia peirsonii*	FT, SE, CRPR 1B.1	Annual herb	295–2,625	February–April	Adobe clay areas in cismontane woodland, valley and foothill grassland	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present. Critical habitat has not been proposed or designated for this species (USFWS 2023b).
Keck's checkerbloom *Sidalcea keckii*	FE, CRPR 1B.1	Annual herb	245–2,135	April–May (June)	Serpentine and clay areas in cismontane woodland, and valley and foothill grassland	The species was documented in 2010 southeast of Elwood Road and S. Piedra Road under the Balch-Sanger 115 kV Transmission Line (CDFW 2023a). The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present. Critical habitat is mapped within and adjacent to the Balch-Sanger 115 kV Transmission Line (USFWS 2023a).

Common Name *Scientific Name*	Status	Lifeform	Elevation Range (feet)	Blooming Period[1]	Habitat Associations	Potential Occurrence in the Proposed FERC Project Boundary
Greene's tuctoria *Tuctoria greenei*	FE, SR, CRPR 1B.1	Annual herb	95–3,510	May–July (September)	Vernal pools	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present. Critical habitat is not present in the proposed FERC Project Boundary (USFWS 2023b).

Source: CNPS (2023) unless otherwise cited

Status: California Rare Plant Rank (CRPR)

List 1B – Plants rare, threatened, or endangered in California and elsewhere
List 2B – Plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 0.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
CRPR 0.2 – Moderately threatened in California (20–80% of occurrences threatened / moderate degree and immediacy of threat)
FE – Listed as endangered under the federal ESA
SE – Listed as endangered under the CESA
SR – Listed as rare under the California Native Plant Protection Act

[1] Parenthetical months indicate uncommon extensions to blooming periods.

The 2022 and 2023 Study BR-2 botanical surveys were floristic in nature, with taxonomy and nomenclature based on *Jepson eFlora* (Jepson Flora Project 2025) for vascular plants, *California Moss eFlora* (Wilson 2021) for bryophytes, and *A Field Guide for California Lichens* (Tucker and Ryan 2006) for lichens. Surveys for special status plant species were conducted during the appropriate blooming periods to accurately identify all species encountered (i.e., two surveys [spring and summer] and an additional, targeted early blooming survey in some areas). The survey protocol for vascular and nonvascular plants and lichen generally followed the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 2000) and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). Within the SNF and SQF, surveys and reporting also complied with the survey protocol guidelines in the USFS Handbook 2609.26, Chapter 10, *Sensitive Plant Program Management*.

Historical floristic survey data for the area within the proposed FERC Project Boundary are limited. Relicensing Study BR-2 documented 660 vascular plants, 3 lichen, 1 fungus, and 18 bryophyte species. Study BR-2 2022 and 2023 floristic surveys identified no federal ESA-listed plant species, one state rare plant species (Tompkins' sedge [*Carex tompkinsii*]), and no special status lichens. Critical habitat for one ESA-listed plant species (Keck's checkerbloom [*Sidalcea keckii*]) is located at lower elevations along the Balch-Sanger 115 kV Transmission Line. Two occurrences of Tompkins' sedge were mapped (Table 3.5-4).

Table 3.5-4. Special Status Plant Populations Mapped Within the Proposed Balch Project Boundary

Scientific Name	Common Name	Status	Site Description	Approximate Number of Plants
Carex tompkinsii	Tompkins' sedge	SR, CRPR 4.3	Balch Afterbay Dam to Balch Camp	15
			Balch Camp	3

Status: CRPR (California Rare Plant Rank) List Ranks List 4 – Plants of limited distribution, a watch list
CRPR 0.3 – Not very threatened in California (low degree/immediacy of threats or no current threats known)
SR – State listed as rare under the Native Plant Protection Act

Non-Native Invasive Plant Species

During relicensing Study BR-2, biologists documented 113 non-native plant species within the proposed FERC Project Boundary, 21 of which had been documented in available data from prior botanical surveys (PG&E 2009, 2018b; Stebbins 2011a, 2011b). Many of these non-native invasive plant species (e.g., slender wild oat [*Avena barbata*], ripgut grass [*Bromus diandrus*]) are established or widespread in portions of the proposed FERC Project Boundary.

Two vegetation alliances mapped as part of Study BR-1 (*Avena spp.–Bromus spp.* Herbaceous Semi-Natural Alliance [wild oats and annual brome grassland] and *Cynodon dactylon–Crypsis* spp.–*Paspalum* spp. Herbaceous Semi-Natural Alliance [tall wheat grass grasslands]) are dominated by non-native invasive plants. During the development of Study BR-2, PG&E consulted with the USFS on a list of non-native invasive plant species of known concern (USFS 2021c) and determined that a subset of those

species (i.e., 21 species) should be deemed "high priority" and mapped in the field on USFS lands in SQF and SNF. All other species were noted as part of the comprehensive species list which was collated by proximity to major Balch Project facilities and features. Biologists documented four occurrences of three SNF high-priority, non-native invasive plants on USFS lands.

3.5.1.4 ESA-Listed and CESA-Listed Species

This section summarizes ESA-listed and CESA-listed species that have the potential to be impacted by PG&E's Proposed Project. PG&E's proposed Protection Mitigation and Enhancement (PM&E) measures, which are part of PG&E's Proposed Project, to avoid or minimize impacts on these species are summarized in Section 3.3. Assessment of potential effects of PG&E's Proposed Project on ESA-listed fish and other aquatic resources, wildlife, and botanical resources are discussed in subsequent sections. A list of ESA- and CESA-listed species known or with the potential to occur in the proposed FERC Project Boundary was developed by querying USFWS's IPaC portal (USFWS 2023a), CDFW's CNDDB (CDFW 2023a), and the lists of SNF and SQF SCC (USFS 2023a, 2023b). PG&E's Proposed Project is located upstream of the United States Army Corps of Engineers' (USACE's) Pine Flat Dam, which is a permanent upstream passage barrier to all anadromous fish species.

ESA-Listed Plants

Query results returned seven ESA-listed plant species with the potential to occur in the proposed FERC Project Boundary. No ESA-listed plant species were documented within or adjacent to the proposed FERC Project Boundary during the relicensing botanical surveys. Although not presently documented, protective measures for potential ESA-listed species identified in the future and for designated critical habitat within the proposed FERC Project Boundary are discussed in Section 3.3 and included in PG&E's Proposed Project.

CESA-Listed Wildlife

Query results returned 13 CESA-listed aquatic and terrestrial wildlife species; some of these CESA-listed species also have other special status designations (e.g., CDFW Fully Protected). No CESA-listed fish species were identified in the query results.

CESA-Listed Plants

Query results returned six CESA-listed plant species with the potential to occur in the proposed FERC Project Boundary. No CESA-listed plant species were documented within or adjacent to the proposed FERC Project Boundary during the relicensing botanical surveys.

3.5.1.5 Applicant Proposed Measures

PG&E's Proposed Project includes the following five measures related to fish and other aquatic resources, wildlife, and botanical resources:

- PG&E Proposed Measure No. 1, Minimum Flows and Water Year Types
- PG&E Proposed Measure No. 3, Biological Resources Management Plan
- PG&E Proposed Measure No. 5, Low-Level Outlet Operations

- PG&E Proposed Measure No. 7, Hazardous Substance Plan
- PG&E Proposed Measure No. 11, Transportation System Management Plan

Refer to Attachment E2 in FLA Exhibit E (PG&E 2024) for the complete text of the above measures and plans PG&E proposes to include in the new license.

3.5.2 IMPACT ANALYSIS

a) Would the project 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? (Less Than Significant Impact)

3.5.2.1 Fish and Aquatic Wildlife

Fish Species

PG&E's Proposed Project would have a less than significant impact on fish populations and their habitats in Proposed Project impoundments and stream reaches with implementation of proposed PG&E Proposed Measure Nos. 1, 5, and 11 which minimize or reduce the potential for direct or indirect adverse impacts on fish populations.

- PG&E Proposed Measure No. 1, *Minimum Flows and Water Year Types,* would maintain minimum regulated flows in the North Fork Kings River released from Black Rock Reservoir and Balch Afterbay to provide sufficient stream habitat for all life stages of fish in potentially impacted stream reaches.
- PG&E Proposed Measure No. 5, *Low-Level Outlet Operations*, would minimize impacts of continued operation of the LLOs at Balch Diversion Dam and Balch Afterbay Dam during periods of high inflow by reducing the potential for adversely affecting fish populations by passing sediment from Balch Project impoundments into potentially impacted stream reaches of the North Fork Kings River.
- PG&E Proposed Measure No. 11, *Transportation System Management Plan*, would minimize impacts of road maintenance and use by reducing the potential for adversely affecting fish populations from sediment erosion, mobilization, or other maintenance activities.

Proposed Project O&M activities, described in FLA Exhibit B, were assessed in conjunction with these proposed measures for potential adverse impacts on fish occupying Proposed Project impoundments and potentially impacted stream reaches, including indirect impacts related to reservoir fish habitat quality and availability, direct impacts related to reservoir fish entrainment potential, and indirect impacts related to stream fish populations' habitat quality and availability, as described in more detail below.

No direct or indirect impacts on fish populations or other aquatic resources were identified related to water temperatures or other water quality conditions within Proposed Project impoundments and affected stream reaches. Operation of the Proposed Project in coordination with P-1988 supports a cold-water fish (rainbow trout [Oncorhynchus mykiss]) assemblage in Black Rock Reservoir, Balch Afterbay, and the North Fork Kings River between Balch Diversion Dam and Balch Afterbay (PG&E 2024). The Proposed

Project also supports a native transitional fish (sucker-pikeminnow-hardhead) assemblage in the North Fork Kings River between Balch Afterbay Dam and the confluence with Dinkey Creek. Streamflow in the North Fork Kings River downstream of Dinkey Creek is supplemented by releases from the P-1988 Dinkey Creek Siphon, and the fish assemblage transitions to include additional transition zone species such as hardhead (*Mylopharodon conocephalus*) (a CDFW SSC and SNF SCC), and warmwater species, including bass (PG&E 1985, 1986, 2003, 2008, 2013, 2018, 2023; Tetra Tech 1986).

With the implementation of the above measures to manage and prevent releases of sediment into stream reaches impacted by Proposed Project operations, impacts to fish populations or habitat quality and availability would be reduced. Therefore, there would be a less than significant impact.

Reservoir Fish Populations and Habitat

The following discusses potential adverse impacts on reservoir fish populations and habitat in Black Rock Reservoir and Balch Afterbay, including access to spawning habitat and water quality within the impoundments.

Entrainment

The Proposed Project would likely have little to no effect on fish populations within Black Rock Reservoir or Balch Afterbay due to low entrainment potential into the Balch Tunnel Intake and Pelton turbines in the Balch powerhouses. Although the Balch Tunnel Intake is unscreened with large volumes of water cycled during Balch Project operations and survival through the Pelton turbines would be unlikely (Cada 2001), the intake is relatively deep and the potential for involuntary entrainment of trout is low based on swim speeds calculated for brown and rainbow trout captured in the vicinity of the Balch Tunnel Intake. A total of 11 brown and 4 rainbow trout ranging in size from 82 to 397 mm (0.3–1.3 feet) total length[6] were captured in 2022 at depths of up to 45 feet in the vicinity of the Balch Tunnel Intake (PG&E 2024). These fish have calculated sustained and burst swim speeds that greatly exceed the maximum approach velocities at the intake trash rack (Alexander 1967; Clay 1961). Therefore, there would be a less than significant impact.

Stream Fish Populations and Habitat

Sedimentation

Implementation of PG&E Proposed Measure No. 5, *Low-Level Outlet Operations*, would manage sediment releases from Proposed Project dams, minimizing adverse impacts from increased sediment discharges/deposition downstream of Proposed Project dams, and contributing to, or not detracting from, spawnable gravel deposits to support fish recruitment within the North Fork Kings River downstream of Proposed Project dams. Additionally, PG&E Proposed Measure No. 11, *Transportation System Management Plan*, would address erosion along Proposed Project roads and stream crossings to minimize sediment runoff. Therefore, there would be a less than significant impact.

Instream Flow

Minimum instream flow requirements specified under the current FERC license were determined to be adequate to ensure the protection of aquatic fish and habitat (FERC 1980). Although historical flow data indicates that minimum flow requirements may occasionally not be met in the North Fork Kings River

[6] Alexander (1967) and Clay (1961) use fish total length to calculate fish swim speeds.

downstream of Balch Afterbay and Black Rock Reservoir, these periods of non-compliance appear to be short in duration and infrequent in occurrence (see Section 3.3.1.2 for additional detail). Based on a review of historical flow data, no long-term or severe reductions in minimum flows have been observed that would significantly affect stream fish populations or habitat. Furthermore, implementation of PG&E Proposed Measure No. 1, *Minimum Flows and Water Year Types,* would maintain continuous minimum instream flow releases established in the *Fisheries Resources Agreement* and the prior FERC license (FERC 1980), dependent on season and water year type, to maintain adequate habitat and water quality and temperature conditions for fish within stream reaches. Therefore, there would be a less than significant impact.

Special Status Amphibians and Aquatic Reptiles

The potential impacts of routine O&M activities implemented under PG&E's Proposed Project on ESA-listed and otherwise special status amphibians and aquatic reptiles include direct effects related to vehicle and equipment use, indirect effects related to pollution and runoff (including sedimentation and pesticides), and indirect effects related to habitat alterations.

Construction of the Proposed Project (i.e., removal of Black Rock Creek Feeder and Weir Creek Feeder) would require consultation with the USFS and other agency permissions. Construction and operation of the Proposed Project is not likely to adversely affect special status amphibians or aquatic reptiles, including ESA-listed species. The feeders have been dry and non-operational in recent summers, and it is anticipated that work will be completed in the dry season, and no suitable habitat for special status amphibians or aquatic reptiles is likely to be present.

Sedimentation

There is potential for sediment to enter Proposed Project stream reaches due to sediment releases from Project dams or erosional runoff under normal Proposed Project operation, and this could result in increased turbidity and suspended solids in Proposed Project stream reaches. Increased turbidity and suspended solids could impact special status amphibians and reptiles if present in stream reaches impacted by Proposed Project operations; specifically, northwestern pond turtle. No effects from sedimentation on special status amphibians are anticipated, as no stream-breeding or dwelling special status amphibians are present within stream reaches affected by operation of the Proposed Project.

Temporarily increased turbidity and suspended solids may result in levels that could potentially reduce foraging efficacy of aquatic turtle species, which are highly visual predators. Implementation of PG&E Proposed Measure No.5, *Low-Level Outlet Operations*, would manage sediment releases from Proposed Project dams and minimize impacts of sediment discharge/continued operation of the LLOs at Balch Diversion Dam and Balch Afterbay Dam. In addition, PG&E Proposed Measure No. 11, *Transportation System Management Plan* would address erosion along Proposed Project roads and stream crossings to minimize sediment runoff. Implementation of these measures would manage and prevent releases of sediment into stream reaches impacted by Proposed Project operation. Therefore, there would be a less than significant impact.

Instream Flow

Although historical flow data indicates that minimum flow requirements may occasionally not be met in the North Fork Kings River downstream of Balch Afterbay and Black Rock Reservoir, these periods of non-

compliance appear to be short in duration and infrequent in occurrence (see Section 3.3.1.2 for additional detail). Northwestern pond turtle may occur within the North Fork Kings River in these reaches; however, this species is generally tolerant of flow variability due to its ability to self-relocate, use of upland breeding habitat, and winter brumation habitat under streambed sediments. Based on a review of historical flow data, no long-term or severe reductions in minimum flows have been observed that would significantly affect pond turtle foraging, nesting, or other movement. Implementation of PG&E Proposed Measure No. 1, *Minimum Flows and Water Year Types* would maintain continuous minimum flow in the North Fork Kings River, dependent on season and water year type, to provide sufficient stream habitat for northwestern pond turtle in potentially affected stream reaches and minimize impacts of water surface fluctuations. Therefore, there would be a less than significant impact.

Additionally, no impacts to special status amphibians from instream flows are anticipated, as no stream-breeding or dwelling amphibians are present within stream reaches affected by operation of the Proposed Project (see Table 3.5-5).

Vehicle and Equipment Use

Potential impacts on ESA-listed or other special status amphibians or aquatic reptiles could occur from vehicle or equipment use during Proposed Project O&M activities, and include direct injury or mortality of individuals that could be crushed or buried by vehicles, equipment, or personnel associated with (1) routine vegetation management including hazard tree removal; (2) Proposed Project maintenance (roads, trails, facilities, or power and communication lines); (3) transmission line repairs (tower clearing, foundation repairs, or minor grading); (4) debris, sediment, and trash management; or (5) periodic patrols and/or inspections.

Special status amphibians that spend most of their lives using upland subterranean or sheltering habitats (i.e., California tiger salamander, Kings River slender salamander, gregarious slender salamander) are particularly vulnerable to accidental crushing because they are typically hidden from view. Similarly, northwestern pond turtle uses terrestrial uplands for nesting, and underground eggs may be inadvertently disturbed or crushed by ground-moving activities. Individuals could also be crushed while in upland habitats or on roads during the species' periods of terrestrial movement.

It is anticipated these impacts would be either avoided or minor and localized with the implementation of the measures included in PG&E Proposed Measure No. 3, *Biological Resources Management Plan* and Measure No. 11, *Transportation Management Plan* such as managing equipment and vehicles (e.g., enforcing speed limits, checking under vehicles before use), and following procedures when an animal is encountered), and avoiding travel through standing water and conducting work near wetlands during the dry season would also minimize or avoid the potential for vehicles, equipment, or personnel operating in, proximate to, or moving through, aquatic habitats to crush amphibian eggs, larvae, or breeding adults. Additionally, California tiger salamander, western spadefoot, and other common amphibian species often move over terrestrial habitats during or directly after rain events and at night; as such, measures included in PG&E Proposed Measure No. 3 would be timed so that Proposed Project O&M activities where overland travel of vehicles and equipment are used avoid these periods for amphibian movement. Therefore, there would be a less than significant impact.

Vegetation Management

Vegetation management activities, including herbicide application and hazard tree removal, are included in the Proposed Project to reduce wildfire risk, protect Proposed Project facilities, protect sensitive resources, manage targeted invasive weeds, and improve the health, sustainability, habitat value, and fire resilience of vegetation within the proposed FERC Project Boundary. Hazard tree removal and defensible space activities, especially those involving ground disturbance, could create areas of bare, disturbed soil and temporarily lead to increased erosion, discharge of suspended sediments, and turbidity in downstream waterbodies. Such activities could cause adverse impacts to special status amphibians and reptiles known to occur or with potential to be present in the Proposed Project area or their habitat.

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan,* and Measure No. 7, *Hazardous Substance Plan* and corresponding general and resource-specific measures and BMPs, would avoid and minimize effects from vegetation management activities such as displacement or removal of leaf litter, wood cover, or other herbaceous materials; chipping of materials, hazard tree felling, or other vegetation management that could cover upland refugia such as rodent burrows, rock crevices, or root tangles, or create dispersal barriers between upland and aquatic habitats; herbicide application, and runoff from machinery (discussed in further detail, below). Therefore, there would be a less than significant impact.

Pollution or Runoff, Including Pesticide Use

Potential indirect adverse impacts on ESA-listed or otherwise special status amphibians or aquatic reptiles could result from pollution or runoff during Proposed Project O&M activities into occupied or suitable aquatic habitats. Use of equipment, vehicles, spoil sites, and chemicals, and production of trash during Proposed Project O&M activities could result in the direct or indirect exposure of individuals to potentially toxic materials, including use of pesticides (such as herbicides and rodenticides) used during vegetation management or rodent control. Such pesticides are known to persist in upland habitats and could potentially enter aquatic habitats through runoff.

Pesticides can have deleterious effects on amphibians, particularly the tadpole life stage (Cauble and Wagner 2005; Comstock et al. 2011, as cited in USFWS 2018). Amphibians are generally more sensitive to pesticides than other taxa because (1) the life history of most amphibians involves both aquatic larval and terrestrial post-metamorphic life stages, allowing exposure to toxicants in both aquatic and terrestrial habitats; and (2) amphibian skin is highly permeable because it is physiologically involved in gas, water, and electrolyte exchange with their environment, increasing the potential for absorption (Quaranta et al. 2009). Depending on the dosage and formulation (e.g., type of surfactant), direct exposure can cause mortality or morbidity in all life stages of amphibians. Pesticides can also alter the food web or water chemistry, indirectly affecting amphibian and aquatic reptile habitats or prey availability.

Detailed analysis of the magnitude of potential effects of herbicide use on amphibians and aquatic reptiles is provided in FLA Attachment E5, *Pesticide Summaries and Risk Assessments for Exposure Scenarios for Pesticide Use under the Proposed Project* (PG&E 2024). The analysis includes types of herbicides, exposure estimates, and hazard quotients for acute and chronic exposure scenarios. Direct toxicological effects on amphibians from acute exposure are not anticipated for all herbicides except three (indaziflam, sulfometuron methyl, and triclopyr butoxyethyl ester [BEE]), and effects on amphibians from chronic exposure are not anticipated for all herbicides except one (clethodim). Hazard quotients are below the

level of concern for all modeled exposure scenarios for aquatic reptiles (using fish-eating birds as a surrogate). Infrequent applications of herbicide in specific locations (i.e., once or twice per year), mobility of aquatic wildlife species, and implementation of avoidance and minimization measures in PG&E Proposed Measure No. 3, *Biological Resources Management Plan* (e.g., establishing aquatic habitat buffers, using targeted application methods), would reduce the potential for significant acute or chronic exposure on amphibians as a result of Proposed Project O&M activities.

Similarly, oil, gasoline, and other petroleum-based fluids could leak from machinery or spill during refueling and be discharged or carried by stormwater runoff into downstream waterbodies. Hazard tree removal and defensible space activities, especially those involving ground disturbance, could create areas of bare, disturbed soil and temporarily lead to increased erosion, discharge of suspended sediments, and turbidity in downstream waterbodies.

Implementation of measures contained in PG&E Proposed Measure No. 3, *Biological Resources Management Plan*; proposed Measure No. 7, *Hazardous Substance Plan*, proposed Measure No. 11, *Transportation System Management Plan* and associated or standard BMPs would minimize and avoid effects of pollutants or runoff, such as sediment or hazardous material runoff from the use of vehicles or equipment, that have the potential to harm amphibians or aquatic reptiles and their habitats. Specifically, PG&E Proposed Measure No. 7 would address the storage, transportation, spill prevention, cleanup, and disposal of hazardous substances associated with Proposed Project O&M activities. PG&E Proposed Measure No. 3 includes limited operating periods (LOPs), biological monitoring support, and restricted work areas to avoid or minimize the potential for impacts on ESA-listed and special status amphibians and aquatic reptiles. PG&E Proposed Measure No. 3 also includes erosion control measures and BMP to prevent soil disturbance, spoil wash, and erosion; minimize sedimentation in wetland areas and waterways; and ensure proper usage and safe application of pesticides around aquatic resources, including the use of pesticide formulations labeled for aquatic application and treatment buffers around aquatic habitats. In addition, PG&E Proposed Measure No. 11 would address erosion along Proposed Project roads and stream crossings to minimize sediment runoff. Therefore, there would be a less than significant impact.

Alterations to Habitat

Potential indirect adverse impacts to ESA-listed or other special status amphibians or aquatic reptiles resulting from habitat alteration in upland or aquatic habitats during Proposed Project O&M activities could include the following:

- Minor grading associated with transmission line repairs, which may remove subterranean refuge habitat for California tiger salamander.
- Displacement or removal of leaf litter, wood cover, or other herbaceous materials during vegetation management or Proposed Project maintenance, which could alter microclimates (e.g., moisture and temperature) that amphibians depend on, resulting in less suitable or unsuitable habitat conditions.
- Chipping of materials, hazard tree felling, or other vegetation management activities that could cover upland refugia such as rodent burrows, rock crevices or root tangles; or vegetation management activities that could create dispersal barriers between upland and aquatic habitats.

- Hazard tree removal, which could create sediment runoff to aquatic habitat by dropping debris or causing ground disturbance associated with site access (e.g., new skid trails or temporary staging areas).
- Implementation of Proposed Project O&M activities that could cause the creation of new trenches, holes, staging pipes, or tubes that could trap individuals, leaving them vulnerable to predation, desiccation, starvation, or injury.

It is anticipated these impacts would be either avoided or reduced to less than significant levels given the measures included in PG&E Proposed Measure No. 3, *Biological Resources Management Plan* and proposed Measure No. 11, *Transportation System Management Plan*. The proposed measures include measures for maintaining habitat integrity, avoiding the creation of dispersal barriers, and/or preventing entrapment. Therefore, there would be a less than significant impact.

Benthic Macroinvertebrates

Impacts to the benthic macroinvertebrate community could occur under the Proposed Project from reduced flows if minimum instream flow requirements are not consistently met, and from increased sedimentation, turbidity, or the presence of settleable material or suspended solids in stream reaches. Potential impacts on benthic macroinvertebrates from these changes in water quality and sediment availability include changes in species composition, diversity, abundance, and food availability (i.e., periphyton productivity). However, research has shown that macroinvertebrate communities generally remain stable when disturbance events are infrequent (not more than once per month) and are capable of rapid recolonization following such disturbances (Robinson and Minshall 1986, Ryan 1991).

Past studies (PG&E 2012) have demonstrated that temporary impacts to physical aquatic habitat and aquatic organisms, such as macroinvertebrates, are not permanent, with displaced individuals typically replaced through natural recolonization processes. While a temporary shift in species composition may occur due to short-term sedimentation, it is not anticipated that there would be a long-term decrease in macroinvertebrate biomass. Flushing flows and high spring and summer flows are features of the natural hydrograph and would help transport sediments out of affected reaches, further supporting rapid community recovery and contributing to the natural function and geomorphology these reaches.

With consistent implementation of measures in PG&E Proposed Measure No. 1, *Minimum Instream Flow*, and proposed Measure No. 5, *Low-Level Outlet Operations*, potential impacts to benthic macroinvertebrates would be less than significant. Although historical flow data indicates that minimum flow requirements may occasionally not be met in the North Fork Kings River downstream of Balch Afterbay and Black Rock Reservoir, these periods of non-compliance appear to be short in duration and infrequent in occurrence (see Section 3.3.1.2). Based on a review of historical flow data, no long-term or severe reductions in minimum flows have been observed that would result in significant impacts to benthic macroinvertebrates or aquatic habitat. Therefore, there would be a less than significant impact.

Aquatic Invasive Species

The Proposed Project is not expected to have significant direct or indirect impacts to the spread of aquatic invasive species resulting from Proposed Project O&M activities or proposed construction as (1) aquatic invasive species (including bullfrogs) have not been observed within Proposed Project impoundments and potentially impacted reaches, (2) Balch Afterbay Dam functions as an upstream

passage barrier to invasive bass and centrarchid species populations present in the North Fork Kings River downstream of Dinkey Creek, and (3) water quality conditions required to support non-native invasive dreissenid mussels do not exist in Balch Project reservoirs. Furthermore, implementation of PG&E's existing aquatic invasive species protection measures would reduce impacts to special status fish and aquatic species resulting from the spread of aquatic invasive species. Therefore, there would be a less than significant impact.

3.5.2.2 Terrestrial Wildlife

Special Status Birds and Mammals

The potential impacts of routine Proposed Project O&M activities on special status species are subsequently described in detail. Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan* would minimize or reduce the potential for adverse impacts on special status wildlife species and critical habitat with the potential to occur within the proposed FERC Project Boundary, although unintentional adverse impacts on certain special status species are possible during vegetation and hazard tree removal.

Table 3.5-5. Potential Balch Hydroelectric Project Impacts on Special Status Wildlife with Implementation of Applicable Measures in Proposed Measure 3, Biological Resources Management Plan

Special Status Wildlife	O&M Activities Potentially Impacting Wildlife	Applicable Measures in the *Biological Resources Management Plan*	Potential Project Impacts and Rationale
ESA-Listed Species			
California condor	Pesticide use	AMM-9, AMM-11	Not likely to adversely impact California condor because the proposed FERC Project Boundary is not within the current breeding range of California condor, so impacts would be limited to foraging individuals. Avoidance of second-generation anticoagulant rodenticides and implementation of BMPs for herbicide application (AMM-11), along with proper containment of waste items (including microtrash) (AMM-9) would minimize the potential for direct adverse impacts on these individuals. Minimization measures and BMPs in PG&E's Avian Protection Program (PG&E 2017) and Nesting Bird Management Plan (PG&E 2016b) would also reduce the potential for direct adverse impacts on California condor.
California spotted owl, Sierra Nevada DPS	Extended helicopter use, heavy machinery, vegetation removal, pesticide use	AVIAN-1, AVIAN-2, AVIAN-4, AVIAN-5, AMM-11	May impact, likely to adversely impact California spotted owl (proposed for listing as threatened under the ESA) during vegetation removal; other indicated activities may impact, but are not likely to adversely impact, the species. If work is conducted during the LOP, conducting a pre-activity survey (AVIAN-1), establishing protective buffers for active nests (AVIAN-2), and limiting noise-generating activity during the breeding season (AVIAN-4) in known activity centers, including those protected by the Forest Service, would minimize potential adverse impacts on nesting individuals or their young. However, nests can be cryptic and are more likely to be in hazard trees (e.g., trees with broken tops, cavities), so unintentional adverse impacts may still occur. Additional measures that would reduce the potential for impacts on California spotted owl include restricting the use of second-generation anticoagulant rodenticides and implementing BMPs for herbicide application (AMM-11), as well as avoiding habitat modification in known activity centers (AVIAN-5). Minimization measures in PG&E's Avian Protection Program (PG&E 2017) and Nesting Bird Management Plan (PG&E 2016b) would also reduce the potential for direct adverse impacts on the species.

Special Status Wildlife	O&M Activities Potentially Impacting Wildlife	Applicable Measures in the *Biological Resources Management Plan*	Potential Project Impacts and Rationale
Fisher, Southern Sierra Nevada DPS	Extended helicopter use, heavy machinery, vegetation removal, pesticide use	FISHER-1 through FISHER-15, AMM-2, AMM-3, AMM-11	May impact, likely to adversely impact the Southern Sierra Nevada DPS of fisher during vegetation removal activities (including hazard tree removal). May impact, not likely to adversely impact, during other O&M activities. A LOP coinciding with the fisher denning season (FISHER-5), limiting the duration of potential disturbance in discrete areas and at night (FISHER-10, FISHER-15), and ensuring staging areas are clear of fisher (FISHER-14) during the denning season would reduce the potential for disturbance or other direct impacts on breeding individuals or their young (e.g., abandonment or separation). The assessment and preservation of foraging (FISHER-1, FISHER-2) and denning (FISHER-6 through FISHER-9, and FISHER-11) habitats and features while ensuring opportunities for travel, crossing, or cover (FISHER-3, FISHER-4) would protect valuable fisher habitat and preserve its connectivity. Additionally, the protection or safe creation of suitable denning or resting structures (FISHER-12, FISHER-13) would protect breeding and resting individuals and their young and create additional breeding features for the species. Avoiding second-generation anticoagulant rodenticides and implementing BMPs for herbicide application (AMM-11), reducing vehicle speeds on unpaved roads (AMM-2), and scanning equipment for wildlife (AMM-3) would further minimize the potential for adverse impacts on the species.

Special Status Wildlife	O&M Activities Potentially Impacting Wildlife	Applicable Measures in the *Biological Resources Management Plan*	Potential Project Impacts and Rationale
Other Special Status Wildlife			
Raptors (golden eagle, northern harrier, American goshawk, bald eagle, western burrowing owl, American peregrine falcon)	Extended helicopter use, heavy machinery, vegetation removal, pesticide use	AVIAN-1, AVIAN-2, AVIAN-3, AMM-11	**Minor impacts** on raptors. If work is conducted during species-specific LOPs, conducting a pre-activity survey (AVIAN-1) and establishing protective buffers for active nests (AVIAN-2) would minimize potential adverse impacts on nesting raptors or their young. Implementation of measure AVIAN-3 would minimize the potential for destruction of western burrowing owl habitat or direct impacts on the species. Avoiding second-generation anticoagulant rodenticides and employing BMPs for herbicide application (AMM-11) would reduce the potential for adverse impacts on raptors associated with the consumption of contaminated prey. Minimization measures in PG&E's Avian Protection Program (PG&E 2017) and *Nesting Bird Management Plan* (PG&E 2016b) would also reduce the potential for direct adverse impacts on these species. Additional species-specific considerations follow: • Golden eagle and bald eagle nests are conspicuous and likely to be detected during surveys. • Vegetation removal or use of heavy equipment is infrequent in suitable. • Breeding habitats for golden eagle, northern harrier, western burrowing owl, and American peregrine falcon.

Special Status Wildlife	O&M Activities Potentially Impacting Wildlife	Applicable Measures in the *Biological Resources Management Plan*	Potential Project Impacts and Rationale
Bats (western mastiff bat, fringed myotis, pallid bat, western red bat, Townsend's big- eared bat, spotted bat)	Vegetation removal, structure modifications, pesticide use	BAT-1, BAT-2, BAT-3, AMM-11	**Minor impacts** during structure modifications with implementation of avoidance and minimization measures (e.g., pre-activity surveys, exclusion outside the sensitive maternity and hibernacula seasons [BAT-2, BAT-3]). Removing hazard trees and disturbing the tree prior to felling to encourage bats to leave (BAT-1) would reduce potential impacts on an individual roosting or small roosts to **minor** levels. If special status maternity colonies are present and non-volant young are unable to leave a roost in hazard tree(s), there may be **potential adverse impacts** at a local population level; however, impacts would be **minor** at a landscape or population level due to the relatively small number of trees that would be removed relative to the number of trees present in the nearby forest habitats. Pre- activity surveys prior to hazard tree removal are not recommended due to the infeasibility of conducting emergence surveys to evaluate occupancy in a forest habitat (i.e., vegetation reduces backlight and visibility). Use of pesticides results in low hazard exposure associated with the consumption of contaminated prey (e.g., insects) (Attachment E5, *Pesticide Summaries and Risk Assessments for Exposure Scenarios for Pesticide Use under the Proposed Project*), and AMM- 11 includes BMPs for herbicide application that would further minimize the potential for adverse impacts.

Extended Helicopter Use

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, during routine Proposed Project O&M activities that include helicopter operations involving repeated flyovers or hovering at low altitudes (e.g., transmission line inspection, vegetation management) would cause minor impacts that are unlikely to adversely impact special status wildlife species, including raptors which are known to be sensitive to disruption from helicopters (Grubb and Bowerman 1997, Delany et al. 1999, Froneman 2006, Anderson 2007). PG&E Proposed Measure No.3, *Biological Resources Management Plan* includes measures AVIAN-1, AVIAN-2, AVIAN-4, FISHER-5, and FISHER-10 to minimize the potential for audial or visual disturbance related to extended helicopter use during the reproductive season that may cause adults to flush from or abandon the nest or den, leaving eggs or young vulnerable. Additionally, PG&E's *Avian Protection Program* (APP) (PG&E 2017) and *Nesting Bird Management Plan* (NBMP) (PG&E 2016b) include BMPs that would reduce the potential for adverse impacts related to extended helicopter use on special status birds. Therefore, there would be a less than significant impact.

Heavy Machinery

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, during routine Proposed Project O&M activities that include the use of heavy machinery (e.g., compactor, grader, excavator) would cause minor impacts that are unlikely to adversely impact special status wildlife species. PG&E Proposed Measure No.3, *Biological Resources Management Plan* includes measures AVIAN-1 through AVIAN-5 and FISHER-1 through FISHER-15 to preserve valuable breeding or foraging habitat, restrict use of heavy machinery during sensitive life stages (e.g., denning or nesting season) when young (or eggs) are immobile or less mobile (i.e., unable to escape) and detrimental noise or vibration may disturb or agitate adults potentially causing flushing from or abandonment of nests, and minimize the potential for burying or crushing species that use ground-level or subterranean habitat (i.e., fisher [*Pekania pennanti*] and western burrowing owl [*Athene cunicularia hypugaea*]). Additionally, PG&E's APP (PG&E 2017) and NBMP (PG&E 2016b) include BMPs that would also reduce the potential for adverse impacts related to heavy machinery use on special status birds. Therefore, there would be a less than significant impact.

Vegetation and Hazard Tree Removal

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, PG&E's APP (PG&E 2017), and PG&E's NBMP (PG&E 2016b) during Proposed Project O&M activities that include vegetation removal (e.g., clearing, hazard tree removal) would cause minor impacts that are unlikely to adversely impact most special status wildlife. Some vegetation removal activities (e.g., hazard tree removal) could potentially cause adverse local population-level impacts on California spotted owl (*Strix occidentalis occidentalis*), special status bats, and fisher.

If vegetation removal occurs during the breeding season, the potential for injury or mortality is greater for some species because vegetation may contain occupied mammal dens, bird nests, or bat roosts. Additionally, special status wildlife may be disturbed or harassed by noise or vibration generated by vegetation removal equipment (e.g., chainsaw, masticator, chipper). Disturbance occurring during the breeding season could lead to flushing or abandonment of nests, dens, or maternity colonies by adults, leaving eggs or young vulnerable. Measures AVIAN-1, AVIAN-2, AVIAN-4, FISHER-4, and FISHER-10 through FISHER-15, included in PG&E Proposed Measure No. 3, *Biological Resources Management*

Plan, would limit vegetation removal or duration of activities during sensitive life stages, in suitable breeding habitat, thereby reducing the potential for impacts to minor levels. However, because California spotted owls and fishers are more likely to nest or den cryptically in hazard trees, unintended adverse impacts may still occur. Similarly, measure BAT-1 is intended to encourage bats to leave the roost by creating a vibrational disturbance; however, during the maternity season if a special status maternity roost is present and non-volant young are unable to leave a roost in hazard tree(s), there may be unintended adverse impacts at the local population level, while impacts would be minor at a landscape or population level due to the relatively small number of trees that would be removed relative to the number of trees present in nearby forested habitats. Pre-activity surveys for bats prior to hazard tree removal are not recommended due to the infeasibility of conducting emergence surveys to evaluate occupancy in a forest habitat (i.e., vegetation reduces backlight and visibility).

Special status wildlife may also be impacted by loss of habitat from vegetation removal. Suitable foraging, rearing, and nesting habitat for special status wildlife is present throughout the proposed FERC Project Boundary; therefore, removal of vegetation (including hazard trees) could impact habitat quality, composition, and/or connectivity through loss of cover, forest canopy and structure, or dispersal/migration corridors. Habitat loss may also impact future breeding success of special status raptors that exhibit nest fidelity (e.g., bald eagle [*Haliaeetus leucocephalus*]) because substantial energy is required to construct a new nest. Measures AVIAN-5, FISHER-1 through FISHER-3, and FISHER-6 through FISHER-13, included in PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, would limit removal of forested habitat or features in and nearby suitable breeding or denning habitat for California spotted owl and fisher, thereby reducing the potential for indirect impacts to minor levels for these species and others that use similar habitat. Similarly, Measure AVIAN-3 would protect habitats for species that use subterranean habitats, like western burrowing owl, and reduce the potential for indirect impacts on this species to minor levels. Therefore, there would be a less than significant impact.

Pesticide Use

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, during routine Proposed Project O&M activities that include pesticide (i.e., herbicide and rodenticide) use would cause minor impacts on the special status wildlife.

Wildlife could be exposed to herbicides if application occurs in or near suitable habitat. Animals could ingest water contaminated by a leak or spill, or ingest prey (e.g., fish, small mammals, insects) that have been contaminated via direct application, contact with recently sprayed vegetation, or consumption of contaminated vegetation. Detailed analysis of the magnitude of potential impacts of herbicide use is provided in FLA Attachment E5, *Pesticide Summaries and Risk Assessments for Exposure Scenarios for Pesticide Use under the Proposed Project*; the analysis includes types of herbicides, exposure estimates, and hazard quotients for common exposure scenarios. Herbicide application during routine Proposed Project O&M activities is not anticipated to have detrimental impacts on terrestrial wildlife (i.e., hazard quotients are below the level of concern for all modeled exposure scenarios), and implementation of measure AMM-11 in PG&E Proposed Measure No. 3, *Biological Resources Management Plan* would further reduce the risk of potential adverse impacts from herbicides through the use of targeted application methods, establishment of aquatic habitat buffers, and supervision by a licensed PCA during all applications.

The use of rodenticides also has the potential to impact special status raptor and mesocarnivore species if they consume contaminated rodents (e.g., squirrels, rats, mice) or their carcasses; however, measure AMM-11 in PG&E Proposed Measure No. 3, *Biological Resources Management Plan,* would restrict the use of second-generation anticoagulant rodenticides, reducing the risk of toxicity to non-target wildlife (CDPR 2018). Additionally, measure AMM-11 would further protect scavenging wildlife by ensuring any dispatched rodents are quickly collected or trapped and disposed of at approved off-site facilities. Therefore, there would be a less than significant impact.

Structure Modifications

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, during Proposed Project O&M activities that include structure modifications at Proposed Project facilities, including residential homes, to maintain structural integrity as the facilities age would cause minor impacts on special status bats. Examples of structure modifications that may cause minor impacts on special-status bats include repairing or replacing a roof, attic vent, screen, or siding. The likelihood, manner, and degree of effect can vary based on the timing of disturbance. Impacts on special status bats would be more significant if activities occur during sensitive maternity or hibernating life stages because maternity colonies support young that may not be able to fly, and waking a hibernating bat will force it to expend vital energy reserves required for surviving the duration of the winter season. Direct impacts (i.e., mortality) may occur if adults or young are unintentionally enclosed in a building during an exclusion or if the activities at the site cause adults to abandon non-volant young. Indirect impacts may occur if a significant roost site is lost with structure modification. PG&E Proposed Measure No. 3, *Biological Resources Management Plan* includes measures BAT-2 and BAT-3 to limit activities that cause structure modification or loud noise during sensitive life stages (e.g., maternity or hibernating roosting seasons) and implement bat deterrents or exclusion devices to dissuade or prevent bats from roosting and reduce direct impacts to minor levels. Therefore, there would be a less than significant impact.

Special Status Plants

Study BR-2 documented two occurrences of one special status species (Tompkins' sedge [California state listed as rare]) within the proposed FERC Project Boundary. No ESA-listed plants were documented within the proposed FERC Project Boundary during botanical surveys for Study BR-2.

To avoid or minimize effects on special status plant individuals or populations from Proposed Project O&M activities or recreational use in or adjacent to these occurrences, PG&E would conduct comprehensive floristic surveys every five years for 17 years[7] in areas where they routinely perform vegetation management activities to maintain up-to-date knowledge of special status plant occurrences, as outlined in the PG&E Proposed Measure No. 3, *Biological Resources Management Plan*. The following measures, outlined in the PG&E Proposed Measure No. 3, *Biological Resources Management Plan,* will be implemented to avoid impacts on special status plants:

- SSP-1: Where feasible and accessible (i.e., pending slope, terrain, landowner access), special status plant populations will be marked in the field with permanent markers (e.g., Carsonite

[7] After completion of the surveys in license year 17, the floristic survey monitoring period will be reassessed based on previous years' results to determine if the frequency should remain the same at 5 years, be extended to 10-year intervals, or be discontinued.

markers) with a pre-determined color or code that identifies the resource. If special status plant populations are located on National Forest System (NFS) lands, placement of permanent markers will be coordinated with the Forest Service.

- SSP-2: To protect special status plant populations, Project O&M activities will occur after plant senescence (annual species only) or seed set and prior to the first significant rain.
- SSP-3: To the extent feasible and in the vicinity of special status plants, pesticides will be applied via targeted methods (i.e., cut-stump, basal, hack and squirt, injection, or foliar application) using low-volume, low-pressure backpack sprayers and nozzles at the lowest possible height.

Additionally, AMM-11 (BMP for herbicide application and timing) would avoid and minimize impacts to special status plants. Therefore, there would be a less than significant impact.

With implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, Proposed Project implementation would not be likely to adversely impact critical habitat for ESA-listed plants. Critical habitat for one ESA-listed plant species (Keck's checkerbloom) is located at lower elevations along the Balch-Sanger 115 kV Transmission Line in serpentine and clay areas in cismontane woodland and valley and foothill grasslands.

Measures to protect critical habitat including the primary constituent elements for Keck's checkerbloom (i.e., open, sparsely vegetated annual grasslands and soils such as serpentine where competition is restricted; see FLA Attachment E4, *ESA-Listed Species Descriptions*) are outlined in PG&E Proposed Measure No. 3, *Biological Resources Management Plan* and include AMM-1 (minimizes off-road travel), AMM-4 (minimizes soil and vegetation disturbance), and AMM-11 (BMP for herbicide application and timing). Additionally, measures AMM-13 (use of certified weed-free material) and AMM-15 (cleaning sediment and vegetation off equipment from outside of the watershed) would limit the potential spread of non-native vegetation into critical habitat during Proposed Project O&M activities. Moreover, any habitat modification in designated critical habitat due to Proposed Project implementation (e.g., from minor grading associated with transmission line repairs) would be at insignificant and/or discountable levels because these activities are not expected to significantly impact primary constituent elements for the species. Therefore, impacts would be less than significant.

Conclusion

Overall, impacts to species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS would be less than significant.

3.5.2.3 Riparian Habitat and Sensitive Natural Communities

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (Less than Significant Impact)

With implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, routine Proposed Project O&M activities would have minor to no adverse impacts on riparian habitat or other sensitive natural communities. Thirteen sensitive natural communities with a state ranking of S2 (imperiled) or S3 (vulnerable) cover 1,876.3 ac (9.2%) of the area within the

proposed FERC Project Boundary and surrounding 0.5 mile. Six of these sensitive natural communities, covering 374.7 ac, are classified as riparian habitat.

Measures to avoid these sensitive natural communities and riparian habitat, outlined in PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, include AMM-1 (minimizes off-road travel), AMM-4 (minimizes soil and vegetation disturbance), and AMM-5 (locates equipment storage and spoil sites away from waterbodies). Additionally, measures AMM-13 (use of certified weed-free material) and AMM-15 (cleaning sediment and vegetation off equipment from outside the watershed) would limit the potential spread of non-native vegetation into sensitive natural communities and riparian habitat due to Proposed Project O&M activities.

Proposed construction as part of the Proposed Project (i.e., removal of Black Rock Creek Feeder and Weir Creek Feeder) would require consultation with the USFS and other agency permissions. Potential adverse impacts on sensitive natural communities and riparian habitat during removal of the feeders would be minimized by implementing permit terms and conditions. Additionally, because these features have not been operated recently, operation of the Proposed Project without these features would not impact riparian habitat. Therefore, there would be a less than significant impact.

3.5.2.4 State and Federally Protected Wetlands

c) 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 Impact)

With implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, routine Proposed Project O&M activities would have minor to no adverse impacts on wetlands. Thirteen sensitive natural communities with a state ranking of S2 (imperiled) or S3 (vulnerable) cover 1,876.3 ac (9.2%) of the area within the proposed FERC Project Boundary and surrounding 0.5 mile. Seven of these sensitive natural communities, covering 408.8 ac, are classified as wetland vegetation communities; five wetlands were identified within the proposed FERC Project Boundary and characterized during Study BR-3. Measures to avoid these sensitive natural communities and wetlands, outlined in PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, include AMM-1 which limits vehicle and equipment to using existing roads and crossings when passing through streams and wetlands and if off-road travel is required, limits it to the safest route with the least potential for resource damage, AMM-4 which minimizes soil and vegetation disturbance by using developed or previously used laydown and staging areas or, if not available, staging in the area with the least potential for resource damage, AMM-5 which locates equipment storage and spoil sites away from waterbodies, and AMM-6 which keeps vehicle maintenance and refueling outside of the 250-foot vernal pool exclusion zone (measure WET-1) or any other area where hazardous materials may enter aquatic habitat. If vegetation management needs to occur in or near wetlands, measures AMM-8 (erosion control measures), AMM-11 (use of pesticide formulations labeled for aquatic application), and WET-1 (exclusion zones around vernal pools) would minimize any adverse impacts. Additionally, measures AMM-13 (use of certified weed-free material) and AMM-15 (cleaning sediment and vegetation off

equipment from outside the watershed) would limit the potential spread of non-native vegetation into sensitive natural communities and wetlands due to Proposed Project O&M activities.

Potential impacts of herbicide application on sensitive natural communities and wetlands (FLA Attachment E5, *Pesticide Summaries and Risk Assessments for Exposure Scenarios for Pesticide Use under the Proposed Project*) would be avoided or minimized by implementing PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, and Proposed Measure No. 7, *Hazardous Substance Plan*. PG&E Proposed Measure No. 3, *Biological Resources Management Plan,* includes measure AMM-11, which would minimize the potential for herbicide drift through the use of BMPs for application methods and timing (e.g., no large-scale broadcast applications; implementation of no-spray buffers around aquatic habitat; and application only during periods of dry weather and low wind speeds). These measures would ensure that activities may impact, but are not likely to adversely impact, sensitive natural communities and wetlands.

Proposed Project construction (i.e., removal of Black Rock Creek Feeder and Weir Creek Feeder) would require consultation with the USFS and other agency permissions. Potential adverse impacts on sensitive natural communities and wetlands during removal of the feeders would be minimized by implementing permit terms and conditions. Additionally, because these features have not been operated recently, the Proposed Project, without these features, would not impact botanical resources. Therefore, there would be a less than significant impact.

3.5.2.5 Migratory Corridors and Nursery Sites

d) 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 Impact)

Vegetation removal (including removal of hazard trees) could affect habitat quality, composition, and/or connectivity through loss of cover, forest canopy and structure, or dispersal/migration corridors for terrestrial wildlife and special status amphibians reptiles. Habitat loss may also affect future breeding success of special status raptors that exhibit nest fidelity (e.g., bald eagle [*Haliaeetus leucocephalus*]) because substantial energy is required to construct a new nest. Measures included in Proposed Measure No. 3, *Biological Resources Management Plan,* would limit removal of forested habitat or features in and nearby suitable breeding or denning habitat for fisher and California spotted owl, thereby reducing the potential for indirect effects to minor levels for these species and others that use similar breeding habitats or features (e.g., Sierra marten). Similarly, measures in Measure No. 3 would protect habitat for species that use ground-level or subterranean habitat (e.g., California tiger salamander, western burrowing owl), and reduce the potential for indirect effects on these species to minor levels. The Proposed Project could impact the movement of any special status amphibians or reptiles through vegetation removal activities or other O&M activities. With implementation of avoidance and minimization measures provided in Measure No. 3 to avoid and minimize interference on the movement of special status amphibians or reptiles, such as avoiding vehicle and equipment use on wet roads when amphibians may be more likely to be travelling on those surfaces, it is anticipated the Proposed Project would have a less than significant impact.

Fish are restricted to downstream migration from the North Fork Kings River due to numerous fish passage barriers (i.e., waterfalls) upstream of Balch Afterbay and Balch Diversion Dam. Patterson Creek, a tributary to the North Fork Kings River downstream of Balch Diversion Dam, has been assessed and has numerous natural passage barriers that preclude the establishment of trout populations. No Proposed Project-related activities would interfere with the movement of native or migratory fish. Therefore, there would be a less than significant impact.

3.5.2.6 Policies or Ordinances Protecting Biological Resources

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Less Than Significant Impact)

The Proposed Project would not conflict with any local policies or ordinances protecting biological resources, such as tree preservation policies. The Project is located entirely within unincorporated Fresno County, and facilities are situated on federally managed land or within PG&E owner easements and rights-of-way. Fresno County does not have a tree preservation ordinance applicable to the Project area (Fresno County 2024). Additionally, because the Proposed Project does not include modifications to facilities or operations that would result in changes to existing land use, vegetation, or biological communities, it would not conflict with any local biological resource protection policies. Consistent with the Project's existing FERC license, the Proposed Project's continued operation under the new FERC license does not involve activities that would violate applicable SNF land management policies related to vegetation or habitat protection. Therefore, there would be a less than significant impact.

3.5.2.7 Conservation Plans

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (No Impact)

The Proposed Project does not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other local, regional, or state habitat conservation plans because there are no such plans that overlap the Proposed Project (CDFW 2015). Therefore, there would be no impact.

3.6 Cultural Resources

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

3.6.1 ENVIRONMENTAL SETTING

The term “cultural resources” refers to built environment resources (e.g., buildings, structures, objects, districts) and pre-European contact and historic-period archaeological resources. The Proposed Project’s impacts on tribal cultural resources are addressed in Section 3.19, Tribal Cultural Resources.

Information regarding baseline conditions for cultural resources within the proposed FERC Project Boundary is based on the Balch Hydroelectric Project, FERC Project No. 175 Final License Application (PG&E 2024), Balch Hydroelectric Project, FERC Project No. 175 Volume I: Project Overview and Summary of Results and Recommendation, (PG&E 2024), Balch Hydroelectric Project, FERC Project No. 175 Volume II: Archaeological Study Results (PG&E 2024), Balch Hydroelectric Project, FERC Project No. 175 Volume III: Historic Built Environment Study Results (PG&E 2024), and *Historic Properties Management Plan for the Balch Hydroelectric Project, Fresno County, Californi*a (PG&E 2025). To identify cultural resources within the proposed FERC Project Boundary, the following tasks were completed by PG&E: (1) records searches and archival research to identify cultural resources and cultural resources investigations that have been previously documented within the existing FERC Project Boundary and a 0.5-mile surrounding buffer; (2) a historical built environment survey conducted on July 20, 2022, and on September 26-28, 2022; and (3) an archaeological resources field pedestrian survey of the proposed FERC Project Boundary between August 24, 2022, and August 11, 2023.

3.6.1.1 Built Environment

PG&E’s records searches, archival research, and field survey identified, recorded, and evaluated 68 built environment resources constructed between 1922 and 1981 including the Balch Diversion Dam [Black Rock Dam] and Balch Powerhouse [Balch No. 1 Powerhouse], within the proposed FERC Project Boundary. All 68 resources are recommended not eligible for the California Register of Historical Resources (CRHR); therefore, the Proposed Project area neither contains nor is adjacent to any built environment buildings, structures, objects, districts that qualify as a historical resource for the purposes of CEQA.

3.6.1.2 Archaeological Resources

PG&E's records searches, archival research, and field survey identified 41 previously recorded and newly documented archaeological sites consisting of 18 historic-period sites, one historic-period isolate, 19 pre-European contact sites, and three multicomponent sites (pre-European contact and historic-period). Seventeen (17) of the historic-period archaeological sites, the historic-period isolate, and the historic-period component of one multicomponent site are not eligible for listing in the CRHR and do not qualify as a historical resource for the purposes of CEQA. Twelve (12) of the previously recorded and newly documented pre-European contact archaeological sites, one multicomponent site, and the pre-European contact component of one multicomponent site were determined or recommended eligible for listing in the CRHR and are considered historical resources for the purposes of CEQA. One historic-period archaeological site, seven pre-European contact sites, and one multicomponent site have not been evaluated for listing in the CRHR.

3.6.2 IMPACT ANALYSIS

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? (Less Than Significant Impact)

For a cultural resource to be considered a historical resource (i.e., eligible for listing in the CRHR), it must generally be 50 years or older. Under CEQA, historical resources can include pre-European contact archaeological deposits, historic-period archaeological deposits, historic buildings, and historic districts. CEQA requires that agencies considering projects that are subject to discretionary action shall consider the potential impacts on cultural resources that may occur from project implementation.

3.6.2.1 Built Environment

The proposed FERC Project Boundary neither contains nor is adjacent to any built environment resource that qualifies as a historical resource for the purposes of CEQA. Therefore, the Proposed Project would not have the potential to cause a substantial adverse change to the significance of any built environment historical resource, as defined in Section 15064.5 of the CEQA Guidelines. The Proposed Project would not demolish a significant historical resource or alter its physical characteristics, nor would it change elements within the historic setting of such a resource. Therefore, the Proposed Project would have no impact on built environment historical resources.

3.6.2.2 Archaeological Resources

Results of the records search and previous field investigations discussed above identified 41 previously recorded and newly documented archaeological sites within the proposed FERC Project Boundary. Twelve (12) of the previously recorded and newly documented pre-European contact archaeological sites, one multicomponent site, and the pre-European contact component of one multicomponent site were determined or recommended eligible for listing in the CRHR and are considered historical resources for the purposes of CEQA. One historic-period archaeological site, seven pre-European contact sites, and one multicomponent site have not been evaluated and could qualify as historical resources.

A substantial adverse change in the significance of archaeological resources that qualify as historical resources could occur from demolition, destruction, relocation, or alteration such that the significance of the resources would be materially impaired (CEQA Guidelines section 15064.5(b)(1)).

Pursuant to *Section 5.2 Specific Measures for NRHP-Eligible or Unevaluated Archaeological Sites* of the HPMP, archaeological resources that qualify as historical resources will be subject to resource-specific management measures for the resources over the course of the new license. The HPMP also requires PG&E to address the unevaluated archaeological sites as detailed in *Section 4.3.6 Resource Evaluations and Mitigation*. This section of the HPMP requires these sites be evaluated through a testing or evaluation program (e.g., subsurface testing, archival research) and stipulates the development of a Historic Properties Treatment Plan (HPTP) that details the approaches and methods to be used for both evaluation and mitigation. The HPTP methods and protocols must also be developed in consultation with participating Native American Tribes and the appropriate land managing agency(ies).

Therefore, with the implementation of the HPMP, potential impacts to archaeological sites that qualify as historical resources would be less than significant and no additional mitigation measures would be required.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? (Less Than Significant Impact)

According to the State CEQA Guidelines, archaeological sites that do not qualify as historical resources shall be assessed to determine if they qualify as “unique archaeological resources” (Public Resources Code [PRC] Section 21083.2; State CEQA Guidelines Section 15064.5[c][3]).

The results of the records search and previous field investigations identified 41 previously recorded and newly documented archaeological sites within the proposed FERC Project Boundary. One historic-period archaeological site, seven pre-European contact sites, and one multicomponent site have not been evaluated and could qualify as archaeological resources and a substantial adverse change in the significance of archaeological resources could occur from demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (CEQA Guidelines Section 15064.5).

As discussed above, The HPMP requires PG&E to develop a HPTP that details the approaches and methods to be used for both evaluation and mitigation of archaeological resources. Archaeological resources will be subject to resource-specific management measures for the resources over the course of the new license. Therefore, with the implementation of the HPMP, potential impacts to archaeological resources would be less than significant and no additional mitigation measures would be required.

c) Would the project disturb any human remains, including those interred outside formal cemeteries? (Less Than Significant Impact)

As discussed above, the archaeological records searches, map reviews, and pedestrian survey identified archaeological sites within the proposed FERC Project Boundary which could contain human remains.

In the event that human remains are identified, these remains would be required to be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of

the PRC, as appropriate and *Section 4.3.8 Treatment of Human Remains* in the HPMP. Compliance with the California Health and Safety Code, Section 5097.98 of the PRC, and the HPMP would ensure that impacts to human remains would be less than significant. No additional mitigation measures would be required.

3.7 Energy

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

3.7.1 ENVIRONMENTAL SETTING

PG&E has extensive experience operating and maintaining its hydroelectric systems in an efficient and reliable manner, and has the responsibility for generating, purchasing, transmitting, and distributing electricity to its customers. The Balch Project is operated as a peaking facility to generate power from water that is released from upstream storage to meet power demand and for downstream irrigation purposes. Under the Proposed Project, the decommissioning of the Black Rock Creek and Weir Creek feeder facilities is considered a minor effect since the volume of water they contribute to the Proposed Project for power generation is minor. The Balch Project provides valuable ancillary services to support the California Independent System Operator (CAISO), the electric grid balancing authority for most of California. The Balch Project is one of the critical facilities CAISO relies on to: (1) help balance load with generation; (2) integrate intermittent energy resources, such as solar and wind; and (3) provide crucial ancillary services to the grid (namely, voltage support, regulation and frequency support service, and operating reserve services [both spinning and non-spinning]). These ancillary benefits enable CAISO to reliably operate the electric grid, especially when power demand is high.

3.7.2 IMPACT ANALYSIS

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? (Less Than Significant Impact)

Energy consumed at the existing Balch Project includes vehicle transportation to and from the Balch Project area, electric, gasoline, or diesel-powered equipment; interior and exterior lighting; gate operation; and computers. PG&E uses vehicles that are compliant with state and federal vehicle emission standards and follows other measures, such as minimizing idling and proper vehicle maintenance, to avoid the unnecessary consumption of energy.

Under the Proposed Project, equipment operation would consume fuel during the proposed construction and improvements of the recreation sites, and the decommissioning of the Black Rock Creek and Weir Creek feeder facilities equipment would only be operated on a short-term basis and only when necessary. Energy efficient equipment that is compliant with off-road

emission standards would be used during construction. Aside from minor modifications to existing recreational facilities infrastructure and the decommissioning of the Black Rock Creek and Weir Creek feeder facilities, the Proposed Project does not involve any new construction of structures that would impact energy resources. Existing O&M activities would continue within the Proposed Project area, as under current conditions. The impact would be less than significant.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (No Impact)

Proposed Project operations would not conflict with or obstruct a local or state plan for renewable energy or energy efficiency. More so, the peaking operation of the Proposed Project helps to minimize the operation of non-renewable, higher cost thermal electric generating plants. In addition, the Balch Project provides generation benefits, because the project can function as a load balancer and is called upon by CAISO to quickly remove significant amounts of generation from the grid during periods of over-generation. The Proposed Project provides significant flexibility in balancing the grid and provides a significant amount of clean energy into the power supply, which is vital to the California electric grid. The Proposed Project would have no impact.

3.8 Geology and Soils

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?				X
ii. Strong seismic ground shaking?			X	
iii. Seismic-related ground failure, including liquefaction?				X
iv. Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?				X
d) Be located on expansive soil, as defined in Table 181B of the Uniform Building Code, creating substantial direct or indirect risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

3.8.1 ENVIRONMENTAL SETTING

3.8.1.1 Geologic Setting

The Proposed Project is situated in the Cascade-Sierra Mountains Physiographic Province. Proposed Project facilities are situated along the western slope of a northwest-trending belt of rocks comprising the Sierra Nevada mountain range, which is within the southern portion of the Cascade-Sierra Province. The Proposed Project area is predominantly underlain by granites such as granodiorite, quartz diorite, and quartz monzonite, with small erosional remnants of metasedimentary rocks throughout the region.

3.8.1.2 Faults/Seismic Activity

The Proposed Project is situated within the southern Sierran microplate, a relatively rigid block that moves around 12 to 14 millimeters per year northwest from North America. The region has moderate seismic activity while the Proposed Project is in an area of low seismic activity, although moderate to high risk has been identified for the Balch Penstocks from seismically induced shallow rockslides and rockfalls. There are no Alquist-Priolo Earthquake Fault Zones identified within the Proposed Project area and there are also no faults mapped by California Geological Survey (CGS) or USGS in the Proposed Project vicinity.(within approximately 5 miles of the Proposed Project) Additionally, Proposed Project facilities are built on granitic and metamorphic bedrock, therefore, there is no liquefaction hazard (PG&E 2021).

3.8.1.3 Soils

Soils in the Proposed Project area consist predominantly of the Auberry, Chaix, Chawanakee, Coarsegold, Holland, and Tollhouse families mixed with rock outcrops; soils within the greater Kings River watershed are dominated by Ahwahnee, Auberry, Coarsegold, and Tollhouse families. These soils are formed in weathered granitics. Ahwahnee and Auberry soils are moderately deep to deep, consist predominately of coarse sandy loam, and have high to very high erosion hazard (PG&E 2021).

3.8.1.4 Landslides

Hillslope processes, including mass soil movement have the potential to affect Proposed Project facilities. Small rockfalls have occurred throughout the Proposed Project area and there are two recognized landslides within the Proposed Project vicinity: one is located on the eastern slope below P-1988's Kings River Penstock, and another is on the slopes immediately above Balch Camp. The latter was mapped by Bechtel Corporation and reportedly does not pose a hazard to Balch Camp (PG&E 2021).

3.8.2 IMPACT ANALYSIS

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. The 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? (No Impact)

There are no known Alquist-Priolo Earthquake Zones in the Proposed Project area, nor are there any faults mapped by CGS or USGS in the Proposed Project vicinity (PG&E 2021). Therefore, there would be no impact related to risk to people or structures from rupture of a known fault.

ii. Strong seismic ground shaking? (Less Than Significant Impact)

Although there are no active faults near the Proposed Project area, the area may experience minor to moderate seismically induced ground shaking from earthquakes on faults of the Eastern Sierra Frontal or Owens Valley fault systems, located approximately 35 to 40 miles east of the Proposed Project (PG&E 2021). Construction activities associated with the Proposed Project are limited to recreational facility improvements and decommissioning activities. These activities would be consistent with existing O&M

activities that currently occur throughout the Proposed Project and would not introduce new risk associated with strong seismic ground shaking. Therefore, the Proposed Project would not directly or indirectly cause substantial adverse effects related to strong seismic ground shaking. The impact would be less than significant.

iii. Seismic-related ground failure, including liquefaction? (No Impact)

Proposed Project facilities are built on granitic and metamorphic bedrock, therefore, there is no liquefaction hazard (PG&E 2021). Additionally, no new structures would be constructed as part of the Proposed Project. Therefore, there would be no impact.

iv. Landslides? (Less Than Significant Impact)

The Proposed Project area has a history of landslides and rockfalls in the area (PG&E 2021). Construction activities associated with the Proposed Project would be limited to recreation improvements and decommissioning activities. These activities would occur throughout the Proposed Project area and would be similar to existing O&M activities. No new risk associated with landslides would occur as a result of the Proposed Project and no new buildings would be constructed that could result in an increase in landslide potential. The impact would be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil? (Less Than Significant Impact)

The recreational improvements and decommissioning activities associated with the Proposed Project have the potential to remove topsoil and increase erosion in the area during active construction periods. All other O&M activities currently occur under the existing license and would continue under the Proposed Project and therefore would not result in a change from existing conditions. Although recreational improvements and decommissioning activities may result in a small increase in erosion, a *Biological Resources Management Plan* (PG&E Proposed Measure No. 3) would be implemented as a condition of the new license. The *Biological Resources Management Plan* includes avoidance and minimization measures related to reducing soil erosion through use of previous disturbed areas for staging (AMM-4), storing equipment and spoils away from waterbodies (AMM-5), and implementing erosion control measures (AMM-8). Therefore, the impact would be less than significant.

c) Would the project 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? (No Impact)

The Proposed Project would not include construction of any new buildings or structures that could be impacted by unstable geologic units or soils that are unstable. All construction activities would occur within previously disturbed areas and developed sites. Therefore, there would be no impact.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? (No Impact)

The Proposed Project would not include construction of any new buildings or structures that could be impacted by expansive soils. All construction activities would occur within previously disturbed areas and developed sites. Therefore, there would be no impact.

e) Would the project 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? (No Impact)

The Proposed Project does not include construction of new septic tanks or alternative wastewater disposal systems. The existing campgrounds and recreational areas include restrooms; however, maintenance of these facilities currently occurs and would continue under the new license. Therefore, impacts related to soil adequately supporting septic tanks or alternative wastewater disposal systems would not occur. Therefore, there would be no impact.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (No Impact)

The Proposed Project does not include any unique geologic features or known paleontological resources. Typically, paleontological resources are unknown in areas until significant excavation occurs. The Proposed Project does not include significant excavation or activities that could substantially impact any paleontological resources. All construction activities associated with the Proposed Project would occur within previously disturbed and developed areas. Therefore, there would be no impact.

3.9 Greenhouse Gas Emissions

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?			X	

3.9.1 ENVIRONMENTAL SETTING

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the greenhouse gases (GHGs) that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space, and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weigh each gas by its global warming potential (GWP).

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. World-wide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions.

In 2006, the State Legislature enacted Assembly Bill (AB) 32, also known as the California Global Warming Solutions Act of 2006. AB 32 required CARB to adopt statewide GHG emissions limits to achieve statewide GHG emissions levels at the same levels they were atmospherically in 1990 by the year 2020. Senate Bill (SB) 32 is an amendment to the California Global Warming Solutions Act (AB 32) and was signed into law on September 8, 2016. SB 32 required CARB to ensure that state GHG emissions are reduced to 40 percent below the 1990 emission level by the year 2030. AB 1279 was signed into law in 2022 and establishes the policy of the State to achieve carbon neutrality as soon as possible, but no later than 2045, and maintain net negative GHG emissions thereafter. AB 1279 would also ensure that by 2045 the Statewide anthropogenic GHG emissions are reduced by at least 85 percent below 1990 levels.

The SJVAPCD's Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA presents a tiered approach to analyzing project significance with respect to GHG emissions (SJVAPCD 2009). However, the SJVAPCD's Guidance is outdated following the California Supreme Court's decision on the Center for Biological Diversity v. California Department of Fish and Wildlife on the Newhall Ranch project case and therefore was not used for this analysis. Rather, consistent with CEQA Guidelines Section 15064.4(b)(2), the lead agency has elected to compare Proposed Project emissions to the South Coast Air Quality Management District's (SCAQMD) screening-level threshold of 3,000 $MTCO_2e$ per year to determine whether the Proposed Project would generate GHG emissions that have a significant impact on the environment (SCAQMD 2008).

3.9.2 IMPACT ANALYSIS

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

GHG emissions would be generated during construction activities from off-road equipment and on-road vehicle exhaust from worker vehicle trips and hauling truck trips. For this analysis, demonstrative emissions modeling was conducted to reflect construction activities that would be associated with the proposed decommissioning of the Black Rock Creek Feeder and the Weir Creek Feeder, and modifications to some facilities as described in the proposed *Recreation Management Plan*. The construction details are not known at this time. As a result, the emissions modeling conducted for this Proposed Project is based on the assumed disturbance area for the proposed recreation facility improvements and relies on model default values for the construction schedule, equipment types and hours of use, and worker and haul truck trips. This estimate is conservative and represents a good-faith effort to provide a quantitative analysis. It was assumed that all facility modifications would occur at the same time to account for any potential overlap in construction activities.

Table 3.9-1 presents a summary of the estimated GHG emissions that would result from Proposed Project construction activities. Because construction GHG emissions are temporary, a common professional practice is to amortize the construction emissions over the life of the Proposed Project, which is conservatively assumed to be 30 years (SCAQMD 2008).

Table 3.9-1. Construction Greenhouse Gas Emissions

Construction Year	Emissions ($MTCO_2e$)
2029	312
2030	40
Project Total	*352*
Project Total Amortized Over 30 Years	*11.7*
Threshold of Significance	3,000
Exceeds Threshold?	*No*

Source: CalEEMod calculations are available upon request.

As presented in the table, modeled GHG emissions from construction of the Proposed Project would be well below the significance threshold applied in this analysis. Actual GHG emissions are expected to be fewer than what is presented in Table 3.9-1. Nonetheless, the details of decommissioning the Black Rock Creek and Weir Creek feeders and other improvements will be defined through future planning efforts and construction activities will comply with all applicable BMPs to reduce GHG emissions.

Implementation of the Proposed Project would include minor improvements and modifications to existing facilities and would not result in a permanent increase in population, housing, employment, or vehicle trips in the region. As a result, the Proposed Project's operational emissions would be similar to existing conditions.

As a result, the Proposed Project would not generate GHG emissions, either directly or indirectly, that would be considered to have a substantial adverse effect on the environment, and the potential impact would be less than significant.

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

CARB approved the 2022 Scoping Plan in December 2022, which was built upon the 2008 and 2017 Scoping Plans in order to meet California's SB 32 and AB 1279 GHG reduction targets. For this analysis, the applicable plan adopted for the purpose of reducing GHG emissions is the CARB's 2022 Scoping Plan (CARB 2022). The action items identified in the 2022 Scoping Plan are primarily focused on reducing sources of operational GHG emissions through electrifying transportation, reducing VMT, decarbonizing buildings, among others. These items apply to local governing agencies and land development projects and are not applicable to the Proposed Project (i.e., hydroelectric relicensing). However, Proposed Project operations similar to existing operations would continue to generate renewable electricity via hydroelectric power. The Proposed Project is consistent with the GHG reduction goal established in AB 1279 as well as the requirements for renewable electricity, such as SB 100 – California Renewables Portfolio Standards Program. As a result, the Proposed Project would directly support the carbon neutrality goal of the 2022 Scoping Plan.

Considering the above, the Proposed Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, the impact would be less than significant.

3.10 Hazards and Hazardous Materials

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

3.10.1 ENVIRONMENTAL SETTING

As used in this section, the term “hazardous material” is defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. As used in this section, the term “hazardous waste” generally refers to a hazardous material that has been used for its original purpose and is about to be discarded or recycled.

Specifics related to hazardous materials sites, schools, airports, emergency response plans, and wildfire risk within the Proposed Project area are described in the impact analysis below.

3.10.2 IMPACT ANALYSIS

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

AND

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (Less Than Significant Impact)

Aside from minor modifications to existing recreational facilities infrastructure and the decommissioning of the Black Rock Creek and Weir Creek feeder facilities, the Proposed Project does not involve any new construction or expansion that would result in substantial increases in hazardous materials. Existing O&M activities such as inspections, pest management, road maintenance, and vegetation management would not substantially change from current conditions and therefore would not result in an increase in hazardous materials.

The recreational facilities' improvements and decommissioning of facilities may involve use of hazardous materials such as oil and gas, paint, or other wood treatments. However, these materials would be handled in accordance with a *Hazardous Substance Plan* (PG&E Proposed Measure No. 7). The *Hazardous Substance Plan* will include measures for safe transport and handling of hazardous materials within the Proposed Project area, a description of spill cleanup equipment, requirements for reporting any hazardous materials spills, and procedures for cleanup and disposal of hazardous substances. Therefore, the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or reasonably foreseeable upset and accident conditions. The impact would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (No Impact)

There are no existing schools within one-quarter mile of the Proposed Project. Therefore, no impacts would occur.

d) Would the project be located on a site which is included on a list of hazardous materials sites which complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? (No Impact)

The State Water Resource Control Board's (State Water Board) GeoTracker database and the California Department of Toxic Substances Control's (DTSC) EnviroStor Database were reviewed for information on existing hazardous materials sites in proximity to the Proposed Project area. Based on a review of these resources, the Proposed Project is not located on a site that is included on the listing of active hazardous materials sites (State Water Board 2025, DTSC 2025). Therefore, there would be no impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result

in a safety hazard or excessive noise for people residing or working in the Project area? (No Impact)

There are no airports located within two miles of the Proposed Project area. The nearest airport is the Harris River Ranch Airport, which is located approximately 2.5 miles southwest of the southern-most portion of the Proposed Project area. Therefore, there would be no impact.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (Less Than Significant Impact)

The Fresno County General Plan and Fresno County Multi-Jurisdictional Hazard Mitigation Plan include multiple goals and policies that specify requirements for adequate emergency access and response activities necessary to reduce Fresno County's vulnerability to hazards (Fresno County 2024, Fresno County 2018). The Proposed Project does not involve any new construction of buildings or roads that would result in interference with emergency response plans or emergency evacuation plans for the area. Improvements to recreational facilities and decommissioning the Black Rock Creek and Weir Creek feeder facilities would occur within the existing areas within the FERC Project Boundary and would not result in substantial changes to roads or traffic congestion that could impede mobility of emergency personnel or recreational users entering and exiting the area. Therefore, the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The impact would be less than significant.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? (Less Than Significant Impact)

The Proposed Project area is located in both a Federal Responsibility Area (FRA) and a State Responsibility Area (SRA) with both moderate and high Fire Hazard Severity Zone classifications (CALFIRE 2025). The Proposed Project does not involve any new construction or expansion that would result in substantial increases in potential for loss, injury, or death involving wildland fires. Recreational facilities improvements and the decommissioning of the Black Rock Creek and Weir Creek feeder facilities may involve use of equipment and vehicles which could result in an increase fire risk, if not operated appropriately. However, PG&E proposes implementation of a *Fire Management and Response Plan* (PG&E Proposed Measure No. 10). The *Fire Management and Response Plan* includes requirements for prevention and suppression, adherence to applicable federal, state and local laws and regulations, adherence to utility standards, approvals for burning, procedures for use of tools and equipment during a fire precautionary period, fuels treatment activities, and requirements for reporting fires. The impact would be less than significant.

3.11 Hydrology and Water Quality

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would			X	
i. result in substantial erosion or siltation on- or off-site;			X	
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;				X
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				X
iv. impede or redirect flood flows?				X
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

3.11.1 ENVIRONMENTAL SETTING

3.11.1.1 Hydrology

North Fork Kings River

The North Fork Kings River originates at an elevation of approximately 12,000 feet at the White Divide within the John Muir Wilderness and extends 40 miles draining to where it joins the Kings River at an elevation of 973 feet near Balch Camp. Mean monthly full natural flow of the North Fork Kings River downstream of Wishon Dam between 1946 and 1995 ranged from 43 cubic feet per second (cfs) in

October to 1,717 cfs in May. Named tributaries to the North Fork Kings River include, from upstream to downstream: Fall Creek, Meadow Brook, Fleming Creek, Post Corral Creek, Helms Creek, Dusy Creek, Woodchuck Creek, Short Hair Creek, Long Meadow Creek, Teakettle Creek, Rancheria Creek, Mule Creek, Williams Creek, Black Rock Creek, Weir Creek, Patterson Creek, Basin Creek, and Dinkey Creek.

From its confluence with Helms Creek, the North Fork Kings River flows 0.7 miles to where it enters Lake Wishon. From Wishon Dam, the North Fork Kings River flows 8.1 miles to where it enters Black Rock Reservoir, impounded by Balch Diversion Dam. The average annual flow in the North Fork Kings River downstream of Lake Wishon from 1973 through 2022 was 36 cfs. Black Rock Reservoir also receives inflow from the Haas Powerhouse. Average annual flow below Black Rock Reservoir, measured from 1973 through 2022 at river mile (RM) 9.9, was 95 cfs. Flows vary seasonally, with higher flows typically occurring during spring snowmelt and lower flows observed during late summer and fall.

The North Fork Kings River flows 5.0 miles from Balch Diversion Dam to where it enters Balch Afterbay, which also receives inflow from both Balch powerhouses. Average annual flow, measured from 1960 through 2022 at RM 4.9, was 102 cfs. From Balch Afterbay Dam, the North Fork Kings River flows 4.9 miles to where it converges with the Kings River, which is approximately 20 river miles upstream of USACE's Pine Flat Lake. The average annual outflow in the Kings River from 1954 through 2022 below Pine Flat Dam was 2,243 cfs.

Below Pine Flat Dam, the Kings River enters the San Joaquin River during periods of high flows near Mendota at an elevation of 154 feet. Mean monthly full natural flow at Pine Flat Dam from 1966 to 2015 ranged from 390 cfs in September to 7,220 cfs in May. The Kings River has been designated as fully appropriated year-round (State Water Board 1989), meaning there is insufficient water for any new water right applications.

Black Rock Reservoir and Balch Afterbay

Black Rock Reservoir is formed by inflow from the North Fork Kings River, which is impounded by the Balch Diversion Dam. Water released from, or spilled over, Balch Diversion Dam flows approximately 5 miles to Balch Afterbay Dam and its associated reservoir, Balch Afterbay. Balch Afterbay receives inflow from Balch No. 1 and Balch No. 2 powerhouse releases, Black Rock Reservoir, and accretions from the approximately 12 square mile catchment downstream of Balch Diversion Dam. Water in Balch Afterbay is either diverted to the FERC Project No. 1988 Kings River Powerhouse or continues down the North Fork Kings River to Pine Flat Reservoir (non-Project).

3.11.1.2 Water Quantity and Uses

Inflow to Black Rock Reservoir comes from releases through the Haas Powerhouse (Haas-Kings Hydroelectric Project, FERC Project No. 1988 [P-1988]) from Lake Wishon and the North Fork Kings River. From Water Year (WY) 1981 through WY 2022, the minimum, maximum, and mean daily total gaged inflows to Black Rock Reservoir were 7 cfs, 6,083 cfs, and 387 cfs, respectively. Water is released to the Balch powerhouses or to the North Fork Kings River from Black Rock Reservoir. Releases to the North Fork Kings River are made to meet instream flow requirements downstream of Black Rock Reservoir unless inflow to Black Rock Reservoir exceeds the capacity of the Balch powerhouses, or if the Balch powerhouses are on outage.

The Balch Project is operated as a peaking facility to generate power from water that is released from upstream storage to meet power demand and for downstream irrigation purposes. Under normal operating conditions, P-1988's Haas Powerhouse is the controlling powerhouse on the river since it controls the releases from Lake Wishon.

Balch Afterbay receives inflow from Balch powerhouses' releases, Black Rock Reservoir releases, and ungauged accretions from approximately 12 sq-mi watershed catchment downstream of Balch Diversion Dam. The minimum, maximum, and mean daily total gaged inflows to Balch Afterbay were 0.6 cfs, 7,963 cfs, and 470 cfs, respectively, between WY 1981 and WY 2022.

Releases to the North Fork Kings River downstream of Balch Afterbay are made to meet instream flow requirements unless inflow to Balch Afterbay exceeds the capacity of the Kings River Powerhouse, or if the Kings River Powerhouse is on outage.

Combined releases from Balch Afterbay to the North Fork Kings River and the Dinkey Creek siphon (P-1988), and Dinkey Creek natural flows are used to meet instream flow requirements in the North Fork Kings River downstream of Dinkey Creek. The minimum, maximum, and average daily flows in the North Fork Kings River downstream of Dinkey Creek for the period of WY 1981 through WY 2022 were 22 cfs, 13,900 cfs, and 355 cfs, respectively.

Minimum Instream Flow

The current FERC license requires PG&E to release minimum flows from Balch Afterbay Dam into the North Fork Kings River: 10 cfs from December through May, and 15 cfs from June through November. In dry years (as determined by California DWR), a minimum flow of 10 cfs is required year-round. These flows must be maintained at all times, as measured at the gaging station immediately downstream of Balch Afterbay (PG&E Gage No. KI-21, USGS Gage No. 11216500), to support the protection and enhancement of fishery resources in the bypass reach. PG&E's Proposed Measure No. 1 would maintain the same minimum flow requirements as the current FERC license. The required minimum instream flow releases are summarized in Table 3.11-1.

Table 3.11-1. Minimum Instream Flow (MIF) Requirements for the North Fork Kings River Under Existing FERC License for the Balch Hydroelectric Project

Release Location	Season	Normal Year MIF (cfs)	Dry Year MIF (cfs)
Black Rock Reservoir (PG&E Gage No. KI-9, USGS Gage No. 11216200)	December through May	2.5	2.5
	June through November	5	2.5
Balch Afterbay Dam (PG&E Gage No. KI-21, USGS Gage No. 11216500)	December through May	10	10
	June through November	15	10
North Fork Kings River Flow (PG&E Gage No. KI-22, USGS Gage No. 11218400)	December through May	30	20
	June through November	30	20

For Black Rock Reservoir, minimum flows must be maintained at all times, as measured at the gaging station immediately downstream of Black Rock Reservoir (PG&E Gage No. KI-9, USGS Gage No. 11216200) for the protection and enhancement of fishery resources in the Kings River bypass reach. PG&E's Proposed Measure No. 1 would maintain the same minimum flow requirements as the current FERC license. Gage records since the implementation of these requirements in 1980 indicate that PG&E has occasionally been unable to meet the required minimum instream flows (MIFs), with most non-compliance events occurring between 1980 and 1998 (118 days). However, since 2000 there have been 20 days with records of MIFs at USGS Gage No. 11216200/PG&E Gage No. KI-9 falling below the 2.5-5 cfs seasonal minimum flow requirements.

For Balch Afterbay Dam, minimum flows must be maintained at all times, as measured at the gaging station immediately downstream of Balch Afterbay (PG&E Gage No. KI-21, USGS Gage No. 11216500), to support the protection and enhancement of fishery resources in the bypass reach. Gage records since the implementation of these requirements in 1980 indicate that PG&E has been occasionally unable to meet the required MIFs, with non-compliance events occurring between December 1980 and November 1992. However, since 1992 there have been no occurrences of MIFs recorded at USGS Gage No. 11216500/PG&E Gage No. KI-21 falling below the 10-15 cfs seasonal minimum flow requirements.

Based on information provided in the license application and the infrequent occurrence of MIF variances, particularly in recent years, suitable habitat conditions for aquatic species are likely maintained during these events.

3.11.1.3 Water Quality

This section describes water quality in Black Rock Reservoir, Balch Afterbay, and Proposed Project-affected reaches of the North Fork Kings River using data collected during 2022 and 2023 relicensing surveys (FLA Attachment E3, *Study Data Summary WR-1*), water quality monitoring data collected in support of the Balch Afterbay Low Level Outlet Gate Repair Project in 2011 (PG&E 2012), Surface Water Ambient Monitoring Program data collected in 2012 and 2014 (CEDEN 2020), and historical existing and relevant water quality data collected in 1984 and 1985 (PG&E 1986b). These data include *in situ* measurements and water chemistry (general chemistry, bacteria, metals, nutrients, and chlorophyll-*a* as an index of algal productivity).

Water in Black Rock Reservoir, Balch Afterbay, and Proposed Project-affected reaches of the North Fork Kings River is clear (i.e., low turbidity, low total suspended solids) with low mineral content (i.e., low specific conductivity, low hardness, low total dissolved solids), low buffering capacity (i.e., low alkalinity), and low levels of nutrients. Black Rock Reservoir can exhibit weak thermal stratification during summer months, as discussed below. Water quality was consistent with the applicable Central Valley Regional Water Quality Control Board's Water Quality Control Plan for the Tulare Lake Basin (Tulare Lake Basin Plan) water quality objectives relevant to the Proposed Project with two exceptions (i.e., dissolved oxygen, pH).

Temperature

Weak thermal stratification was observed in Black Rock Reservoir in August 2023 with slightly warmer temperatures in surface waters and cooler temperatures below (PG&E 2024, Section E.3.2.3.1). In September and October 2023, Black Rock Reservoir exhibited little thermal variation throughout the water column. Balch Afterbay appeared to be isothermal during all sampling events and exhibited little to no thermal variation with depth. The water temperatures reflect similar patterns to historical data collected in July 1984 and 1985 in Black Rock Reservoir and Balch Afterbay (PG&E 1986b).

Observed water temperature ranges in Black Rock Reservoir (8.2–10.6 degrees Celsius [°C]) and Balch Afterbay (9.1–10.3°C) are cold. In Black Rock Reservoir, temperatures are slightly cooler relative to the North Fork Kings River downstream of Black Rock Reservoir (10.1–10.4°C) because of releases of water from Lake Wishon through the P-1988 Haas Powerhouse Tailrace. In Balch Afterbay, temperatures are cooler relative to the North Fork Kings River upstream of Balch Afterbay (13.1–18.5°C) due to releases from the Balch powerhouses.

Water temperature data were collected at 15-minute intervals at four locations in the North Fork Kings River from June to September 2021, May to October 2022, and August to October 2023 (PG&E 2024, Section E.3.2.3.1). Mean daily water temperatures in the North Fork Kings River between Black Rock Reservoir and the confluence with Dinkey Creek ranged from 5.5 to 23.5°C. Water temperatures were generally warmest upstream of Balch Afterbay and coldest downstream of Balch Afterbay. Cooling effects occur downstream of Balch Afterbay due to the release of cooler water from the afterbay, which is mixed and aerated. The maximum mean daily water temperature (23.5°C) occurred on July 9, 2022, upstream of Balch Afterbay (PG&E 2024). Water temperatures in the North Fork Kings River were generally cooler in 2023 than in the corresponding months of 2021 and 2022, resulting from a large snowpack and prolonged runoff period. North Fork Kings River mean daily water temperatures were less than 20°C except for upstream of Balch Afterbay during summer and upstream of the confluence with Dinkey Creek for 5 days during September 2021. The North Fork Kings River upstream of Balch Afterbay remained above 20°C throughout the summers of 2021 and 2022 (approximately June through mid-September); however, mean daily water temperatures remained below 20°C during 2023 except for 2 days during September.

Water temperatures in Black Rock Reservoir, Balch Afterbay, and the North Fork Kings River are generally cool (<20°C) and well within the tolerance range of salmonids (Moyle 2022, PG&E 2024). Temperatures in the North Fork Kings River immediately downstream of Black Rock Reservoir and Balch Afterbay are cooler than farther downstream where the water quickly reaches equilibrium with ambient air temperature. Proposed Project-affected waters remained above 20°C upstream of Balch Afterbay

throughout summer 2022 (approximately June through mid-September) and upstream of the confluence with Dinkey Creek for 5 days during September 2021. The North Fork Kings River upstream of Balch Afterbay remained below 20°C during 2023 except for two days during September.

Dissolved Oxygen

Black Rock Reservoir and Balch Afterbay exhibited little dissolved oxygen variation throughout the water columns during August, September, and October/November 2023 (PG&E 2024). Dissolved oxygen concentrations measured during 2023 ranged from 9.8 to 10.6 milligrams per liter (mg/L) in Black Rock Reservoir, 10.9 to 11.6 mg/L in Balch Afterbay, and 9.0 to 11.2 mg/L in the North Fork Kings River. These conditions suggest that the reservoirs are mixed, and the weak thermal stratification observed in Black Rock Reservoir during summer is not accompanied by reduced dissolved oxygen levels. Dissolved oxygen concentrations were 6.0–13.1 mg/L in the North Fork Kings River at Balch Camp between 2012 and 2013 (CEDEN 2020); North Fork Kings River upstream of Dinkey Creek ranged from 7.2–12.4 mg/L between 2007 and 2011 (PG&E 2012); Black Rock Reservoir ranged from 8.8–10.0 mg/L, Balch Afterbay ranged from 9.8–10.4 mg/L, and the North Fork Kings River downstream of Balch Afterbay averaged 9.8 mg/L during 1984 and 1985 (PG&E 1986b). Dissolved oxygen concentrations were greater than the 9 mg/L Tulare Lake Basin Plan numerical water quality objective except for seven measurements in the North Fork Kings River at Balch Camp recorded during June and September 2012 (CEDEN 2020). Dissolved oxygen in Black Rock Reservoir and Balch Afterbay was consistently above 7mg/L during 2023 sampling, within the tolerance range of salmonids (Moyle 2022, PG&E 2024).

Specific Conductivity

Specific conductivity levels measured during 2023 were low in Black Rock Reservoir (10.3–15.9 microsiemens per centimeter [µS/cm]), Balch Afterbay (12.0–17.0 µS/cm), and the North Fork Kings River (12.6–23.0 µS/cm) (PG&E 2024). Similar specific conductivity concentrations were found in the North Fork Kings River at Balch Camp in 2012 and 2013 (12.4–29.1 µS/cm) (CEDEN 2020); the North Fork Kings River upstream of Dinkey Creek (13.9–18.0 µS/cm) between 2007 and 2011 (PG&E 2012); and Black Rock Reservoir (10.6–17.8 µS/cm), Balch Afterbay (17.0 µS/cm), and the North Fork Kings River (18.0–28.0 µS/cm) during 1984 and 1985 (PG&E 1986b). Specific conductivity measurements were less than the 100 micromhos per centimeter (µmhos/cm) maximum Tulare Lake Basin Plan numerical water quality objective for salinity.[8]

pH

Black Rock Reservoir and Balch Afterbay exhibited little variation in pH with depth during August, September, and October/November 2023 (PG&E 2024). Measured pH values during 2023 in Black Rock Reservoir (4.9–6.3 standard units [s.u.]) and Balch Afterbay (5.8–6.9 s.u.) were generally low. In the North Fork Kings River, pH was lowest at the most upstream site (downstream of Black Rock Reservoir) compared to the downstream sites (upstream of Balch Afterbay and upstream of the confluence with Dinkey Creek. Varying pH values were found in the North Fork Kings River at Balch Camp (5.1–9.8 s.u.)

[8] Although the Tulare Lake Basin Plan water quality objective parameter is classified as salinity, because the concentration of dissolved ions is proportional to electric conductivity, the numerical objective is specified as specific conductivity. Specific conductivity may be reported in units of either inverse resistance (µmho/cm) or Siemens per centimeter (1 µmho/cm = 1 µS/cm).

between 2012 and 2013 (CEDEN 2020); in the North Fork Kings River (7.9–8.0 s.u.) in 2007 (PG&E 2012); and in Black Rock Reservoir (6.8–7.0 s.u.), Balch Afterbay (6.8–7.1 s.u.), and the North Fork Kings River (6.3–7.1 s.u.) during 1984 and 1985 (PG&E 1986b). Measurements of pH less than the minimum Tulare Lake Basin Plan water quality numerical objective (6.5 s.u.) were found throughout the water column in Black Rock Reservoir during August, September, and October 2023; throughout the water column in Balch Afterbay during September 2023; and in the North Fork Kings River at Balch Camp between May 2012 and March 2013 (CEDEN 2020).

Alkalinity and Hardness

Total alkalinity[2] (<10 mg/L as $CaCO_3$) and hardness (<8 mg/L as $CaCO_3$) were low in-water grab samples collected during August, September, and October 2023 in Black Rock Reservoir, Balch Afterbay, and Proposed Project-affected reaches of the North Fork Kings River (PG&E 2024). Similar alkalinity was found in the North Fork Kings River at Balch Camp (3–12 mg/L) between 2012 and 2013 (CEDEN 2020). The total alkalinity measurements were less than the USEPA national water quality criteria (20 mg/L [4-day average]) for the protection of freshwater aquatic life (USEPA 2023).

Biostimulatory Substances and Productivity

Nutrient concentrations, including nitrate and orthophosphate, are low in Balch Project reservoirs and Proposed Project-affected reaches of the North Fork Kings River. Black Rock Reservoir and Balch Afterbay exhibit characteristics of oligotrophic reservoirs (low nutrients, low chlorophyll-*a*, high dissolved oxygen concentrations). Grab samples collected during 2023 at Black Rock Reservoir, Balch Afterbay, and Proposed Project-affected stream reaches contained low nutrients and low chlorophyll-a (<2 micrograms per liter [µg/L]) concentrations (PG&E 2024). Nitrate was detected at low concentrations in all reservoir and stream grab samples. Although dissolved oxygen in the bottom waters of Black Rock Reservoir remained consistently high, suggesting only limited potential for internal nutrient loading, total ammonia was detected in samples collected in Black Rock Reservoir during October 2023 and the North Fork Kings River downstream of Black Rock Reservoir during September and October 2023 (PG&E 2024). However, nitrite and orthophosphate were below the detection limits in all reservoir and stream samples collected. Similarly, low nutrient and chlorophyll concentrations have been found in Balch Project reservoirs and Balch Project-affected stream reaches during historical monitoring (PG&E 1986b; CEDEN 2020).

Chemical Constituents

Concentrations of chemical constituents and metals collected during 1986 in Black Rock Reservoir, Balch Afterbay, and the North Fork Kings River at Balch Camp between 2012 and 2013 were low and frequently below detection limits.

Toxicity

Metals were measured in Black Rock Reservoir, Balch Afterbay, and the North Fork Kings River between Balch Afterbay and Dinkey Creek in October 1985 and the North Fork Kings River at Balch Camp from May 2012 through March 2013 (PG&E 2024). Metal concentrations were below concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life (PG&E 1986b).

Oil and Grease

During monitoring in September and October 2023, oil and grease concentrations were less than laboratory method reporting limits (<1.1 mg/L) (PG&E 2024). Oil and grease had not previously been detected (<1 mg/L) in Black Rock Reservoir, Balch Afterbay, and the North Fork Kings River downstream of Balch Afterbay (PG&E 1986b). One reportable incident occurred in 2014 when approximately one cup of petroleum-based oil leaked from a hydraulic cylinder fitting on the skimmer gate of Balch Afterbay Dam (PG&E 2014).

Sediment, Settleable Material, and Suspended Material

Within the proposed FERC Project Boundary, occasional construction and maintenance activities, such as road repairs and LLO repairs or exercises (PG&E 2021), have the potential to generate erosion and mobilize sediment. Balch Diversion Dam and Balch Afterbay Dam have altered sediment transport in the North Fork Kings River by trapping sediment and reducing the frequency and magnitude of flushing flows in the North Fork Kings River downstream of the dams (PG&E 1986b). However, because sediment supply to the reach downstream of the dams is reduced, the magnitude or duration of flushing flows necessary to mobilize sediment is also reduced. Although sediment transport in the system is reduced by Balch Project operation, scouring of sediment has not typically been a problem downstream of Balch Project dams (PG&E 1986a), as spills and operational flows are not usually large enough to scour the predominantly large-grain bed material in the North Fork Kings River (PG&E 2021).

Sediment, along with woody debris, can accumulate within Balch Project reservoirs due to upstream watershed inputs and flow conditions. Sediment that accumulates within the reservoirs is periodically transported downstream through controlled releases via the LLO at Balch Diversion Dam and Balch Afterbay Dam during high-inflow periods, which help to maintain reservoir capacity and prevent sediment buildup. These sediment releases are part of normal reservoir operations consistent with current Project license conditions designed to minimize effects on aquatic resources (e.g., spawning trout). Current protocols allow up to 1,400 cfs and 1,070 cfs to be released through the LLOs at Balch Diversion Dam and Balch Afterbay Dam, respectively, when high inflows require additional releases to maintain reservoir levels and spill conditions.

Occasional maintenance or repair activities at Balch Project dams have required the dewatering of the reservoirs, allowing for the physical removal of sediment. During one drawdown for facility maintenance, sediment accumulated in Balch Afterbay was deposited downstream of Balch Afterbay Dam while the LLO gates were opened (PG&E 1986b). Subsequent flushing or spill flows of up to 1,000 cfs were used to mobilize sediment deposited (PG&E 1986b, PG&E 2021).

Accumulated sediments and woody debris following high peak flows and sediment mobilization from upstream sources have occasionally buried LLOs at Balch Diversion Dam and Balch Afterbay Dam. In 2008, approximately 200–400 cubic yards of sediment were removed from in front of two 30-inch LLOs in Black Rock Reservoir. In 2011, both the 60-inch and 30-inch LLOs at Balch Afterbay Dam were buried under sediment, and approximately 5,200 to 10,000 cubic yards of sediment were mobilized from the afterbay through the LLO gates during subsequent drawdown and outlet clearing activities (WRECO 2011).

In 2011, following high-flow events and sediment releases, V* sampling was conducted to characterize fine sediment deposits in the lower North Fork Kings River. The proportion of residual pool volume filled with mobile fine sediment was low, with V* values ranging from 1.9 to 19 percent across four surveyed locations, indicating limited accumulation of fine sediment within pools (PG&E 2012).

Downstream of Balch Afterbay and Balch Diversion dams, the North Fork Kings River flows through a steep, confined box canyon with predominantly bedrock substrate (PG&E EM 2014). The canyon drops approximately 2,400 feet in elevation over 4.5 miles (approximately 10% gradient) and contains numerous waterfalls, bedrock outcrops, and plunge pools, which contribute to hydraulic complexity and sediment retention in localized areas. The steep gradient and confined morphology make this reach generally resistant to scouring, and sediment transport capacity is naturally limited under typical flow regimes.

Soil erosion has occasionally occurred along Balch Project roads at roadcuts in areas of highly weathered rock. Maintenance of Balch Project roads is conducted as needed and is described in the PAD, Volume 1, Section B.3.10.5 (PG&E 2021). Balch Project roads include Balch Powerhouse Access Road (also known as Ferguson Road; FS 11S12C; 1.5 miles), Balch Penstock Access Road (FS 11S12P; 1.3 miles), and Black Rock Reservoir Road (FS 11S050; 1.4 miles). In 2010, the Balch Powerhouse Access Road from Bailey Bridge to Balch Camp Headquarters was damaged by a storm; a sinkhole that developed was likely a result of poorly controlled drainage (Pace Engineering 2011). The sinkhole was repaired and drainage improved with a newly lined gutter and new subdrain, and asphalt concrete leveled. To prevent additional damage at six additional sites along the road, drainage was improved; culverts were upgraded; and/or gabions were constructed to widen the road, thereby improving stability of the road prism and adjacent land (Pace Engineering 2011). Additional repairs were completed following 2017 high peak storm runoff, which resulted in overtopping of the Balch Powerhouse Access Road drainage infrastructure, flooding, and erosion of roadside ditches and the adjacent road surface approximately 1 mile east of Balch Camp. In 2018, maintenance and improvements to the drainage system, from approximately 1 mile up the road to near the access road to the switchyard, were completed; gabion walls were installed in the eroded section of the road, multiple culverts were replaced with larger culverts, and additional culverts were installed (PG&E and EM 2018, PG&E 2021).

Turbidity and settleable solids monitoring data from Balch Project operations provide information on sediment transport dynamics in the North Fork Kings River. In 2008 and 2011, turbidity monitoring was conducted during dredging activities, and in 2016, PG&E conducted turbidity monitoring during a LLO gate exercise at Balch Diversion Dam (Stantec and S2S 2016). Turbidity data were collected approximately 2,500 feet downstream of Balch Diversion Dam. During the 2016 exercise, turbidity increased to a maximum of 290.6 Nephelometric Turbidity Units (NTU) and decreased to background levels (0–1 NTU) within 3 hours, indicating that suspended sediment transport occurred at the monitoring site only over a short period of time. Settleable solids were below detectable limits during the three-hour monitoring period (PG&E 2021, Stantec and S2S 2016). In 2011, between 700 and 800 cubic yards of fine sediment were released into the North Fork Kings River during dredging and flushing to remove sediment from in front of the Balch Afterbay 30-inch-diameter LLO slide gate (PG&E 2012). It is likely that Balch Project-related flushing flows combined with elevated snowmelt runoff transported most of this material out of the study reach (PG&E 2012).

Water quality monitoring conducted in 2023 found that total suspended solids (TSS) and total dissolved solids (TDS) concentrations in Balch Project reservoirs and in the downstream reaches of the North Fork Kings River were low. TSS ranged from less than 2.8 to 8.0 mg/L, and TDS ranged from less than 4.2 to 29 mg/L (PG&E 2024). These results are consistent with previous monitoring efforts that have documented clear water with low sediment loads in this portion of the watershed. Additional discussion on soils, geomorphology, and reservoir substrates is provided in FLA Section E.2.5 (PG&E 2024).

Turbidity

Background turbidity levels are low in Black Rock Reservoir, Balch Afterbay, and Balch Project-affected reaches of the North Fork Kings River, ranging from 0.30-0.55 NTU (PG&E 2024). During August, September, and October 2023, turbidity was low and water clarity was high in Black Rock Reservoir and Balch Afterbay. Low turbidity was also measured in the North Fork Kings River at Balch Camp (0.2–1.0 NTU) in July through August 2015 (CEDEN 2020).

Turbidity levels in the North Fork Kings River downstream of Black Rock Reservoir and Balch Afterbay are occasionally elevated during in-channel maintenance or flushing flow activities. PG&E follows plans designed to protect environmental resources during maintenance activities, pursuant to Article 44 of the current FERC license; PG&E currently operates the LLOs at Black Rock Reservoir and Balch Afterbay when high inflows require additional releases to maintain reservoir levels. Operation of the LLOs is guided by the *Protocol for Operation of Low-level Outlet at Balch Afterbay and Black Rock Reservoir and for Reporting Use of Outlets to the California Department of Fish and Wildlife* (PG&E 2018).

In the North Fork Kings River downstream of Balch Afterbay, turbidity measurements were collected during Balch Afterbay LLOs slide gate repairs in 2011 (PG&E 2012). Turbidity concentrations reached a maximum of 620.6 NTUs and exceeded the Tulare Lake Basin Plan objective for turbidity on 15 of 54 days during three periods over the duration of the repairs. With the exception of pulse events that occurred on 15 days during the repairs, Tulare Lake Basin Plan turbidity objectives were maintained in the North Fork Kings River downstream of Balch Afterbay. No long-term effects on aquatic habitat or fish due to the elevated turbidity levels were identified (Cardno ENTRIX 2012b, 2012c).

At Balch Diversion Dam in 2016, PG&E monitored turbidity during a LLOs exercise that involved opening the slide gates sequentially as part of a DSOD and FERC-required dam safety protocol. Turbidity levels monitored approximately 2,500 feet downstream of the dam during the exercise increased to a maximum of 291 NTUs and decreased to the background level of near 0 to 1 NTU within 3 hours of the exercise (Stantec and S2S 2016).

Other

Ammonia

Total ammonia was less than the laboratory detection limit in all samples collected in Black Rock Reservoir, Balch Afterbay, and Balch Project-affected reaches of the North Fork Kings River during 2023 sampling, un-ionized ammonia is considered near zero (PG&E 2024).

Bacteria

Bacterial samples collected periodically in Balch Project-affected waters have indicated unpolluted conditions. PG&E is unaware of any reported instances of fecal coliform or *E. coli* concentrations resulting in a nuisance or adverse effect on beneficial uses (PG&E 2024).

Color

No discoloration in Black Rock Reservoir, Balch Afterbay, and Balch Project-affected reaches of the North Fork Kings River has been documented (PG&E 2024).

Floating Material

The Balch Project does not result in floating material in Black Rock Reservoir, Balch Afterbay, and Balch Project-affected reaches of the North Fork Kings River (PG&E 2024).

Pesticides

Balch Project O&M activities use herbicides as part of vegetation management and rodenticides for rodent control. However, no pesticides have been detected in waters in the vicinity of the Balch Project (PG&E 2024).

Radioactivity

The Balch Project does not release radionucleotides.

Salinity

The Balch Project does not release constituents that affect salinity. Specific conductivity is low in Black Rock Reservoir, Balch Afterbay, and Balch Project-affected reaches of the North Fork Kings River, and no measurements have exceeded the Tulare Lake Basin Plan numerical water quality objective for electrical conductivity (100 µmhos/cm) (CEDEN 2020; PG&E 2012, 1986a).

Tastes and Odors

The Balch Project does not release substances that would affect the taste or odor of water.

3.11.2 APPLICANT PROPOSED MEASURES

PG&E's Proposed Project includes the following five proposed measures related to water use and quality:

- PG&E Proposed Measure No. 1, Minimum Flows and Water Year Types
- PG&E Proposed Measure No. 3, Biological Resources Management Plan
- PG&E Proposed Measure No. 5, Low-Level Outlet Operations
- PG&E Proposed Measure No. 7, Hazardous Substance Plan
- PG&E Proposed Measure No. 11, Transportation System Management Plan

Refer to Attachment E2 in FLA Exhibit E (PG&E 2024) for the complete text of the above measures and plans PG&E proposes to include in the new license.

3.11.3 IMPACT ANALYSIS

a) Would the project violate any water quality standards or waste discharge requirements? (Less Than Significant Impact)

3.11.3.1 Water Quantity and Uses

The Proposed Project, as described in FLA Sections A.4.0 and B.6.0 (PG&E 2024), would have a less than significant impact on water quantity or use, including MIF, if the Proposed Project is compliant under the proposed conditions and operating parameters. PG&E Proposed Measure No. 1, *Minimum Flow and Water Year Types* (PG&E 2024, Attachment E2) is nearly identical to Article 38 in the current license except for the minimum flow requirement in Article 38 at Dinkey Creek. PG&E Proposed Measure No. 1 does not include this requirement because the Dinkey Creek Siphon is part of P-1988. Also, more importantly, P-1988's current license includes a minimum flow requirement for the Dinkey Creek Siphon that is always greater than the release in Article 38 of the current license for the Balch Project, negating the need for that requirement. The proposed decommissioning of the Black Rock and Weir Creek feeders would have no effect on water quantity and use since the feeders have not operated for almost 10 years and, when they operated, their contributions to power generation were very small (i.e., <10 cfs). Decommissioning of the two feeders would have short-term, local, and minimal adverse effects during construction due to the short construction time frame and minor work. Therefore, there would be a less than significant impact.

3.11.3.2 Water Quality

The Proposed Project operations would have no significant impacts on water quality in Proposed Project reservoirs and Proposed Project-affected stream reaches. Specific effects to water quality parameters including water temperature, dissolved oxygen, water chemistry, and pollution are described in detail in the following sections. Implementation of the PG&E Proposed Measure No. 1, *Minimum Flows and Water Year Types*; Measure No. 3, *Biological Resources Management Plan*; Measure No. 5, *Low-Level Outlet Operations*; Measure No. 7, *Hazardous Substance Plan*; Measure No. 11, *Transportation System Management Plan*; and standard BMPs during routine Proposed Project O&M activities or proposed construction activities (i.e., removal of Black Rock Creek Feeder and Weir Creek Feeder), in or adjacent to water resources would avoid or minimize any potential impacts to water quality, as described below.

PG&E Proposed Measure No. 1, *Minimum Flows and Water Year Types* (PG&E 2024, Attachment E2), would maintain continuous MIF releases, dependent on season and water year type, to maintain adequate habitat and water quality conditions for aquatic resources within Proposed Project-affected stream reaches.

PG&E Proposed Measure No. 3, *Biological Resources Management Plan* (PG&E 2024, Attachment E2), includes the following steps to ensure potential adverse effects on water quality are avoided and/or minimized:

- Implement erosion control measures and BMP to prevent soil disturbance, spoil wash, and erosion and minimize sedimentation in wetland areas and waterways.

- Ensure proper usage and safe application of pesticides around aquatic resources, including the use of pesticide formulations labeled for aquatic application and treatment buffers around aquatic habitats.

PG&E Proposed Measure No. 5, *Low-Level Outlet Operations* (PG&E 2024, Attachment E2), adopts the *Protocol for Operation of Low-level Outlet at Balch Afterbay and Black Rock Reservoir and for Reporting Use of Outlets to the California Department of Fish and Wildlife* (PG&E 2018). This protocol is designed to minimize sediment discharges and downstream deposition during California DSOD or FERC-required operations and testing, as well as during high-inflow events that require additional releases to maintain reservoir levels.

PG&E Proposed Measure No. 7, *Hazardous Substance Plan* (PG&E 2024, Attachment E2), would:

- Address the storage, transportation, spill prevention, cleanup, and disposal of hazardous substances used by PG&E associated with Proposed Project activities.
- Include a description of spill cleanup equipment PG&E maintains at each Proposed Project facility where hazardous substances are routinely stored, in vehicles routinely used to transport hazardous substances, and on site when PG&E staff are using hazardous substances in the field.

PG&E Proposed Measure No. 11, *Transportation System Management Plan* (PG&E 2024, Attachment E2), would avoid and/or minimize potential for erosion along Proposed Project roads and stream crossings.

Therefore, there would be no impact.

3.11.3.3 Temperature

The Proposed Project would have a measurable, but less than significant, impact on water temperature. The Balch Project releases cool water in the North Fork Kings River, immediately downstream of Balch Project impoundments. Because the Tulare Lake Basin Plan does not provide a numerical temperature water quality objective other than a limitation on warming (i.e., increase receiving waters less than 2.8°C [5°F] above the natural receiving water temperature) that is applicable to hydroelectric project relicensing. PG&E assumed that cold freshwater habitat is typified by mean daily water temperatures less than 20°C, which is normally considered the upper limit for feeding and growth of brown trout (Salmo trutta) (Frost and Brown 1967, Elliott 1981, PG&E 2024). The cold water temperatures existing under current and Proposed Project operations would support preferred thermal conditions for trout between Black Rock Reservoir and Balch Afterbay and warmer water temperatures between Balch Afterbay and Dinkey Creek would support a pikeminnow-hardhead-sucker fish assemblage between Balch Afterbay Dam and Dinkey Creek (see Section 3.2.1). Therefore, there would be a less than significant impact.

3.11.3.4 Dissolved Oxygen

The Proposed Project would have no measurable impact on dissolved oxygen concentrations. Dissolved oxygen levels in Black Rock Reservoir, Balch Afterbay, and affected reaches of the North Fork Kings River have consistently exceeded the Tulare Lake Basin Plan objective of 9 mg/L during recent (2023) and historical monitoring, with occasional lower concentrations during warm summer months attributable to natural temperature and biological factors (PG&E 2012; CEDEN 2020; PG&E 1986b). Therefore, there would be a less than significant impact.

3.11.3.5 Specific Conductivity

The Proposed Project is anticipated to have no measurable impact on specific conductivity. The Balch Project does not release constituents that would alter conductivity. Specific conductivity measurements in Courtright Lake and Lake Wishon were low in 2023, and significantly less than the 100 micromhos per centimeter (µmhos/cm) maximum Tulare Lake Basin Plan numerical water quality objective for salinity. Therefore, there would be a less than significant impact.

3.11.3.6 pH

The Proposed Project is anticipated to have no measurable impact on pH levels. The Balch Project does not release constituents that would alter pH. pH in Balch Project reservoirs and affected stream reaches ranged from 4.9 to 7.2 s.u. during 2023, consistent with historical sampling results (CEDEN 2020; PG&E 2012; PG&E 1986b). Instances of pH below the Tulare Lake Basin Plan objective of 6.5 s.u. were recorded in Black Rock Reservoir (August–October 2023), Balch Afterbay (September 2023), and the North Fork Kings River at Balch Camp (May 2012–March 2013), reflecting natural variability. Therefore, there would be a less than significant impact.

3.11.3.7 Alkalinity and Hardness

The Proposed Project is anticipated to have no measurable impacts to freshwater aquatic life as a result of alkalinity or hardness. The total alkalinity measurements during 2023 monitoring were less than the USEPA national water quality criteria (20 mg/L [4-day average]) for the protection of freshwater aquatic life (USEPA 2023). Therefore, there would be a less than significant impact.

3.11.3.8 Biostimulatory Substances and Productivity

The Proposed Project is anticipated to have no impact on biostimulatory substances. The Balch Project does not release nutrients into Black Rock Reservoir, Balch Afterbay, or Balch Project-affected reaches of the North Fork Kings River. Additionally, concentrations of nutrients, and chlorophyll-a were low in Balch Project reservoirs and affected stream reaches during 2023 (PG&E 2024). Therefore, there would be no impact.

3.11.3.9 Chemical Constituents

The Proposed Project is anticipated to have no impact on chemical constituents. The Balch Project does not release chemical constituents into Black Rock Reservoir, Balch Afterbay, or Balch Project-affected reaches of the North Fork Kings River. Historical and recent monitoring (PG&E 1986b; PG&E 2024; CEDEN 2020) indicate that concentrations of chemical constituents, including un-ionized ammonia and organic compounds, have not exceeded applicable water quality criteria for aquatic life protection. In addition, total alkalinity measurements remain well below USEPA national water quality criteria. Furthermore, sampling in 2023 and historical sampling (PG&E 1986b) did not indicate any instances of other chemical constituent concentrations (i.e., un-ionized ammonia [PG&E 2024, Section E.3.4.2.1] and organic compounds [PG&E 2024, Section E.3.4.2.8]) that exceeded Tulare Lake Basin Plan criteria for aquatic life protection. Therefore, there would be no impact.

3.11.3.10 Toxicity

The Balch Project does not release toxic materials. Metal (i.e., arsenic, boron, chloride, copper, iron, lead, manganese, mercury, molybdenum, potassium, selenium, sulfate, and zinc) concentrations measured in 2012 and 2013 were low and usually below reporting limits in the North Fork Kings River at Balch Camp (CEDEN 2020). Dissolved oxygen measurements collected at the bottom of Balch Project reservoir water columns do not indicate reducing conditions or anoxia likely to cause mobilization of un-ionized ammonia or trace metals in concentrations approaching toxicity limits (PG&E 1986b). Furthermore, PG&E would implement Measure No. 7, *Hazardous Substance Plan*, which includes spill prevention and cleanup of hazardous substances. The Proposed Project is anticipated to have no measurable impact on toxicity levels. Therefore, there would be a less than significant impact.

3.11.3.11 Oil and Grease

The Proposed Project is not expected to result in concentrations of oil and grease creating a visible film or coating on water surfaces. Under routine O&M activities, the Balch Project does not release oil and grease to surface waters. Oil and grease were less than method reporting limits (<1.1 mg/L) during September and October 2023 and not detected during historical sampling in Black Rock Reservoir, Balch Afterbay, and downstream of Balch Afterbay (PG&E 1986b). PG&E's Proposed Project includes Proposed Measure No. 7, *Hazardous Substance Plan*, which includes spill prevention and cleanup measures, and Proposed Measure No. 3, *Biological Resources Management Plan*, which includes measures (i.e., measures AMM-6 and AMM-7) outlining BMP for equipment maintenance, hazardous chemical (e.g., fuel and lubricants) spills, and leak prevention. Therefore, there would be a less than significant impact.

3.11.3.12 Sediment, Settleable Materials, and Suspended Material

No direct or indirect adverse effects on sediment, settleable material, and suspended sediment resulting from erosion and sedimentation at Balch Project facilities or from routine Balch Project O&M activities were identified, as discussed below for each related Tulare Lake Basin Plan objective.

Sediment

Operation of the Proposed Project is unlikely to contribute sediment to Black Rock Reservoir, Balch Afterbay, or Balch Project-affected reaches of the North Fork Kings River because of the North Fork Kings River's low sediment production. Most of the North Fork Kings River within Balch Project-affected reaches is confined within a steep box canyon underlain by granitic bedrock (CDMG 1965; PG&E 1986c), and the shorelines of Balch Project reservoirs are generally resistant to erosion. Additionally, relicensing Study GS-1 found no apparent evidence of large-scale erosion associated with Balch Project operations of the Balch Tunnel Sluice Spill Channels; minor erosion was only observed at two locations, both of which are associated with road crossings along the western Balch Tunnel Sluice Spill Channel (PG&E 2024, Attachment E3, *Study Data Summary GS-1*). Based on the minor extent of erosion within the sluice spill channels and prevalence of erosion-resistant bedrock outcrops along the channels, sedimentation from erosion within watercourses is minimal.

Proposed construction as part of the Balch Project (i.e., removal of Black Rock Creek Feeder and Weir Creek Feeder) could require some in-water work (breaching of the very small diversion dams), which

could temporarily affect water quality. However, the feeder tributaries have been dry in recent summers and it is anticipated that work will be completed in the dry season.

Routine O&M activities, such as road or trail maintenance, have the potential to generate erosion and mobilize sediment but, with implementation of PG&E's proposed plans and measures, are unlikely to result in sedimentation in Proposed Project reservoirs, Proposed Project-affected reaches of the North Fork Kings River, or other wetlands or waterways within the proposed FERC Project Boundary.

PG&E proposes two measures to avoid or minimize effects on water quality related to sediment (PG&E 2024, Attachment E2):

- PG&E's Proposed Measure No. 3, *Biological Resources Management Plan*, includes erosion control measures (i.e., AMM-1, AMM-4, AMM-5, AMM-8, WET-1) that would be implemented where necessary to prevent soil disturbance, spoil wash, and erosion to reduce sedimentation in wetland areas and waterways.
- PG&E's Proposed Measure No. 11, *Transportation System Management Plan*, includes routine procedures for the inspection of Proposed Project roads and trails, and short-term and long-term procedures for the maintenance and repair of Proposed Project roads and trails.

PG&E would follow avoidance and minimization measures outlined in PG&E Proposed Measure No. 3 and implement BMP outlined in PG&E Proposed Measure No. 11 to control sedimentation and to minimize the quantity of inorganic sediments entering Proposed Project-affected waters resulting from Proposed Project O&M activities. Implementation of these measures would reduce potential adverse effects of sedimentation from local erosion to minor levels.

Given the lack of erosive substrates along the Balch Project reservoir shorelines, stream channels, and Balch Tunnel Sluice Spill Channels, the minor extent of erosion observed along the Balch Tunnel Sluice Spill Channels at Balch Project roads, and proposed measures to avoid and reduce erosion and sedimentation along waterways and roads, any direct or indirect adverse effects on water resources resulting from erosion caused by Proposed Project O&M activities would be minor.

Therefore, there would be a less than significant impact.

Settleable Material

The Proposed Project would not result in accumulation of sediment or other settleable materials in Proposed Project-affected waters in concentrations that cause nuisance or adversely affect beneficial uses. To manage sediment accumulation at Balch Project dams, sediment that accumulates within Balch Project reservoirs is currently passed through the LLOs during high-flow events. Per Article 44 of the current license, and the *Protocol for Operation of Low-level Outlet at Balch Afterbay and Black Rock Reservoir* (PG&E 2018), PG&E operates the LLOs at Balch Diversion Dam and Balch Afterbay Dam following CDFW recommendations designed to minimize effects on aquatic beneficial uses listed in the Tulare Lake Basin Plan, including COLD (Cold Freshwater Habitat), WARM (Warm Freshwater Habitat), and SPWN (Spawning, Reproduction, and/or Early Development waters that support high-quality conditions necessary for fish to spawn and for their eggs and larvae to develop, and reduce accumulation of sediments and other settleable materials).

Balch Diversion and Balch Afterbay dams have historically altered sediment transport in the North Fork Kings River by trapping sediment and reducing the frequency and magnitude of flushing flows in the North Fork Kings River downstream of the dams (PG&E 1986c). Accumulated sediments and woody material following high peak flows and sediment mobilization from upstream sources have occasionally buried LLOs behind Balch Diversion and Balch Afterbay dams, requiring dredging. Implementation of PG&E Proposed Measure No. 5, *Low-level Outlet Operations* (PG&E 2024, Attachment E2), would reduce buildup of settleable material in Proposed Project reservoirs and any direct effects to water quality standard or waste discharge requirements related to settleable material. Therefore, there would be a less than significant impact.

Suspended Material

The Proposed Project would not contribute to any significant concentrations of suspended materials in Balch Project reservoirs or Balch Project-affected stream reaches. TSS and TDS in Black Rock Reservoir, Balch Afterbay and Balch Project-affected reaches of the North Fork Kings River were low during 2023 with TSS ranging from <2.8-8.0 mg/L, and TDS ranging from <4.2-29 mg/L (PG&E 2024).

LLO gate exercises at Balch Diversion Dam may result in increased suspended sediment transport in the North Fork Kings River over a short period of time. However, monitoring during a 2016 LLO gate exercise at Balch Diversion Dam found that settleable solids were below detectable limits during the exercise (Stantec and S2S 2016). Implementation of PG&E Proposed Measure No. 5, which continues the *Protocol for Operation of Low-level Outlet at Balch Afterbay and Black Rock Reservoir*, would reduce any direct effects to water quality related to suspended sediment from the operation of the LLOs. Therefore, there would be a less than significant impact.

Turbidity

The Proposed Project would not contribute to significantly increased levels of turbidity in Balch Project reservoirs or Balch Project-affected stream reaches. Turbidity in Black Rock Reservoir, Balch Afterbay, and Project-affected reaches of the North Fork Kings River was low during 2023, ranging from 0.10 to 0.55 NTU (PG&E 2024). These low turbidity values support aquatic beneficial uses. Turbidity levels may become temporarily elevated during occasional dredging, in-channel maintenance, or flushing flow activities.

PG&E would follow avoidance and minimization measures outlined in the PG&E Proposed Measure No. 3, Biological *Resources Management Plan,* to avoid effects related to turbidity. This includes erosion control measures (i.e., AMM-4, AMM-5, AMM-8) that would be implemented where necessary to prevent soil disturbance, spoil wash, and erosion to reduce turbidity in waterways. Additionally, PG&E would implement BMP outlined in Measure No. 11, *Transportation System Management*, to control sedimentation and to minimize the quantity of inorganic sediments entering Proposed Project-affected waters resulting from Proposed Project O&M activities. This includes routine procedures for the inspection of Proposed Project roads and trails, and short-term and long-term procedures for the maintenance and repair of Proposed Project roads and trails. Therefore, there would be a less than significant impact.

Other

Ammonia

Ammonia concentrations would not be affected by Proposed Project operations. The Balch Project does not directly discharge ammonia into Black Rock Reservoir, Balch Afterbay, or Balch Project-affected reaches of the North Fork Kings River or indirectly elevate pH to affect free ammonia concentrations. Total ammonia was low and predominantly less than laboratory detection limits and calculated un-ionized ammonia was near zero in Black Rock Reservoir, Balch Afterbay, and Balch Project-affected reaches of the North Fork Kings River during 2023 monitoring (PG&E 2024, Attachment E3). Therefore, there would be no impact.

Bacteria

Based on current information, the Proposed Project is anticipated to have no measurable impact on bacteria levels. Available historical data indicate low bacteria concentrations. *E. coli* density (between 1 and 67 MPN/100 mL) in samples collected between May 2012 and March 2013 in the North Fork Kings River at Balch Camp were within Tulare Lake Basin Plan water quality objectives (CEDEN 2020). Therefore, there would be no impact.

Color

The Balch Project does not release constituents that would affect water color. Therefore, there would be no impact.

Floating Material

PG&E implements woody debris management activities to prevent debris buildup; therefore, the Proposed Project would have no impact to floating material.

Pesticides

Proposed Project O&M activities include the use of pesticides (herbicides as part of vegetation management and rodenticides for rodent control). Pesticide use under the Proposed Project is anticipated to have a less than significant impact on water quality with implementation of measures outlined in PG&E Proposed Measure No. 3, *Biological Resources Management Plan* (i.e., measures AMM-7 and AMM-11), and PG&E Proposed Measure No. 4, *Hazardous Substance Plan*. These measures would ensure proper usage and safe application of pesticides around aquatic resources, including the use of pesticide formulations labeled for pesticide application and establishment of treatment buffers around aquatic habitats. Applications would be prescribed under the direction of a PCA to implement BMPs and protect resources. Therefore, there would be a less than significant impact.

Radioactivity

The Proposed Project is anticipated to have no impact on radionuclide concentrations because the Balch Project does not release radionuclides. Therefore, there would be no impact.

Salinity

The Proposed Project is anticipated to have no impact on salinity. The Balch Project does not release constituents that affect salinity. Specific conductivity is low in Black Rock Reservoir, Balch Afterbay, and Balch Project-affected reaches of the North Fork Kings River, and no measurements have exceeded the

Tulare Lake Basin Plan numerical water quality objective (100 µmhos/cm) (CEDEN 2020; PG&E 2012, 1986a). Therefore, there would be no impact.

Tastes and Odors

The Proposed Project is anticipated to have no impact on tastes or odors because the Balch Project does not release substances that would have such an effect. Therefore, there would be no impact.

3.11.3.13 Conclusion

Overall, with the implementation of PG&E's Proposed Measure Nos. 1, 3, 5, 7, and 11, impacts to water quality standard or waste discharge requirements would be reduced to less than significant. Therefore, there would be a less than significant impact.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? (No Impact)

The Proposed Project would not alter groundwater supplies or interfere substantially with ground water recharge. The Proposed Project does not alter the capacity of runoff, nor does it include structures or alterations to topography that would impede or redirect flood flows and would not substantially decrease or interfere substantially with groundwater supplies or recharge. Sustainable groundwater management of the basin would not be impeded. Therefore, there would be no impact.

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

i. result in substantial erosion or siltation on- or off-site? (Less than Significant Impact)

Operation of the Proposed Project is unlikely to contribute sediment to Black Rock Reservoir, Balch Afterbay, or Balch Project-affected reaches of the North Fork Kings River, because the North Fork Kings River is low in sediment production. Most of the North Fork Kings River within Balch Project-affected reaches is confined within a steep box canyon underlain by granitic bedrock (CDMG 1965; PG&E 1986c), and the shorelines of Balch Project reservoirs are generally resistant to erosion. Additionally, relicensing Study GS-1 found no apparent evidence of large-scale erosion associated with Balch Project operations of the Balch Tunnel Sluice Spill Channels; minor erosion was only observed at two locations, both of which are associated with road crossings along the western Balch Tunnel Sluice Spill Channel (PG&E 2024). Based on the minor extent of erosion within the sluice spill channels and prevalence of erosion-resistant bedrock outcrops along the channels, sedimentation from erosion within watercourses is minimal. Construction as part of the Proposed Project (i.e., removal of Black Rock Creek Feeder and Weir Creek Feeder) could require some in-water work (breaching of the very small diversion dams), which could temporarily affect water quality. However, the feeder tributaries have been dry in recent summers and it is anticipated that work will be completed in the dry season (PG&E 2024).

Implementation of PG&E Proposed Measure No. 1, *Minimum Flows and Water Year Types*, Proposed Measure No. 3, *Biological Resources Management Plan*, Proposed Measure No. 5,

Low-Level Outlet Operations, and Proposed Measure No. 11, *Transportation System Management Plan* would minimize soil disturbance, erosion, and sedimentation in the Proposed Project area. Therefore, there would be a less than significant impact.

ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? (No Impact)

The Proposed Project does not include conditions that would create or contribute runoff water such that the capacity of planned stormwater drainage systems would be exceeded. Additionally, the Proposed Project would not provide substantial additional sources of polluted runoff. Therefore, there would be no impact.

iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? (No Impact)

The Proposed Project does not include the addition of impermeable surfaces that would reduce infiltration and result in a substantial increase in the rate or amount of surface runoff. Implementation of PG&E Proposed Measure No. 7, *Hazardous Substance Plan* (Section 3.3.9) will further avoid or reduce potential effects resulting from erosion, sedimentation, or pollution. Therefore, there would be no impact.

iv. impede or redirect flood flows? (No Impact)

The Proposed Project does not include structures or alterations to topography that would impede or redirect flood flows. Therefore, there would be no impact.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? (Less Than Significant Impact)

In the event of flooding caused by rainfall, snowmelt, tsunami, or seiche waves triggered by landslides, rockfalls, or seismic events, there is a potential for pollutants to be transported into waterbodies if inundation occurred in areas where vehicles, equipment, fuel, herbicides, pesticides, or other potential pollutants are stored. Isolated rockfalls have occurred throughout the Balch Project area and have the potential to affect Balch Project facilities. However, implementation of measures contained in PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, Proposed Measure No. 7, *Hazardous Substance Plan*, and Proposed Measure No. 11, *Transportation System Management Plan* would minimize and avoid effects of pollutants, such as sediment or hazardous material runoff from the use of vehicles or equipment (PG&E 2024). Therefore, there would be a less than significant impact.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (Less Than Significant Impact)

The Proposed Project would be required to comply with all existing requirements regarding water quality. In addition, as noted in Impact b), above, the Proposed Project would result in less than significant impacts related to groundwater recharge. Therefore, there would be a less than significant impact.

3.12 Land Use and Planning

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

3.12.1 ENVIRONMENTAL SETTING

The existing area within the FERC Project Boundary for the Balch Hydroelectric Project covers 708.28 acres, divided into 20.59 acres (3%) of "Balch and P-1988 Overlap" and 687.69 acres (97%) of "Balch Only" land. Of “Balch Only” land, 428.76 acres are managed by the SNF, 56.93 acres by the Sequoia National Forest (SQF), and 202 acres are owned by PG&E. Under the Proposed Project, the total area would decrease by 59.75 acres, resulting in a revised area within the FERC Project Boundary of 648.53 acres, in which the SNF would include 416.04 acres (a reduction of 12.72 acres), the Sequoia National Forest would include 29.35 acres (a reduction of 27.58 acres), and "Other Lands" would encompass 196.24 acres (a reduction of 5.76 acres) (PG&E 2024). Private land within the proposed FERC Project Boundary is located in Fresno County. Fresno County covers 6,005 sq-mi and the predominant land uses are agriculture (2,911 sq-mi or 48% of total area) and RC (2,691 sq-mi or 45% of total area) (PG&E 2021). The private land designation which overlaps with the parcels where facility modifications will occur is zoned R-C (Resource and Conservation) (County of Fresno 2022). The R-C zone is intended to conserve and protect natural resources and natural habitats involving land and water areas that are essentially undeveloped, with no more than one primary dwelling unit per parcel. The R-C zone is consistent with the Open Space and Public Lands and Open Space land use designations of the General Plan (Fresno County 2024). The Fresno County Zoning Ordinance stipulates that R-C zoned lands shall conform to the same general plan land use designations as Zone “O” (Open Conservation Land Use), which in the plan is designated as Open Space, Public Lands and Open Space.

SNF specific areas within the proposed FERC Project Boundary include the Conservation Watershed; Sustainable General Recreation; and Eligible, Suitable, or Recommended Wild and Scenic Rivers area-specific Management Areas. The proposed FERC Project Boundary does not overlap with any SNF or SQF area-specific designated areas. Both the SQF and SNF Land Management Plans (LMP) use the same two levels of management direction (forest-wide and area-specific); the same six types of management direction (desired conditions, objectives, goals, suitability of lands, standards, and guidelines), the same Forest-wide management direction subject areas (18), and 13 of the same areas-specific areas as the SNF LMP. In addition, the SQF has the South Fork Wildlife Management Area and the Walker Pass National Historic Landmark Designated Area. The SNF LMP and the SQF LMP do not provide area-specific direction for hydroelectric projects.

3.12.2 IMPACT ANALYSIS

a) Would the project physically divide an established community? (No Impact)

The existing Balch Project is located in a rural area that is sparsely populated. The Proposed Project does not include any new facilities or new land uses that would physically divide an established community. Therefore, there would be no impacts.

b) Would the project 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? (Less Than Significant Impact)

The only proposed modification that could affect land use would be the change in the FERC Project Boundary, as described in the Environmental Setting (Section 3.12.1). The proposed changes to the FERC Project Boundary would not result in an additional private property owner or land use authority, or changes to land use and zoning designations. The proposed FERC Project Boundary increases would accommodate the inclusion of existing access roads and facilities, including existing recreational facilities. The changes would include adding lands currently used predominantly for Proposed Project O&M, removing lands that do not enclose Proposed Project facilities and are not necessary for O&M, adjusting the FERC Project Boundary around Black Rock Reservoir and Balch Afterbay to a contour above the Normal Maximum Water Surface Elevation (NMWSE) for better representation, and updating the FERC Project Boundary based on more accurate data and GIS methods. Given the small scale of these proposed changes and the fact that no new construction is proposed there is minimal conflict with existing land use policies.

The Proposed Project will comply with all relevant land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating environmental effects. This includes adherence to FERC guidelines and any applicable local, state, and federal regulations. The proposed changes to the FERC Project Boundary are designed to maintain consistency with these regulatory requirements and minimize any potential environmental impacts. Consequently, the Proposed Project is not anticipated to conflict with any existing land use plans, policies, or regulations aimed at environmental protection. Therefore, impacts would be less than significant.

3.13 Mineral Resources

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

3.13.1 ENVIRONMENTAL SETTING

Fresno County has been a leading producer of minerals because of the abundance and wide variety of mineral resources that are present in the county. Extracted resources include aggregate products (sand and gravel), fossil fuels (oil and coal), metals (chromite, copper, gold, mercury, and tungsten), and other minerals used in construction or industrial applications (asbestos, high-grade clay, diatomite, granite, gypsum, and limestone) (Fresno County 2024).

3.13.2 IMPACT ANALYSIS

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (No Impact)

The Proposed Project area has no known mineral resources of potential value and is not within a mapped Mineral Resource Zone, as defined by the Surface Mining and Reclamation Act (DOC 2016). Aside from minor modifications to existing recreational facilities infrastructure and the proposed decommissioning of the Black Rock Creek and Weir Creek feeder facilities, the Proposed Project does not involve any new construction or expansion that would result in loss of availability of a known mineral resource. Therefore, there would be no impact.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? (No Impact)

The Proposed Project is not located within a locally important mineral resource zone, as defined by the Fresno County General Plan (Fresno County 2024). Additionally, as discussed under impact a) above, the Proposed Project does not involve any new construction or expansion that would result in loss of mineral resources in the area. Therefore, there would be no impact.

3.14 Noise

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the Project area to excessive noise levels?				X

3.14.1 ENVIRONMENTAL SETTING

Noise is commonly defined as unwanted sound in the environment. This definition reflects a subjective reaction to the characteristics of the physical phenomenon of noise. People judge the relative magnitude of sound sensation in subjective terms, such as “noisiness” or “loudness.” Although elevated noise levels can result in physiological damage and hearing loss, excessive noise in the environment more commonly impairs general human well-being by contributing to psychological stress and irritation. Such health effects can result when noise interferes with everyday human activities, such as sleep, talking, recreation, relaxation, and tasks requiring concentration. When noise is either disturbing or annoying, whether by its pitch or loudness, it may be considered objectionable.

The overall noise level associated with a given noise environment is called the “ambient” noise level. Ambient noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, trains, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. Other contributing noise sources, often referred to as “background” sources, can include the sound of birds, people talking, occasional vehicles passing by, or televisions and radios.

Although the Proposed Project is not subject to local noise requirements, PG&E does work to comply with local requirements. The Fresno County General Plan includes goals and policies for land use compatibility and noise exposure. Figure 3-1 below shows the normally acceptable, conditionally acceptable, generally acceptable, and land use discouraged levels for each land use category.

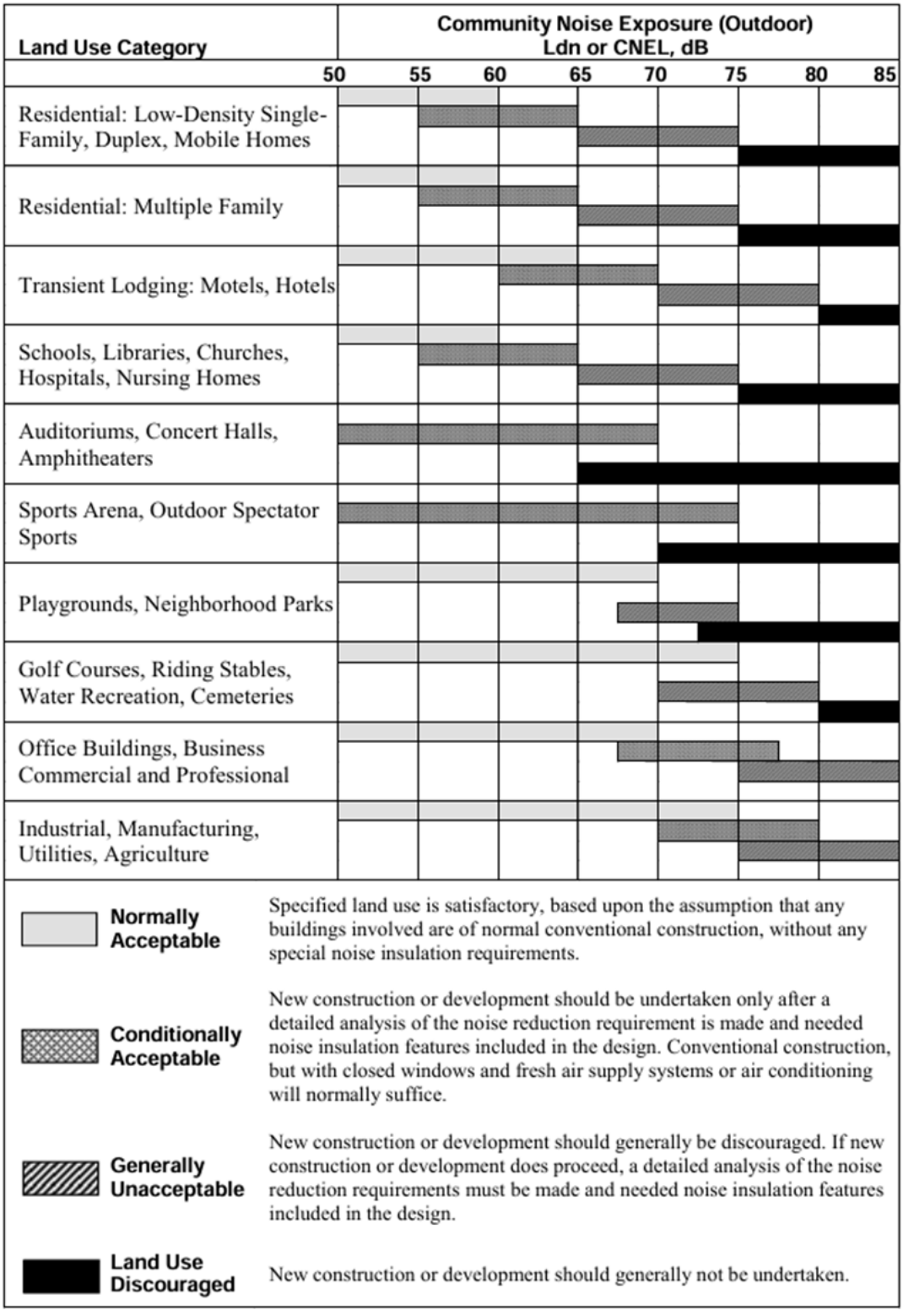

Figure 3-1. Land Use Compatibility for Community Noise Environments

Sensitive receptors in the Proposed Project area largely include recreational users and PG&E employees. Recreational areas are considered sensitive to changes in the noise environment, due to the existing ambient noise levels in the area which are typical of campgrounds, trails, and other similar recreational uses. There are no airports within 2 miles of the Proposed Project area.

3.14.2 IMPACT ANALYSIS

a) Would the project result in exposure of persons to or generation of temporary or permanent noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Less Than Significant Impact)

The Proposed Project does not include any new facilities that would generate substantial temporary or permanent increases in noise levels above the existing conditions. Construction activities associated with the recreational improvements and the decommissioning activities would temporarily increase noise levels in the Proposed Project area. Noise resulting from construction activities would depend on the different types of equipment used, the distance between construction noise sources and sensitive noise receptors, and the timing and duration of noise-generating activities. Specifically for recreational areas, where noise sensitivity is higher and fixed, PG&E plans to undertake construction activities during periods outside of the sites' peak recreation season, when possible, to limit impacts to recreational users and their associated noise sensitivity. Further, recreational area improvements will be phased over several years and across recreational sites, thus limiting noise impacts to recreational users for prolonged periods of time. Further, PG&E uses current and up-to-date equipment with noise-reduction components. Therefore, although the Proposed Project would include temporary increase in noise in various areas through the area, these noise increases would be temporary, and similar to existing O&M activities that currently occur in the area. Therefore, impacts would be less than significant.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? (Less Than Significant Impact)

The Proposed Project does not include any new facilities or construction activities that would generate substantial temporary or permanent increases in noise or vibration levels. Construction activities may involve the use of equipment that could result in vibrations in the area, however no substantial new vibrations are anticipated for the recreation improvements or decommissioning activities. Vibrations from construction would be similar to work completed for existing O&M activities. Therefore, impacts would be less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (No Impact)

There are no airports within two miles of the Proposed Project, therefore there would be no potential for the Proposed Project to expose people in the area to excessive noise levels associated with an airport. Therefore, there is no impact.

3.15 Population and Housing

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) 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)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere				X

3.15.1 ENVIRONMENTAL SETTING

3.15.2 IMPACT ANALYSIS

a) Would the project 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)? (No Impact)

The land encompassing the Proposed Project is rural in nature and sparsely populated, including small, unincorporated communities such as Balch Camp. There are private residences and businesses located near the Project vicinity, and Project boundaries cross private parcels at Balch Camp. Individual homes are scattered throughout the Kings River Valley, particularly in the lower foothills. The Proposed Project may generate temporary jobs during the work period, but these positions are expected to be filled by workers regionally, resulting in no permanent impact on population growth. The Proposed Project does not include any environmental measures or plans that specifically address population and housing impacts.

The Proposed Project does not involve the construction of new residential or commercial structures, nor does it entail the extension of roads or other infrastructure that could facilitate unplanned population growth. The Proposed Project's scope is primarily confined to re-delineating FERC project boundaries and minor maintenance to existing recreation facilities, and thus, will not alter the demographic or infrastructural landscape of the surrounding area. There are no new facilities or modifications to existing facilities as part of the Proposed Project that would result in indirect or direct population growth. No impact would occur.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? (No Impact)

The Proposed Project does not involve any activities that would result in the displacement of existing residents or housing units. There are no proposed new facilities or modifications to existing facilities that would result in the displacement of residences or businesses or result in the need for replacement housing. Therefore, there would be no impact.

3.16 Public Services

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:			X	
i. Fire protection?			X	
ii. Police protection?				X
iii. Schools?				X
iv. Parks?				X
v. Other public facilities				X

3.16.1 ENVIRONMENTAL SETTING

The Fresno County Fire Protection District (FCFPD) provides fire protection and emergency response services. The district is divided into several battalions, each covering different areas within the county. The Proposed Project area falls under the jurisdiction of the California Department of Forestry and Fire Protection (CAL FIRE) Fresno-Kings Unit. This unit is responsible for fire protection and emergency response services in Fresno and Kings Counties (CALFIRE 2025).

Fresno County's law enforcement is primarily handled by the Fresno County Sheriff's Office, which provides policing services to unincorporated areas and supports local police departments within incorporated cities. The Sheriff's Office is organized into various divisions and units to cover different aspects of law enforcement, including patrol, investigations, and special operations. The Proposed Project falls into coverage Area 4, for which Fresno sheriffs provide unique services to this area that include units such as: Search and Rescue, Boating/Dive, and the Off-Highway Vehicle (snowmobiles/ATV/dirt bikes). Area 4's northeastern substation is located in Auberry on Auberry Road. Area 4's southeastern substation is in Squaw Valley on Hwy 180(Fresno County Sheriff's Office 2024).

Fresno County is served by multiple school districts, including the Fresno Unified School District, which is the fourth largest school district in California. The Proposed Project is located in the Sierra Unified School District. There are no schools within the vicinity of the Proposed Project.

3.16.2 IMPACT ANALYSIS

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government 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?

i. Fire protection? (Less than Significant Impact)

The Proposed Project is the renewal of PG&E's current license and includes the continuation of existing O&M activities and proposed license changes, including modification to existing operations, new and modified environmental measures, management and monitoring plans, modification to the existing FERC Project Boundary, recreational facility enhancements, and additional maintenance activities. The only construction and maintenance activities include those for existing recreational facilities, which would be inspected and maintained by PG&E to ensure these features are in good and clean working order. The Proposed Project does not include any activity that would permanently increase the population, which could affect service ratios, response times, or other performance objectives. None of the Proposed Project activities would require the need for additional, or altered existing, public services such as fire protection beyond what is currently provided. While the Proposed Project does not include activities that would permanently increase the population or require additional public services, it is acknowledged that construction and maintenance activities have a small potential to create an ignition. However, these activities will be conducted in compliance with all relevant fire protection regulations and guidelines to minimize this risk. Therefore, impacts are anticipated to be less than significant.

ii. Police protection? (No Impact)

The Proposed Project does not include any activity that would increase the population which could affect service ratios, response times, or other performance objectives. None of the Proposed Project activities would require the need for additional police protection beyond what is currently provided. Therefore, there would be no impact.

iii. Schools? (No Impact)

The Proposed Project does not include any activity that would increase the population which could permanently affect enrollment at local schools, beyond what is currently provided. Therefore, there would be no impact.

iv. Parks? (No Impact)

The Proposed Project does not include any activity that would permanently increase the population which would create demand for local parks. Therefore, there would be no impact.

v. Other public facilities? (No Impact)

The Proposed Project does not include any activity that would increase the population which could affect public service ratios, response times, or other performance objectives for other public facilities. Therefore, there would be no impact.

3.17 Recreation

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

3.17.1 ENVIRONMENTAL SETTING

Current Balch Project recreational facilities are sufficient to meet present and future recreation demands. For example, the campground at Black Rock Reservoir has low occupancy rates. Similarly, parking areas at Black Rock Scenic Overlook and Williams Creek Fishing Access have even lower occupancy rates. Most visitors rate the condition of these facilities as acceptable. Regarding river recreation opportunities, the Balch Project provides opportunities for whitewater boating on the North Fork Kings River, providing opportunities on a short Class V reach below Balch Afterbay and a well-known Class V reach downstream of Dinkey Creek. These reaches offer boating opportunities within acceptable flow ranges, with publicly available flow information. For canyoneering, there are opportunities on the North Fork Kings River from Balch Diversion Dam to Balch Afterbay. These reaches are well known and used, particularly the Lower Jump Trip reach, which offers year-round canyoneering opportunities within suitable flow ranges. The Proposed Project's *Recreation Management Plan* includes plans for accessibility improvements, installation of food lockers, vehicle barriers, and signage enhancements at various sites. Additionally, PG&E proposes to decommission a dispersed camping site to reduce resource impacts and wildfire risks. These improvements include accessibility enhancements and the installation of food lockers at Black Rock Campground, accessibility, vehicle barrier, and signage improvements at Black Rock Scenic Overlook, and an entrance sign, information board, and enhanced vehicle barriers and parking improvements at Williams Creek Fishing Access. Additionally, PG&E proposes decommissioning the dispersed camping site along the south side of Black Rock Reservoir Road between Black Rock Campground and Williams Creek Fishing Access to reduce site resource impacts and wildfire risks. Overall, the recreation sites are in fair condition and will require reconstruction and enhancements over the term of the new license to maintain proper functionality and accessibility (PG&E 2024).

The new license for the Proposed Project would require several changes to recreation sites and facilities. The Proposed Project includes routine maintenance work to maintain the original function and capacity of existing facilities, as well as work that involves minor or no ground disturbance.

3.17.2 IMPACT ANALYSIS

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Less Than Significant Impact)

The Proposed Project's changes to the FERC Project Boundary and the proposed construction and maintenance activities at recreation facilities are not near any neighborhood or regional parks, and the construction activities are limited to improving existing recreational facilities. Further, the Proposed Project is not anticipated to increase population resulting in demand for local or regional park facilities. Therefore, the Proposed Project is not expected to increase the use of existing neighborhood and regional parks or other recreational facilities to the extent that substantial physical deterioration would occur or be accelerated. Therefore, impacts would be less than significant.

b) Does the project include recreational facilities or require the construction of or expansion of recreational facilities which might have an adverse physical effect on the environment? (Less than Significant Impact)

The Proposed Project includes plans for the improvement and reconstruction of existing recreational facilities. These improvements include accessibility enhancements and the installation of food lockers at Black Rock Campground, accessibility, vehicle barrier, and signage improvements at Black Rock Scenic Overlook, and an entrance sign, information board, and enhanced vehicle barriers and parking improvements at Williams Creek Fishing Access. Additionally, PG&E proposes decommissioning the dispersed camping site along the south side of Black Rock Reservoir Road between Black Rock Campground and Williams Creek Fishing Access to reduce site resource impacts and wildfire risks. The construction activities which pertain to these recreation sites would have short-term, local, and less than significant effects on the environment. To minimize these impacts, PG&E plans to undertake construction activities during periods outside of the sites' peak recreation season, when possible, and to keep portions of the sites open to the public during construction (PG&E 2024). Further, PG&E will comply with local, state, and federal environmental regulations when completing these enhancements. Therefore, impacts would be less than significant.

3.18 Transportation/Circulation

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

3.18.1 ENVIRONMENTAL SETTING

Regional access to the Proposed Project area is provided through State Highway 180 and State Highway 168 which connect to smaller one lane roadways (arterial and collector roadways) around the Proposed Project area. The majority of roadways directly within the Proposed Project area are used by PG&E employees to access facilities for O&M activities and by recreational users accessing recreational areas (e.g., campgrounds, trails, etc.). The Fresno County General Plan addresses the circulation system within the county, including specifications for level of service for roadways within the county. Specifically, the Fresno County General Plan Policy TRA -A.25 includes a vehicle miles travelled (VMT) threshold of 110 truck trips per day (Fresno County 2024).

3.18.2 IMPACT ANALYSIS

a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? (Less Than Significant Impact)

Although the Proposed Project does not include any new facilities or new land uses that could conflict with the Fresno County General Plan goals and policies related to transportation, under the new license 14.15 miles of vehicular roads and 2.49 miles of trails, that are used almost exclusively to access the Balch Project, will be added to the Proposed Project. The existing license does not include a clear list of such roads and trails, and some roads within the FERC Project Boundary in the existing license are not Project roads (e.g., are joint use roads that are owned, operated, and maintained by a third party). Issuance of the new license includes implementation of a *Transportation System Management Plan* (PG&E Proposed Measure No. 11) which will address the maintenance of roads within the Proposed Project area. The *Transportation System Management Plan* will include:

- Locations and types of drainage structures and stream crossings

- The current condition of each Proposed Project road, trail, and associated structures, including if any observable ongoing adverse environmental effects
- PG&E's routine procedures for the inspection of Proposed Project roads and trails
- PG&E's routine short-term and long-term procedures for the maintenance and repair of Proposed Project roads and trails
- Procedures for the periodic revision of the Plan, as needed

Therefore, impacts would be less than significant.

b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)? (Less Than Significant Impact)

A project that would reduce or have no impact on VMT should be presumed to have a less than significant impact (pursuant to Section 15064.3[b] of the CEQA Guidelines). The Proposed Project does not include uses that would increase the number vehicle trips or driving distance in the area. Vehicle trips associated with the recreation improvements and decommissioning activities would be incorporated into the existing maintenance schedule. Vehicle trips would be minimal and would not exceed the Fresno County General Plan threshold of 110 truck trips per day (Policy TR-A.25). Any additional work trips associated with the recreation improvements and decommissioning activities would occur in conjunction with existing O&M activities and therefore would be consistent with the CEQA Guidelines Section 15064.3(b) as well as the Fresno County General Plan. The impact would be less than significant.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (No Impact)

The Proposed Project does not include any new facilities or land uses that would substantially increase hazards due to a geometric design feature or incompatible uses. Construction activities associated with recreational improvements and decommissioning activities would occur within existing developed areas and would not result in changes that would increase hazardous conditions or incompatible uses beyond what currently exists. The Proposed Project does not include any new facilities or land uses that would substantially increase hazards due to a geometric design feature or incompatible uses. Therefore, there would be no impact.

d) Would the project result in inadequate emergency access? (Less Than Significant Impact)

The Proposed Project does not involve any new construction of buildings or roads that would result in interference with emergency access for the area. Improvements to recreational facilities and decommissioning the Black Rock Creek and Weir Creek feeder facilities would occur within the existing areas within the FERC Project Boundary and would not result in substantial changes to roads or traffic congestion that could impede emergency access or recreational users entering and exiting the area. Therefore, the Proposed Project would not result in inadequate emergency access. The impact would be less than significant.

3.19 Tribal Cultural Resources

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:			X	
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			X	
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision I of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision(c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.			X	

3.19.1 ENVIRONMENTAL SETTING

PRC Section 21080.3.1 requires that agencies formally consult with recognized California Native American Tribes during the CEQA process to discuss potential impacts on tribal cultural resources. Prior to the release of a Negative Declaration, MND, or EIR, the agency must initiate consultation with tribes that are traditionally and culturally affiliated with the geographic area of a Proposed Project if (1) the tribe requested of the agency, in writing, to be informed through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe; and (2) the tribe responds, in writing, within 30 days of receipt of the formal notification of a Proposed Project and requests consultation with the agency (PRC Section 21080.3.1[b]).

3.19.1.1 Balch Hydroelectric Project, FERC Project No. 175 Tribal Resources Study

As part of relicensing efforts, Tiley Research, under direction from PG&E conducted the Balch Hydroelectric Project FERC Project No. 175 Tribal Resources Study Report (February 2024) of the proposed FERC Project Boundary. Two historic districts were identified as part of the study, Mono-Kings River Historic District and the Yokuts-Kings River Historic District.

The Mono-Kings River Historic District comprises a total of 65 specific culturally important and interconnected places, including the land/waterscape of the district itself, that help produce and sustain

integrity of location, setting, feeling, and association. Of the 65 places, 22 are either directly within or spatially encompass parts of the proposed FERC Project Boundary.

The Yokuts-Kings River Historic District comprises a total of 32 specific culturally important and interconnected places, including the land/waterscape of the district itself, that help produce and sustain integrity of location, setting, feeling, and association. These specific places convey significance as places of movement, pause, and return, including villages and hamlets, fishing locations, cemetery, milling sites, and river and geographical features. Of these 31 places, 10 are either directly within or spatially encompass parts of the proposed FERC Project Boundary.

3.19.1.2 Native American Heritage Commission

The Native American Heritage Commission (NAHC) is a state agency that maintains the Sacred Lands File (SLF), an official list of sites that have cultural and religious importance to California Native American Tribes. The State Water Board submitted a request to the NAHC to review its SLF for the Proposed Project area. The State Water Board received a response on September 20, 2024, from the NAHC, stating that the results were negative.

3.19.1.3 Consultation Outreach per Public Resources Code Section 21080.3.1

On October 23, 2024, an invitation to consult letter pursuant to PRC Section 21080.3.1 was sent via email to the representative from the Santa Rosa Rancheria Tachi Yokut Tribe. Included in the letter were details about the Proposed Project and a location map. As of November 23, 2024, no responses have been received and the State Water Board has determined that the consultation process is concluded, pursuant to PRC Section 21080.3.1 (i.e., AB 52) and PRC Section 21084.3.

3.19.2 IMPACT ANALYSIS

a) Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe (Less Than Significant Impact).

No tribal representatives provided additional information about tribal cultural resources that may be affected by the Proposed Project as a result of the State Water Board's invitation to consult pursuant to PRC Section 21080.3. However, two historic districts within the proposed FERC

Project Boundary were identified as part of the Tribal Resources Study conducted for the FERC relicensing project, the Mono-Kings River Historic District and the Yokuts-Kings River Historic District. In addition, as discussed in *Section 3.6 Cultural Resources*, results of the archaeological records search and previous field investigations indicate that known archaeological sites that may qualify as tribal cultural resources are located within the FERC Project Boundary and the Proposed Project could result in a substantive adverse change in the significance of tribal cultural resources. Thus, potentially significant impacts related to tribal cultural resources could result from the Proposed Project.

However, pursuant to *Section 5.4 Specific Measures for Traditional Cultural Properties* of the HPMP, PG&E will continue to find avenues to gain this information so that appropriate management measures could be implemented. Opportunities to solicit this information may arise from day-to-day coordination, annual stakeholder meetings, or Proposed Project specific consultations. Should management measures for tribal resources be identified over the course of the Proposed Project FERC license, PG&E will make a good-faith effort to implement those measures, in consultation with tribes, land management agencies, and SHPO, as appropriate.

Should Native American human remains be encountered, as discussed in *3.6 Cultural Resources,* these remains would be required to be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC, as appropriate and *Section 4.3.8 Treatment of Human Remains* in the HPMP (PG&E 2024).

Compliance with the California Health and Safety Code, Section 5097.98 of the PRC, and the HPMP would ensure that impacts to tribal cultural resources would be less than significant, no additional mitigation measures would be required.

3.20 Utilities and Service Systems

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				x

3.20.1 ENVIRONMENTAL SETTING

Sanitary sewer systems within unincorporated areas of Fresno County typically serve individual small communities and sometimes shared wastewater treatment facilities. Domestic water service within Fresno County is generally operated and managed by special districts such as Community Services Districts (CSDs) (Big Creek; Biola; Bluffs; Caruthers; Del Rey; Easton; Lanare; Laton; and Sierra Cedars) (Fresno Local Agency Formation Commission 2007), sanitary and sewer maintenance districts, and County Service Areas (Fresno County, n.d.). Many of these districts, excluding County Service Areas, are not subject to county control and instead are self-governing.

Solid waste collection in the communities near the Proposed Project site is provided by local waste management services licensed through the County of Fresno (Fresno County n.d.). The nearest landfill to the Proposed Project area is the American Avenue Disposal Site, located at 18950 West American Avenue, in Kerman. It is a Class III landfill and will only accept standard municipal waste. The landfill has a total capacity of 21.7 million cubic yards and handles on average 2,200 tons per day. As of January 2022, the landfill had a remaining capacity of 17.97 million cubic yards. It is estimated that the landfill will reach capacity in 2043 (Fresno County 2022). Finally, Fresno County has several comprehensive waste management plans to address various types of waste. The Construction & Demolition Waste

Management Plan (WMP) assists the county in complying with the Integrated Waste Management Act of 1989 (AB 939), which mandates a 65% reduction in waste disposed of in landfills. This plan includes requirements for documenting waste reduction efforts and submitting waste logs and receipts. Additionally, the Construction and Demolition Debris Recycling Program requires permit applicants to submit a waste management plan for approval before permit issuance, demonstrating how at least 65% of all nonhazardous waste, scrap, and debris generated will be diverted from landfills.

Natural gas service in Fresno County is primarily provided by PG&E. PG&E also serves the electric needs of the county, including the Balch Camp and Rogers Crossing areas.

3.20.2 IMPACT ANALYSIS

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? (No Impact)

The Proposed Project does not involve the relocation or construction of new or expanded water, stormwater drainage, electric power, natural gas, wastewater treatment, or telecommunication facilities. The proposed changes would not affect utilities and service systems. The only construction and maintenance activities include those for existing recreational facilities, which would be inspected and maintained by PG&E to ensure these features are in good and clean working order. The implementation of these activities would not impact any existing utilities and service systems. No impact would occur.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years? (Less than Significant Impact)

The Proposed Project would have sufficient water supplies to serve both the Proposed Project and reasonably foreseeable future development during normal, dry, and multiple dry years. Proposed Project construction and O&M activities are likely to be supplied by the Proposed Project reservoirs. Historical data from water year (WY) 1981 through WY 2022 shows consistent and reliable inflows to Black Rock Reservoir and Balch Afterbay, with minimum, maximum, and mean daily total gaged inflows indicating a stable water supply. Project water use is not anticipated to substantially increase compared to pre-relicensing conditions (PG&E 2024). Therefore, impacts would be less than significant.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (No Impact)

The Proposed Project would not alter wastewater treatment systems. The Proposed Project is located in the northeastern portion of Fresno County, near the unincorporated communities of Balch Camp and Rogers Crossing. These areas rely on individual or community septic systems rather than centralized wastewater treatment facilities. As such, the Proposed Project does not place additional demand on any wastewater treatment provider. Therefore, there are no impacts anticipated.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? (Less than Significant Impact)

The Proposed Project would generate solid waste within the limits of state and local standards and the capacity of local infrastructure. During construction activities, a temporary increase in the generation of solid waste will occur from construction labor and debris. Per the existing FERC license conditions, PG&E will consult and cooperate with the California Department of Public Health to comply with state and local regulations. This includes planning and providing for the collection, storage, and disposal of solid waste generated through public access and use of Proposed Project lands and waters. Within one year after the commencement of the Proposed Project's operation, PG&E will file a solid waste management plan with FERC, which must be approved by the California Department of Public Health. This plan will detail the location of solid waste receptacles in public areas such as campgrounds, picnicking areas, and boat access areas; schedules for the collection of waste from these receptacles; provisions for including any newly developed public use areas in the plan; and disposal sites and methods of disposal. These measures are compliant with county and state waste management plans and practices. The nearest landfill, the American Avenue Disposal Site, has sufficient capacity to accommodate the Proposed Project's solid waste disposal needs (County of Fresno 2022). Additionally, the Proposed Project would not impair the attainment of solid waste reduction goals, resulting in a less than significant impact.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? (No Impact)

The Proposed Project is expected to generate solid waste within the limits set by state and local standards, as well as the capacity of local infrastructure. According to the existing FERC license conditions, PG&E will consult and cooperate with the California Department of Public Health to ensure compliance with state and local regulations. This involves planning and providing for the collection, storage, and disposal of solid waste generated by public access and use of Proposed Project lands and waters. Within one year of the Proposed Project's commencement, PG&E will submit a solid waste management plan to FERC, which must be approved by the California Department of Public Health. This plan will outline the locations of solid waste receptacles in public areas such as campgrounds, picnic areas, and boat access points; schedules for waste collection from these receptacles; provisions for incorporating any newly developed public use areas into the plan; and the sites and methods for waste disposal. These measures will comply with both county and state waste management plans and practices. Therefore, no impacts would occur.

3.21 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones:

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X	

3.21.1 ENVIRONMENTAL SETTING

The Proposed Project area is located within a SRA and an FRA. The USFS is the federal responsible agency within the FERC Project Boundary of the SNF and the Sequoia National Forest. CAL FIRE is the state-responsible agency for areas outside of the SNF and the Sequoia National Forest.

Federal, state, and local responsible agencies are required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones are referred to as Fire Hazard Severity Zones. The responsible agencies develop maps using science-based and field-tested models that assign a hazard score based on the factors that influence fire likelihood and fire behavior. Many factors are considered such as fire history, existing and potential fuel (e.g., natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather for the area. There are three levels of hazard: Moderate, High, and Very High. The Proposed Project area includes both “moderate” and “high” Fire Hazard Severity Zones (CALFIRE 2025).

3.21.2 IMPACT ANALYSIS

a) Substantially impair an adopted emergency response plan or emergency evacuation plan? (Less Than Significant Impact)

The Fresno County General Plan and Fresno County Multi-Jurisdictional Hazard Mitigation Plan include multiple goals and policies related to emergency response and evacuation (Fresno County 2024, Fresno County 2018).

The Proposed Project does not involve any new construction of buildings, roads, or other infrastructure that would result in interference with emergency response plans or emergency evacuation plans for the area. Improvements to recreational facilities and the decommissioning of the Black Rock Creek and Weir Creek feeder facilities would occur within the existing areas within the FERC Project Boundary and would not result in substantial changes that could impede emergency response and/or evacuation within the area. Therefore, the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The impact would be less than significant.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? (No Impact)

A project would be considered to have a significant impact if, due to existing natural factors, it increased the severity of existing fire risk in a manner that could expose project occupants to wildfires or place project occupants in areas where wildfire smoke is known to concentrate. A project that would increase the severity of existing fire risk due to natural factors could include, for example, a housing development project placed on a slope with prevailing uphill winds in a fire-prone area. Such placement could increase the amount of fuel that could feed a wildfire, which would exacerbate the existing risk of wind-driven wildfires and expose the occupants of the project to that very risk.

The Proposed Project does not include construction of any new buildings intended for human habitation or other features that could result in exacerbation of wildfire risks. Therefore, there would be no impact.

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

The Proposed Project does not involve construction or any new roads, emergency water sources, power lines, or other utilities that may exacerbate fire risk. However, issuance of the new license includes implementation of a *Fire Management and Response Plan* (PG&E Proposed Measure No. 10). PG&E's *Fire Management and Response Plan* includes requirements for fuel treatments to prevent ignition and escape of potential fires within the Proposed Project area. Fuel treatment activities would be implemented only within areas necessary to reduce fire hazards, protect Proposed Project facilities including Proposed Project recreational facilities, and provide for worker and public health and safety. Therefore, the impact would be less than significant.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? (Less Than Significant Impact)

An impact would be considered significant if it created substantial new risks of post-fire downslope or downstream flooding or landslides or if it resulted in the placement of people or structures in areas of existing risk of post-fire downslope or downstream flooding or landslides.

Aside from minor modifications to existing recreational facilities infrastructure and the decommissioning of the Black Rock Creek and Weir Creek feeder facilities, the Proposed Project does not involve any new construction or expansion that would result in substantial increases in risks as a result of runoff, post-fire slope instability, or drainage changes. the recreational facilities improvements would occur within existing recreational areas and would not result in additional impacts related to risk of post-fire downslope or downstream flooding or landslides. Therefore, the Proposed Project would not have a significant impact regarding the exposure of people or structures to risk of post-fire downslope or downstream flooding or landslides. Therefore, the impact would be less than significant.

3.22 Mandatory Findings of Significance

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

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

The Proposed Project involves O&M of an existing hydroelectric facility and associated infrastructure. As discussed in Section 3.2, *Biological Resources*, the Proposed Project would have a less than significant impact on special status species and their habitats. As provided in PG&E's application for new license (PG&E 2024), the Proposed Project includes the implementation of several proposed protection, mitigation, and enhancement measures (see Section 2.2.3, *Proposed Environmental Measures and Management Plans*). Examples of how these measures and management plans would avoid or minimize impacts to special status species and their aquatic or terrestrial habitats include managing sediment releases and minimizing impacts of sediment discharges (Proposed Measure No. 5), maintaining continuous MIF in the North Fork Kings River (Proposed Measure No. 1), minimizing erosion or pollutant runoff from the use of vehicles or equipment (Proposed Measure Nos. 7, 11), and adhering to a set of biological protection measures including activity timing and location restrictions (Proposed Measure No. 3).

With implementation of these proposed measures and management plans, the Proposed Project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species with established native resident or migratory wildlife corridors, impede the use of native wildlife nursery sites, or adversely impact riparian habitat, wetlands, and other sensitive natural communities. As there are no tree preservation ordinances applicable to the Proposed Project area or any habitat conservation plans, natural community conservation plans, or other local, regional, or state habitat conservation plans overlapping the with the Proposed Project area, the Proposed Project would not conflict with existing plans or ordinances. The Proposed Project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory. Therefore, there would be a less than significant impact.

b) Does the project have impacts that are individually limited, but cumulatively considerable? (Less than Significant Impact)

According to Section 15355 of the CEQA Guidelines, "cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase potential environmental impacts. The cumulative impact from several projects is defined as the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Such impacts can arise from projects that are individually minor but collectively significant over time.

The Balch Project consists of limited administrative and physical activities, including the re-delineation of the FERC Project Boundary for the Balch Hydroelectric Project (FERC Project No. 175) and modest improvements to existing facilities. The Proposed Project primarily consists of a re-delineation of the existing FERC Project Boundary to reflect current infrastructure and land ownership, and minor upgrades to existing recreational facilities at Black Rock Reservoir and Balch Afterbay. No new construction is proposed outside previously disturbed areas, and the Proposed Project would not modify hydroelectric operations, water diversion volumes, or generating capacity. No new infrastructure, reservoir storage, or transmission components are proposed.

Cumulative effects were considered in relation to other hydroelectric and water management activities within the Kings River watershed. The PG&E Haas-Kings River Project includes the Haas and Kings River powerhouses and associated infrastructure that diverts and conveys water from tributaries of the Kings River through a series of tunnels, forebays, and penstocks. Proposed Project operations are run-of-river and do not involve consumptive water use or the physical expansion of facilities under current planning. Maintenance activities such as vegetation management occur entirely within established corridors. The PG&E Helms Pumped Storage Project conveys water between Courtright and Wishon Reservoirs via a closed-loop pumped storage system, using reversible turbines housed in a subsurface powerhouse located approximately 1,000 feet below ground. The Helms facility operates independently of downstream

flows to the Kings River and does not result in net releases to the river system (PG&E 2023a). Environmental review under CEQA for recent site improvements has addressed only minor infrastructure modifications, such as fiber optic cable installation and upgrades to recreation amenities.

Further downstream, the Pine Flat Hydroelectric Project (FERC Project No. 2741), operated by the Kings River Conservation District, is located immediately below Pine Flat Dam and uses water released by the U.S. Army Corps of Engineers for flood control and irrigation. The facility's 165-megawatt powerhouse draws from existing outflows and returns the water to the river with no change in overall discharge volumes. A 2023 Environmental Assessment evaluated a license amendment to add a fourth turbine unit (Unit 4), which would not increase discharge rates, alter reservoir levels, or measurably impact downstream aquatic or riparian resources. The Environmental Assessment concluded that no cumulatively considerable effects would occur given the confined scope of work and existing operational limitations.

Each of these projects has been subject to CEQA, NEPA, and/or FERC environmental review and implements appropriate mitigation measures to address project-level impacts. None of the referenced projects involve new water consumption, substantial land disturbance, or significant changes to regional hydrology or habitat that would compound potential effects of the Balch Project. Accordingly, the Balch Project would not result in impacts that are cumulatively considerable. Therefore, there would be a less than significant impact.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (Less than Significant Impact)

The Proposed Project does not include any new construction outside of existing disturbed areas, nor does it propose changes to power generation, water diversion, or land use that could affect surrounding communities. No housing, public infrastructure, or critical facilities would be developed or modified, and no new permanent workforce or operational activities would be introduced. As discussed in the Initial Study[9], the Proposed Project would not expose persons to potentially significant impacts related to visual quality, agriculture, air quality, energy, geologic hazards, greenhouse gas emissions, hazards or hazardous materials, hydrology or water quality, land use and planning, noise, population and housing, transportation/traffic hazards, recreation, or affect utilities and services or wildfire.

Although the Initial Study identified potentially significant impacts related to biological resources and hydrology and water quality, these effects would not translate into adverse consequences for human populations. The concerns identified for hydrology and water quality involve site-specific runoff and drainage patterns but do not involve pollutants, water supply, or flood risk to off-site structures. All potentially significant impacts would be reduced to less than significant levels with applicant proposed measures focused on erosion control, stormwater management, and habitat. The Proposed Project would not have potentially significant environmental impacts that would cause substantial adverse effects on humans, either directly or indirectly. Therefore, there would be a less than significant impact.

[9] (FERC) Project No. 175 / The Balch Hydroelectric Project | California State Water Resources Control Board

4.0 List of Preparers

Section	Author	Company
Introduction	Lindsay Anshen	Stantec
Project Description	Lindsay Anshen, Caitlin Barns, Kendra Ryan	Stantec
Biological Resources	Caitlin Barns (Terrestrial); Miranda Taylor and Caroline Hamilton (Aquatics)	Stantec
Hydrology and Water Quality	Miranda Taylor & Caroline Hamilton (Aquatics)	Stantec
Mandatory Findings of Significance	Henry Mooney & Caroline Hamilton	Stantec
Technical Review	Wayne Lifton	Stantec
Quality Review	Lindsay Anshen	Stantec
Independent Review	Bill Spain	Stantec

5.0 References

Ahlborn, G. 2021. Life history account for western mastiff bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: California's Wildlife.

Alexander, R.M. 1967. Functional design in fishes. Hutchinson and Company, London.

Anderson, B.A. 2007. A literature review of the effects of helicopter disturbance and noise on selected wildlife species. Prepared for U.S. Army Alaska, Fort Wainwright, AK, and CH2M Hill, Inc., Anchorage, AK. Prepared by ABR, Inc.Environmental Research & Services. July.

APLIC (Avian Power Line Interaction Committee). 2006. Suggested practices for avian protection on power lines: The state of the art in 2006. Edison Electric Institute, APLIC, and California Energy Commission, Washington, D.C. and Sacramento, CA.

____. 2012. Reducing avian collisions with power lines: The state of the art in 2012. Edison Electric Institute and APLIC, Washington, D.C.

Bondi, C.A., and S.B. Marks. 2013. Differences in Flow Regime Influence the Seasonal Migrations, Body Size, and Body Condition of Western Pond Turtles (Actinemys marmorata) that Inhabit Perennial and Intermittent Riverine Sites in Northern California. Copeia, 2013(1), 142–153. Available online at: Differences in Flow Regime Influence the Seasonal Migrations, Body Size, and Body Condition of Western Pond Turtles (Actinemys marmorata) that Inhabit Perennial and Intermittent Riverine Sites in Northern California on JSTOR.

Burkholder, L. 2014. 2014 Balch Camp raptor survey. To Kim Sorini and Annette Lambert, USFS. From Laura Burkholder, Senior Wildlife Biologist, Pacific Gas & Electric Company. February 28.

Cada, G.F. 2001. The development of advanced hydroelectric turbines to improve fish passage survival. Fisheries. September.

CALFIRE (California Department of Forestry and Fire Protection). 2021. Fire perimeters. Available at: Fire and Resource Assessment Program | CAL FIRE.

____. 2025. Fire Hazard Severity Zones in State Responsibility Area. Accessed January 2025. Available online at: Fire Hazard Severity Zones in State Responsibility Area.

California Department of Water Resources. 2023. Water Year 2023: Weather Whiplash, From Drought To Deluge. Available online at: Water Year 2023: Weather Whiplash, From Drought To Deluge.

California Public Resources Code. 2007. CA Pub Res Code Section 12220 (g). Accessed January 2025. Available online at: California Public Resources Code section 12220 (2025).

Cal-IPC (California Invasive Plant Council). 2023. Cal-IPC Plants A to Z website. Available online at: Plants A to Z – California Invasive Plant Council. Accessed June 2023.

Caltrans (California Department of Transportation). 2025. California State Scenic Highway System Map. Accessed January 2025. Available online at: California State Scenic Highway System Map.

CARB (California Air Resources Board). 2005. Air Quality and Land Use Handbook: A Community Health Perspective. Accessed January 2025. Available online at: ARB's Air Quality and Landuse Handbook.

____. 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. Accessed January 2025. Available online at: 2022 Scoping Plan Update.

Cardno ENTRIX. 2012a. Draft Technical Memorandum: Balch Afterbay low level outlet gate repairs turbidity effects to fish analysis. To Jeremey Laurin, PG&E Water Quality Specialist. From John Spranza Aquatic Ecologist/Senior Regulatory Specialist. January 30.

____. 2012b. Balch Afterbay Low Level Outlet Gate Repairs Turbidity Effects Analysis. January 4.

____. 2012c. Balch Afterbay Low Level Outlet Gate Repairs Post-Project Habitat Assessment Report, January 5.

Cauble, K., and R.S. Wagner. 2005. Sublethal effects of the herbicide glyphosate on amphibian metamorphosis and development. Bulletin of Environmental Contamination and Toxicology. 75:429–435.

CDFA (California Department of Food and Agriculture). 2023. Pest rating proposals and final ratings: weeds. Available at: Weeds | Pest Rating Proposals and Final Ratings (ca.gov).

CDFW (California Department of Fish and Wildlife). 2018. Protocols for surveying and evaluating impacts to special status native plant populations and sensitive natural communities. CDFW, Sacramento, California.

____. 2021. California Wildlife Habitat Relationship System, Version 10.1.28. CDFW, Biogeographic Data Branch, Sacramento, California.

____. 2022a. California Natural Diversity Database (CNDDB), RareFind Version 5. Electronic Database. Natural Heritage Division, CDFW, Sacramento, California. Accessed March 2022. Available online at: CNDDB Maps and Data.

____. 2022b. California Sensitive Natural Communities. VegCamp. Sacramento, California. Available online at: Natural Communities.

____. 2023a. California Natural Diversity Database (CNDDB) and Spotted Owl Viewer (SOV). RareFind, Version 5.3.0 and Bios Version 6 electronic databases. CDFW, Natural Heritage Division, Sacramento, California. Available online at: CNDDB Maps and Data. Accessed March and June 2023.

____. 2023b. Special vascular plants, bryophytes, and lichens list. Quarterly publication. Prepared by CDFW, Sacramento, California. Available online at: California's Rare, Threatened and Endangered Plants.

____. 2025a. California Natural Diversity Database (CNDDB) and Spotted Owl Viewer (SOV). RareFind, Version 5.3.0 and Bios Version 6 electronic databases. CDFW, Natural Heritage Division, Sacramento, California. Available online at: CNDDB Maps and Data. Accessed June 2025.

CDMG (California Department of Conservation, Division of Mines and Geology). 1965. Geologic Atlas of California, Bakersfield Sheet, Scale 1:250,000.

CDMG (California Department of Conservation, Division of Mines and Geology). 1965. Geologic Atlas of California, Bakersfield Sheet, Scale 1:250,000.

CDPR (California Department of Pesticide Regulation). 2018. An investigation of anticoagulant rodenticide data submitted to the Department of Pesticide Regulation.

CEDEN (California Environmental Data Exchange Network). 2020. State Water Resources Control Board, Sacramento, California. Accessed November 17, 2020, at CEDEN - California Environmental Data Exchange Network.

Claudi, R. and K. Prescott. 2011. Examination of calcium and pH as predictors of dreissenid mussel survival in the California State Water Project. Prepared for California Department of Water Resources. Prepared by RNT Consulting, Inc.

Claudi, R., A. Graves, A.C. Taraborelli, R.J. Prescott, and S.E. Mastitsky. 2012. Impact of pH on survival and settlement of dreissenid mussels. Aquatic Invasions 7(1):21–28.

Clay, C.H. 1961. Design of fishways and other fish facilities. Department of Fisheries of Canada, Ottawa. Cat. No. Fs 31-1961/1.

CNPS (California Native Plant Society). 2022. A manual of California vegetation. Online Edition. California Native Plant Society, Sacramento, California. Available online at: Vegetation Program - California Native Plant Society.

____. 2023. Inventory of rare and endangered plants of California online edition, v9.5. California Native Plant Society, Sacramento, California. Accessed March 2023. Available online at: CNPS Inventory of Rare Plants | California Native Plant Society.

Cohen, A.N. 2008. Potential distribution of zebra and quagga mussels in California. San Francisco Estuary Institute, Oakland, CA, and Center for Research on Aquatic Bioinvasions, Richmond, California. Revised. 29 pp.

Colibri Ecological Consulting. 2022. Patterson Bluff reflector maintenance project, peregrine falcon survey summary. Prepared for Pacific Gas & Electric Company. May.

Comstock, B.A., S.L. Sprinkle, and G.R. Smith. 2011. Acute toxic effects of round-up herbicide on wood frog tadpoles (*Rana sylvatica*). Journal of Freshwater Ecology 22(4):429– 435.

County of Fresno Department of Public Works and Planning, Mapping Division. 2022. Web App Viewer. Accessed January 2025. Available online at: COUNTY OF FRESNO - ZONING.

CVRWQCB (California Regional Water Quality Control Board Central Valley Region). 2018. Water Quality Control Plan for the Tulare Lake Basin Third Edition. Revised May 2018 (with approved amendments).

Delany, D.K., T.G. Grubb, P. Beier, L.L., Pater, and M. Hildegard Reiser. 1999. Effects of helicopter noise on Mexican spotted owls. The Journal of Wildlife Management. 63(1):60–76.

Diggles, M.F., J.R. Rytuba, B.C. Moring, C.T. Wrucke, D.P. Cox, S. Ludington, R.P. Ashley, W.J. Pickthorn, C.T. Hillman, and R.J. Miller. 1996. Geology and minerals issues in Sierra Nevada Ecosystem Project. Final report to Congress, Volume II: Assessments and scientific basis for management options. University of California, Davis, and Centers for Water and Wildland Resources.

DOC (California Department of Conservation). 2016. Mines Online. Accessed January 2025. Available online at: Mines Online.

____. 2022. Farmland Mapping and Monitoring Program. Accessed January 2025. Available online at: Farmland Mapping & Monitoring Program.

____. 2024. California Williamson Act Enrollment Finder. Accessed January 2025. Available online at: California Williamson Act Enrollment Finder.

DTSC (California Department of Toxic Substances Control). 2025. EnviroStor Database. Accessed January 2025. Available online at: EnviroStor Map.

DWR (California Department of Water Resources). 2020. Sustainable Groundwater Management Act (SGMA). Accessed September 23, 2020. Available online at: Sustainable Groundwater Management Act (SGMA).

___. 2024. Sustainable Groundwater Management Act Data Viewer. Accessed 2024. Available online at: SGMA Data Viewer.

eBird. 2023. eBird: An online database of bird distribution and abundance. eBird, Ithaca, New York. Accessed: June 2023. Available online at: Explore - eBird.

Elliott, J.M. 1981. Some aspects of thermal stress on freshwater teleosts. Pages 209-245 In A.D. Pickering (ed.), Stress and Fish. Academic Press, London.

Elliott, T.C., K. Chen, and R.C. Swanekamp. 1997. Standard Handbook of Powerplant Engineering, Second Edition. McGraw-Hill, October 1, 1997.

FERC (Federal Energy Regulatory Commission). 1980. Order Issuing License (Major), Balch Hydroelectric Project, FERC Project No. 175. Office of Electric Power Regulations.

____. 2001. Order issuing new license, Haas-Kings River Hydroelectric Project. FERC Project No. 1988. March 6.

____. 2014. Managing Hydropower Project Exhibits: Guidance Document. Office of Energy Projects, Division of Hydropower Administration & Compliance. August 2014.

FGDC (Federal Geographic Data Committee). 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. U.S. Fish and Wildlife Service, Federal Geographic Data Committee, Wetlands Subcommittee, Washington, D.C.

_____. 2021a. CALVEG Zone 4: South Sierra. Available at: Region 5 – Resource Management (usda.gov).

_____. 2021b. Sierra National Forest fire history GIS layer. Provided by Sierra National Forest.

_____. 2021c. Invasive and noxious weeds of known concern for Sierra National Forest (Mariposa, Madera, and Fresno counties). December 17.

_____. 2023a. Sierra National Forest Species of Conservation Concern. May.

_____. 2023b. Sequoia National Forest Species of Conservation Concern. May.

_____. 2023c. Natural Resource Information System (NRIS) Data. August update. Provided by Region 5, Vallejo, California.

Fresno County. 2018. Fresno County Multi-Jurisdictional Hazard Mitigation Plan. Accessed January 2025. Available online at: fresno-county-hmp-final.pdf.

_____. 2024. Fresno County General Plan. Accessed January 2025. Available online at: fcgpr_general-plan_county_final_2024_02.pdf.

Fresno County Sheriff's Office. 2024. "Patrol Areas." Accessed January 2025. Available online at: The Fresno County Sheriff-Coroner's Office - Patrol Areas.

Fresno Local Agency Formation Commission. 2007. Executive Officer's Report: Consent Agenda Item No. 7. Fresno Local Agency Formation Commission. Accessed January 2025. Available online at: 2009 Del Rey CSD MSR Revised Final Draft.pdf.

Froneman, A. 2006. Bird impact assessment study, bird helicopter interaction on the Bitou River. Endangered Wildlife Trust. Parkview, Alaska. July.

Frost, W.E. and M.E. Brown. 1967. The trout. New Naturalist Series, Collins, St. James Place. London.

Grinnell J., J.S. Dixon, and J.M. Linsdale. 1937. Fur-bearing mammals of California. University of California Press, Berkeley, California.

Grubb, T.G. and W.B. Bowerman. 1997. Variations in breeding bald eagle responses to jets, light planes, and helicopters. Journal of Raptor Research. 31(3):213–222.

Gruver. C. and D.A. Keinath. 2006. Townsend's big-eared bat (*Corynorhinus townsendii*): A technical conservation assessment. U.S. Forest Service, Rocky Mountain Region.

Harris, J. 2021a. Life history account for fringed myotis. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: California's Wildlife.

____. 2021b. Life history account for pallid bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available online at (link to PDF): Life History Account for the Pallid Bat.pdf.

____. 2021c. Life history account for Townsend's big-eared bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available online at (link to PDF): Life History Account for Townsend's Big-eared Bat.pdf.

____. 2021d. Life history account for spotted bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available online at (link to PDF): Life History Account for Spotted Bat.pdf.

____. 2023. Life history account for western red bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available online at (link to PDF): Life History Account for Western Red Bat.pdf.

Hilton, S., and T. E. Lisle. 1993. Measuring the fraction of pool volume filled with fine sediment. Research Note PSW-RN-414. USDA Forest Service, Pacific Southwest Research Station, Berkeley, California.

Hincks, S.S. and G.L. Mackie. 1997. Effects of pH, calcium, alkalinity, hardness, and chlorophyll on the survival, growth, and reproductive success of zebra mussel (*Dreissena ploymorpha*) in Ontario lakes. Can. J. Fish. Aquat. Sci. 54: 2049–2057.

Jepson Flora Project. 2025. Jepson eFlora. Available online at: California Flora, Jepson eFlora Main Page.

Karatayev, A. 1995. Factors determining the distribution and abundance of Dreissena polymorpha in lakes, dam reservoirs and channels, United States.

Karatayev, A.Y., L.E. Burlakova, S.E. Mastitsky, and D.K. Padilla. 2015. Predicting the spread of aquatic invaders: Insight from 200 years of invasion by zebra mussels. Ecology. 25:430-440.

McMahon, R.F. 1996. The physiological ecology of the zebra mussel, Dreissena polymorpha, in North America and Europe. Journal of American Zoology 36:339–363.

Moyle, P.B. 2002. Inland fishes of California. University of California Press, Berkeley and Los Angeles, CA. 502 pp.

NRCS (Natural Resources Conservation Service). 2021. Soil Survey Geographic Database (SSURGO). Available online at: Web Soil Survey - Home.

Oregon Wildlife Institute. 2016. Conservation assessment for the Pallid bat (Antrozous pallidus) in Oregon and Washington. Interagency Special Status and Sensitive Species Program, U.S. Forest Service Region 6, Oregon and Washington, and U.S. Bureau of Land Management, Oregon and Washington.

Pace Engineering. 2011. PG&E – Balch Camp, California. Balch – 2011 Road Storm Damage Phase 1 and 2. Prepared by Pace Engineering, Redding,

PG&E and CDFG (Pacific Gas and Electric Company and California Department of Fish and Game). 1976. Fishery resources agreement between PG&E and State of California relating to the Balch Hydroelectric Project, FERC Project No. 175.

PG&E (Pacific Gas and Electric Company). 1985. Haas-Kings River Project-1988 Amendment to License Application and Balch Project-175 Amendment to License. Environmental Brief for Initial Stage of Consultation. December.

____. 1986a. Balch Project-175 Amendment to License. Volume II of III Exhibit E (Reports E1 through E3). FERC Project No. 1988.

____. 1986b. Balch Hydroelectric Project, FERC Project No. 175. Amendment to License, Exhibit E.

____. 1986c. Balch Project FERC 175, Report E6 Geological and Soil Resources, Amendment.

____. 1994. Water temperature study of the North Fork Kings River below Balch Afterbay. FERC Nos. 175 and 2735. November 7.

____. 2003. Fisheries monitoring report: Haas-Kings River Project FERC Project No. 1988. Prepared by Framatome ANP.

____. 2008. 2007 Haas-Kings fisheries monitoring: fish population, stream channel assessment, and western pond turtle surveys. Haas-Kings River Project, FERC Project No. 1988. Prepared by Garcia and Associates.

____. 2009. Balch Diversion Dam sediment transport project: Biological study report. Pacific Gas and Electric.

____. 2011. Balch Project (FERC Project No. 175) Balch Afterbay low level outlet gate repair / sediment transport project turbidity monitoring report. In fulfillment of 401 Certification WDID #5C10CR00014 and Streambed Alteration Agreement #1600- 20080153-R4. Pacific Gas and Electric Company, Land & Environmental Management, San Ramon, California.

____. 2012. Balch Afterbay Low Level Outlet Gate Repairs Post-Impact Assessment Report 2011, Balch Low Level Outlet Final. January 31.

____. 2013. 2012 Haas-Kings fisheries monitoring: Fish population, stream channel, western pond turtle, and foothill yellow-legged frog surveys. Haas-Kings River Project, FERC Project No. 1988. Prepared by Garcia and Associates.

____. 2014. PG&E letter to FERC. Balch Hydroelectric Project (FERC No. 175) Balch Powerhouse Oil Sheen 30-day Follow-up Report. May 8, 2017.

____. 2016a. Draft Cultural Resources Management Plan for the Balch Hydroelectric System in Fresno County, California (FERC No. 175). On file, Pacific Gas and Electric Company, Fresno, California.

____. 2016b. Nesting Bird Management Plan: Biologist Guidelines for PG&E Utility Operations, Maintenance, and Projects. February

____. 2017. Avian protection plan: PG&E's program to address avian electrocutions, collisions, and nesting birds. August.

____. 2018. Protocol for Operation of Low Level Outlet at Balch Afterbay and Black Rock Reservoir and for Reporting Use of Outlets to the California Department of Fish and Wildlife. May 1624

____. 2019. Quagga and Zebra Mussel Vulnerability Assessment and Prevention Program. March.

____. 2020. Quagga and Zebra Mussel Prevention Program 2019 report. March.

____. 2021. Balch Hydroelectric Project. FERC Project No. 175. Pre-Application Document (PAD). Volume 1 (Public). Accessed January 2024.

____. 2023. Fisheries monitoring report: 2022 Fish population, stream channel, western pond turtle, and foothill yellow-legged frog monitoring, Haas-Kings River Project, FERC Project No. 1988. Prepared by Kleinfelder.

____. 2024. Balch Hydroelectric Project, FERC No. 175 Application for New License.

____. 2025. Historic Properties Management Plan (HPMP).

Prescott, K.L., R Claudi, J. Janik, T. Veldhuizen. 2014. Use of the calcite saturation index as an indicator of environmental suitability for dreissenid mussels. Management of Biological Invasions (2014) Volume 5, Issue 3: 217–224

Quaranta A., V. Bellantuono, G. Cassano, C. Lippe. 2009. Why amphibians are more sensitive than mammals to xenobiotics. PloS ONE 4(11): e7699.

Ramcharan C.W., D.K. Padilla, and S.I. Dodson. 1992. Model to predict potential occurrence and density of the zebra mussel, Dreissena polymorpha. Canadian Journal of Fisheries and Aquatic Sciences 49(12): 2611-2620.

Read, T.J. 2012. 2012 Balch Camp raptor survey. To: Kim Sorini and Annette Lambert, U.S. Forest Service. From: Tyson Read, Associate Terrestrial Biologist, Pacific Gas & Electric Company. February 27.

Ryan, P.A. 1991. Environmental effects on sedimentation on New Zealand streams: a review. New Zealand Journal of Marine and Freshwater Research 25:207-221.

Robinson, C.T., and G.W. Minshall. 1986. Effects of disturbance frequency on stream benthic community structure in relation to canopy cover and season. Journal of the North American Benthological Society 5: 237-248.

SCAQMD (South Coast Air Quality Management District). 2008. Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold. Accessed January 2025. Available online at: Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance .

SCAT (Sierra Nevada Red Fox Conservation Advisory Team). 2022. A conservation strategy for the Sierra Nevada Red Fox. California Department of Fish and Wildlife, Sacramento, California. Available online at: Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance .

SJVAPCD (San Joaquin Valley Air Pollution Control District). 2009. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. Accessed January 2025. Available online at: Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA.

____. 2015. Guidance for Assessing and Mitigating Air Quality Impacts. Accessed January 2025. Available online at: GUIDE FOR ASSESSING AND.

____. 2025. Ambient Air Quality Standards and Valley Attainment Status. Accessed January 2025. Available online at: Ambient Air Quality Standards & Valley Attainment Status | Valley Air District.

Stantec and S2S (Stantec and Surf 2 Snow Environmental Resource Management, Inc.). 2016. Technical Memo Balch Diversion Dam Low Level Outlet Exercise Project – Turbidity Monitoring. Prepared for: Pacific Gas and Electric Company (PG&E).

State of California. 2024. CEQAnet Web Portal database search. Accessed February 20, 2024. Available online at: CEQAnet.

State Water Board (State Water Resources Control Board). 1989. Order WR 98-08: In the Matter of the Declaration of Fully Appropriated Stream Systems in California.

____. 2010. Storm Water Program. Available online at: Storm Water Program | California State Water Resources Control Board.

____. 2019. Law and Regulations. Available online at: Laws and Regulations | California State Water Resources Control Board.

____. 2025. GeoTracker. Accessed January 2025. Available online at: GeoTracker.

Stebbins, J.C. 2011a. Botanical study report: Balch Afterbay low level gate repair project. August 8.

____. 2011b. Botanical study report: Balch Afterbay road repairs project. June 28.

Tetra Tech, Incorporated. 1986. Water Temperature and Sediment Transport Analyses in Support of all Proposed Improvements on the North Fork Kings River.

Tucker, S.C., and B.D. Ryan. 2006. Revised catalog of lichens, lichenicoles, and allied fungi in California.

Constancea 84. California Lichen Catalog. University of Jepson Herbaria.

USEPA (United States Environmental Protection Agency). 2023. National recommended aquatic life water quality criteria web page. Accessed February 2, 2024, at National Recommended Water Quality Criteria - Aquatic Life Criteria Table | USEPA U.S. Environmental Protection Agency, Washington, D.C.

USFS, 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. (FS-990a). April. Volume 1: National Core BMP Guide.

USFWS (U.S. Fish and Wildlife Service). 2000. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants.

____.2018. USFWS Comments on the Notice Ready for Environmental Analysis for the Bucks Creek Hydroelectric Project, Federal Energy Regulatory Commission Project No. P- 619; Plumas County, California. Memorandum from Field Supervisor, San Francisco Bay-Delta Fish and Wildlife Office Sacramento, California to Regional Environmental Officer, Office of Environmental Policy and Compliance Oakland, California.

____. 2020a. Fresno kangaroo rat (Dipodomys nitratoides exilis) 5-year review: Summary and evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California.

____. 2020b. Species Status Assessment Report for the San Joaquin kit fox (*Vulpes macrotis mutica*) Version 1.0. August 2020. Sacramento, California.

____. 2021. National Wetlands Inventory (NWI) wetlands and riparian polygon data. Geospatial wetlands data. USFWS, Arlington, Virginia. Available online at: National Wetlands Inventory | U.S. Fish & Wildlife Service.

____. 2023a. Information for Planning and Consultation (IPaC): Online project planning tool. Accessed March 2023. Available online at: Information for Planning and Consultation | U.S. Fish & Wildlife Service.

____. 2023b. ECOS. Environmental Conservation Online System. Accessed August 2023. Available online at: ECOS: Home.

USGS (U.S. Geological Survey). 2011. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California.

_____. 2020. Nonindigenous Aquatic Species Database, Gainesville, Florida. Accessed December 7, 2020. Available online at: Nonindigenous Aquatic Species.

Whittier, T.R., P.L. Ringold, A.T. Herlihy, and S.M. Pierson. 2008. A calcium-based invasion risk assessment for zebra and quagga mussels (*Dreissena* spp). Front Ecol Environ 2008; 6(4): 180–184.

Wilson, P. (ed.). 2021. California Moss eFlora. Available online at: California Moss eFlora Main Page.

WRECO. 2011. Sediment Transport Analysis Technical Report. Balch Afterbay. Fresno County, California. Prepared for Pacific Gas and Electric Company. September.

APPENDIX A
Proposed Resource Management Plans

Fire Management Plan

Recreation Management Plan

Biological Resources Management Plan

APPENDIX B
Existing and Proposed Project Boundary Maps

Appendix B Existing and Proposed Project Boundary Maps

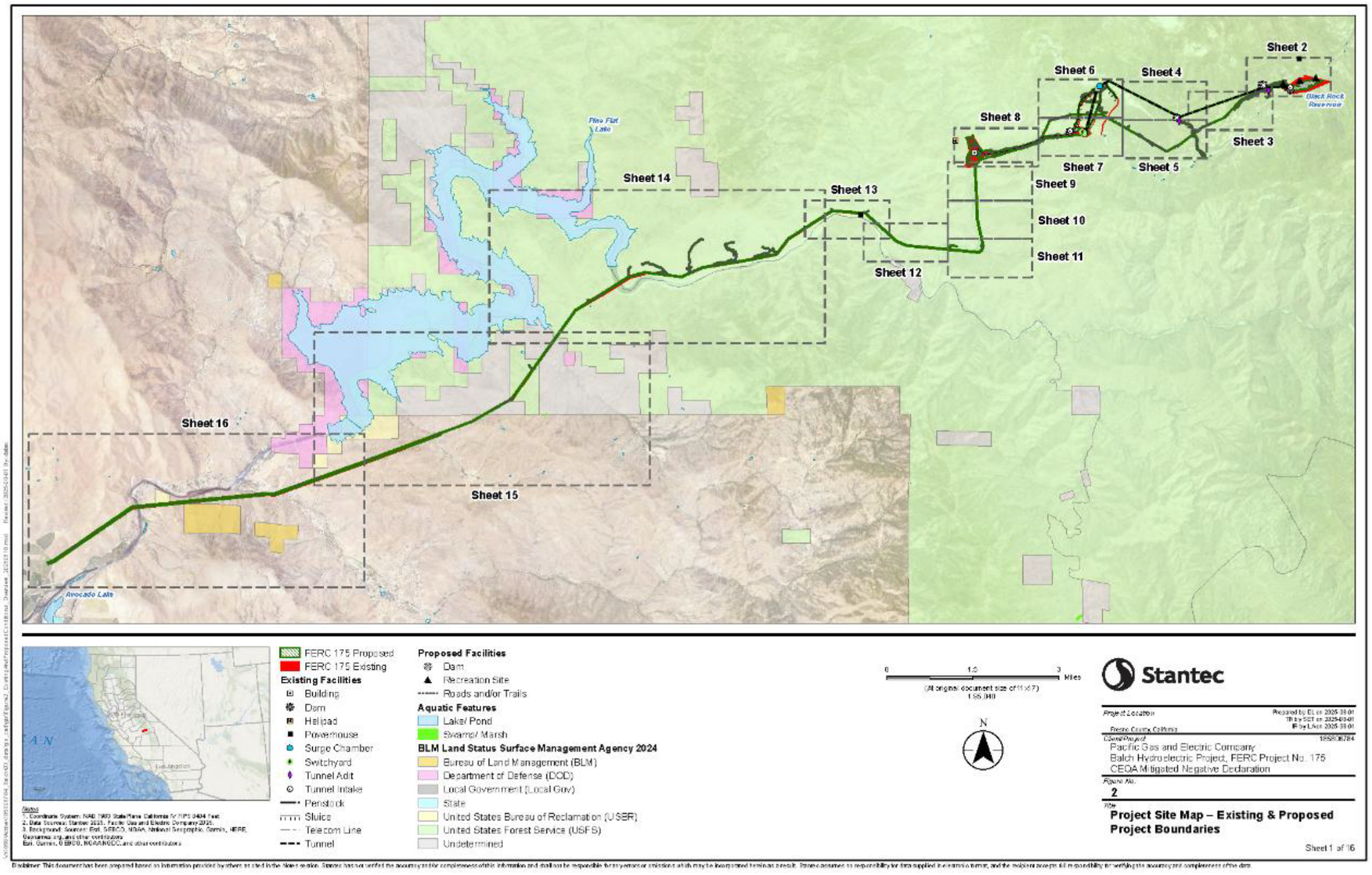

Figure B1a. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 1 of 16

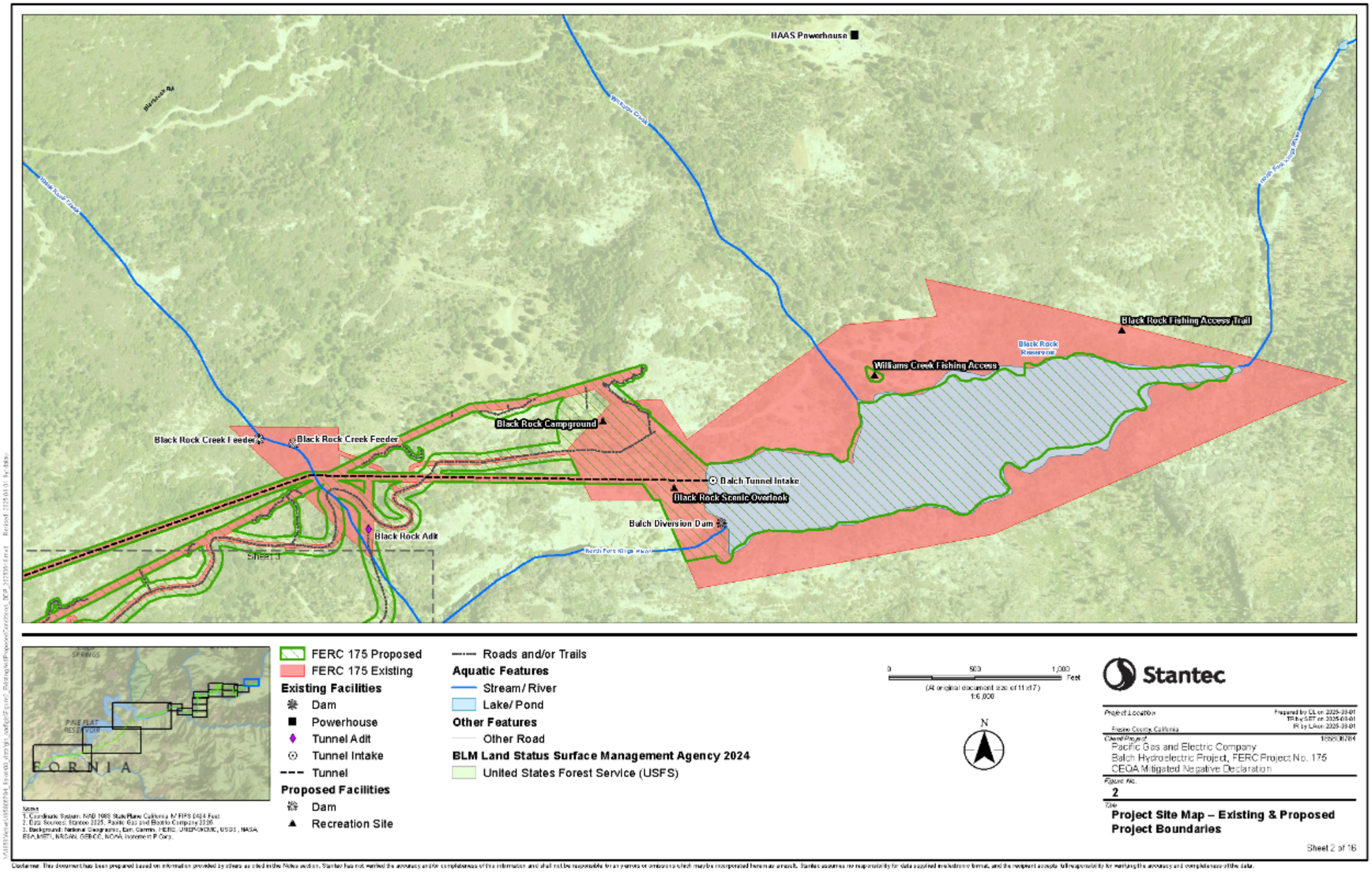

Figure B1b. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 2 of 16

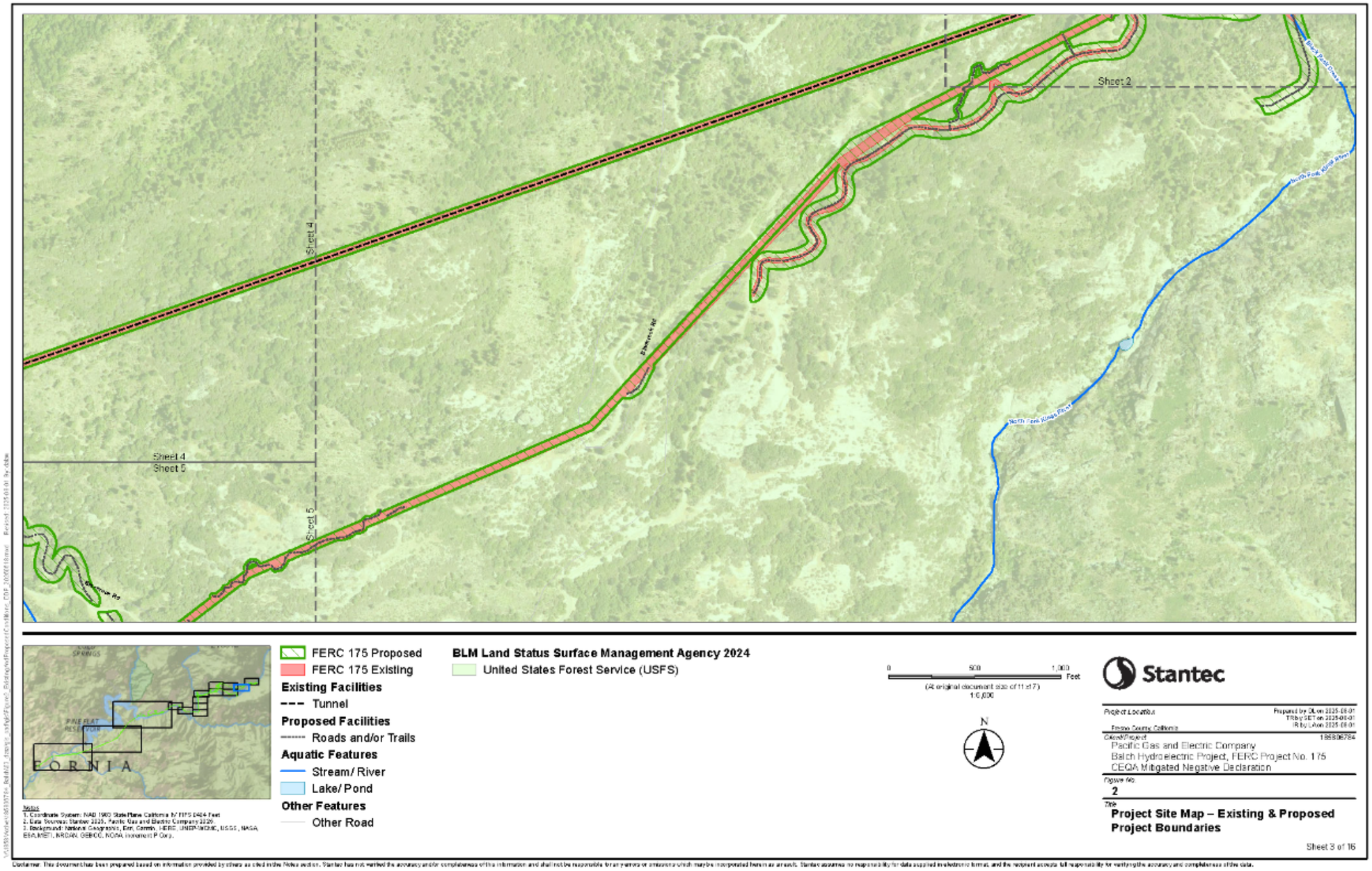

Figure B1c. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 3 of 16

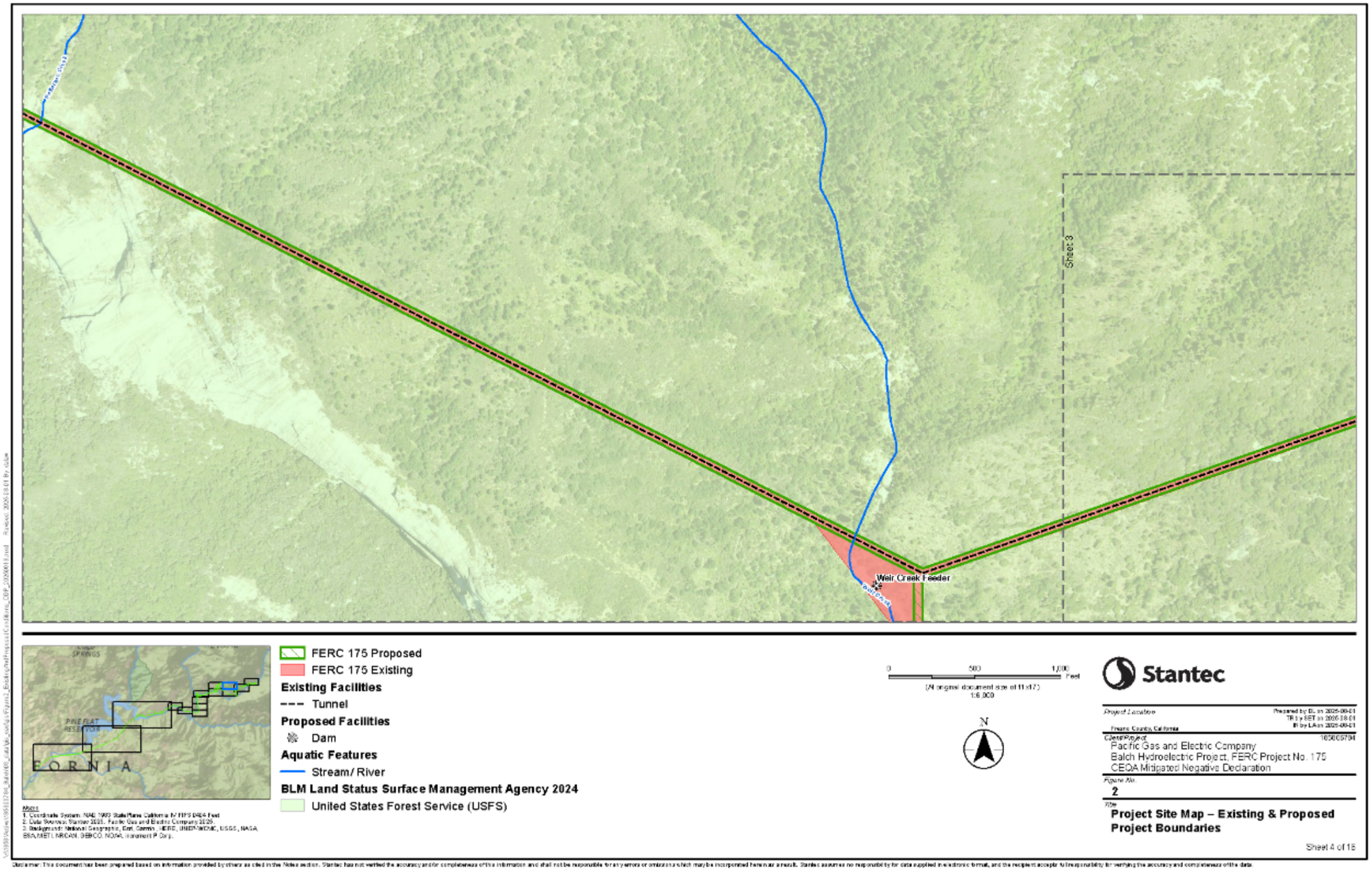

Figure B1d. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 4 of 16

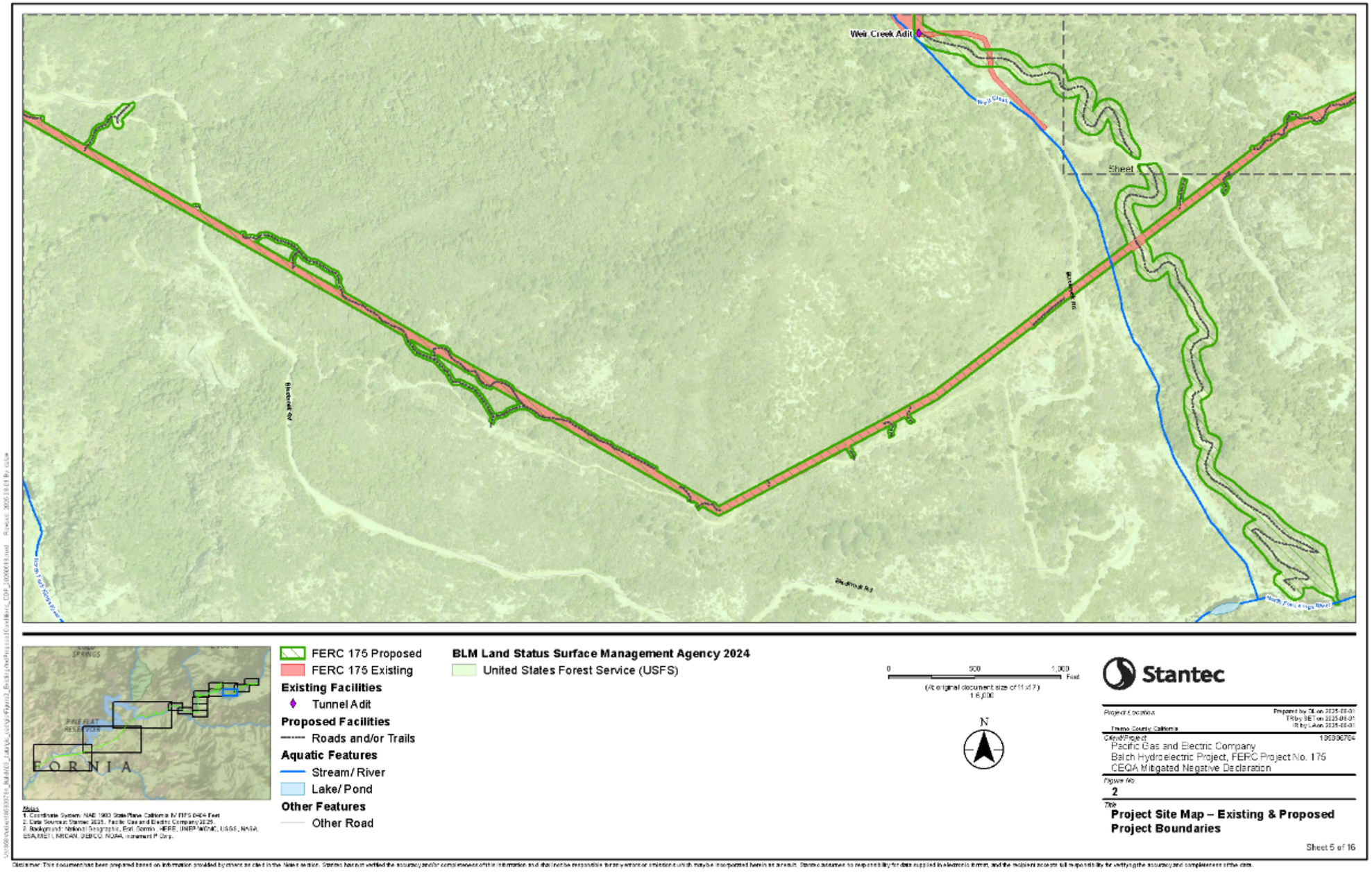

Figure B1e. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 5 of 16

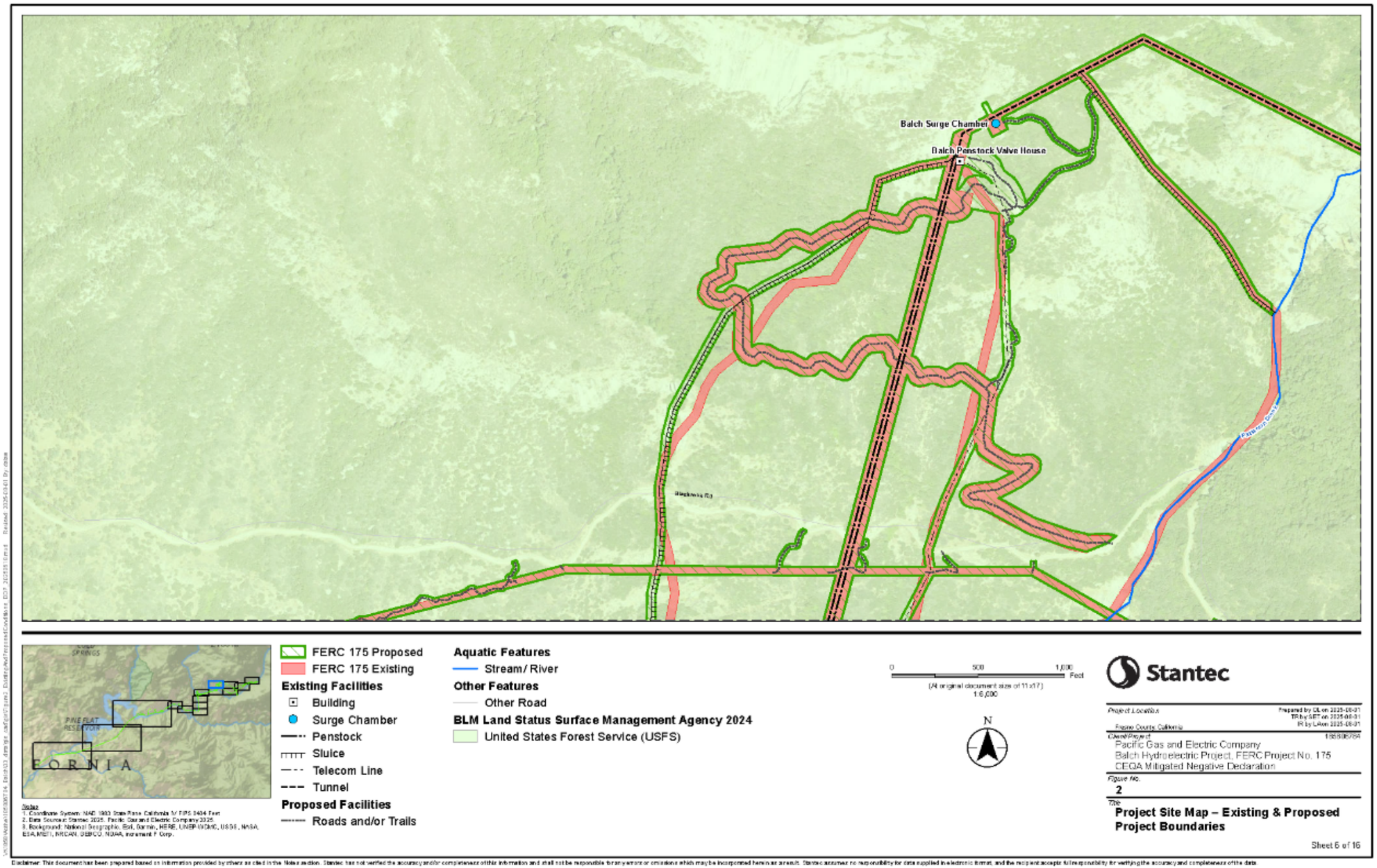

Figure B1f. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 6 of 16

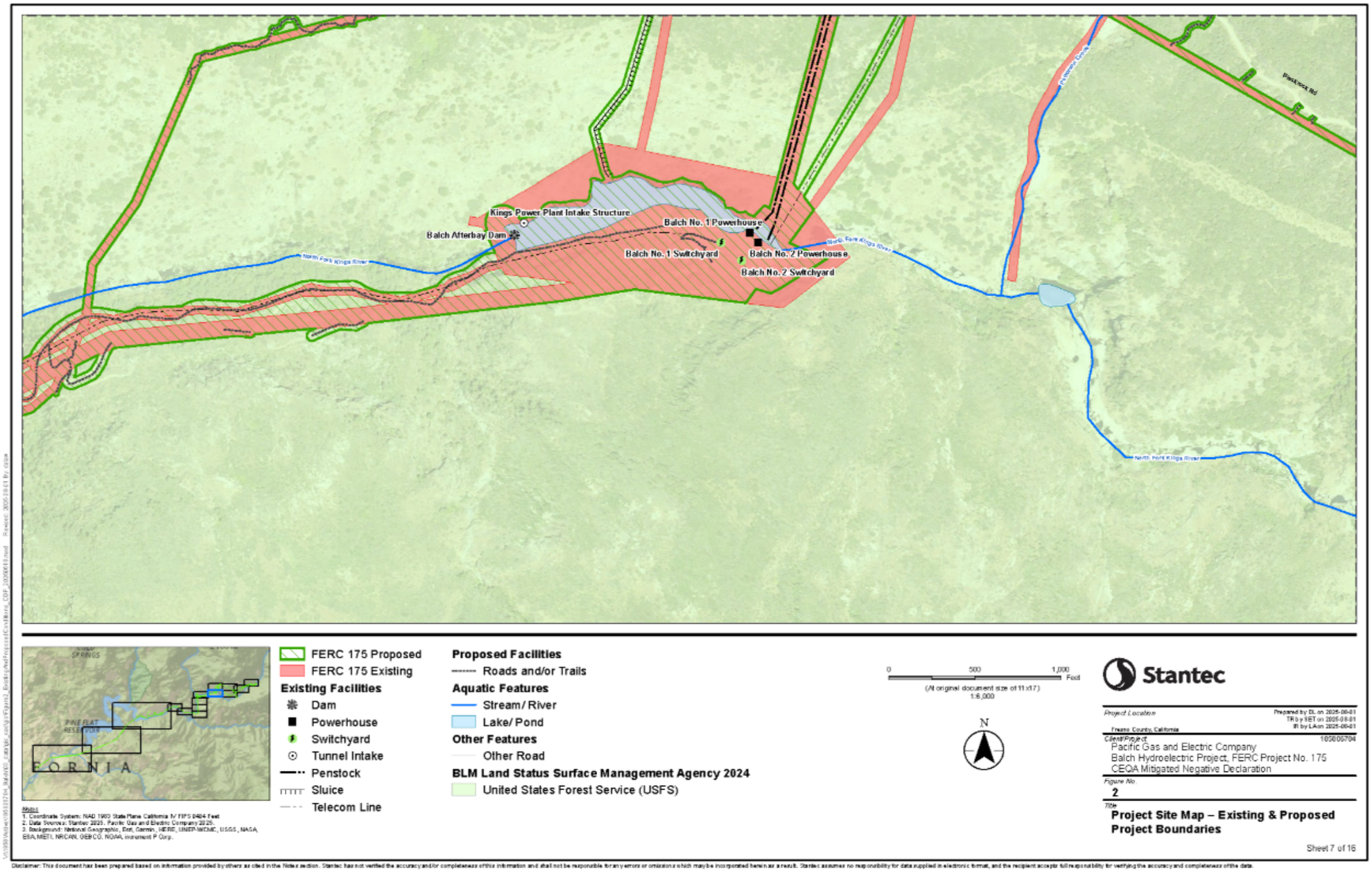

Figure B1g. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 7 of 16

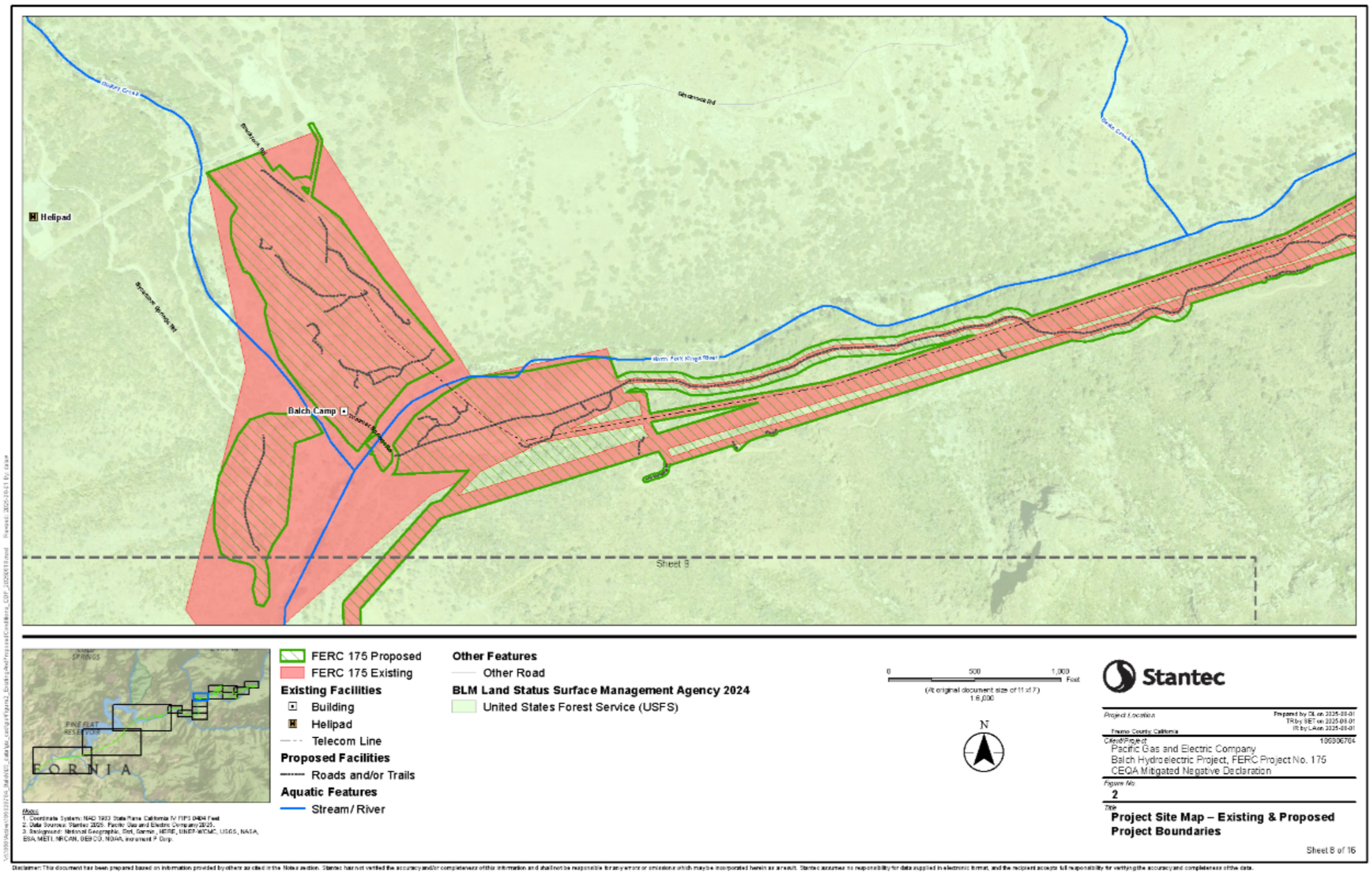

Figure B1h. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 8 of 16

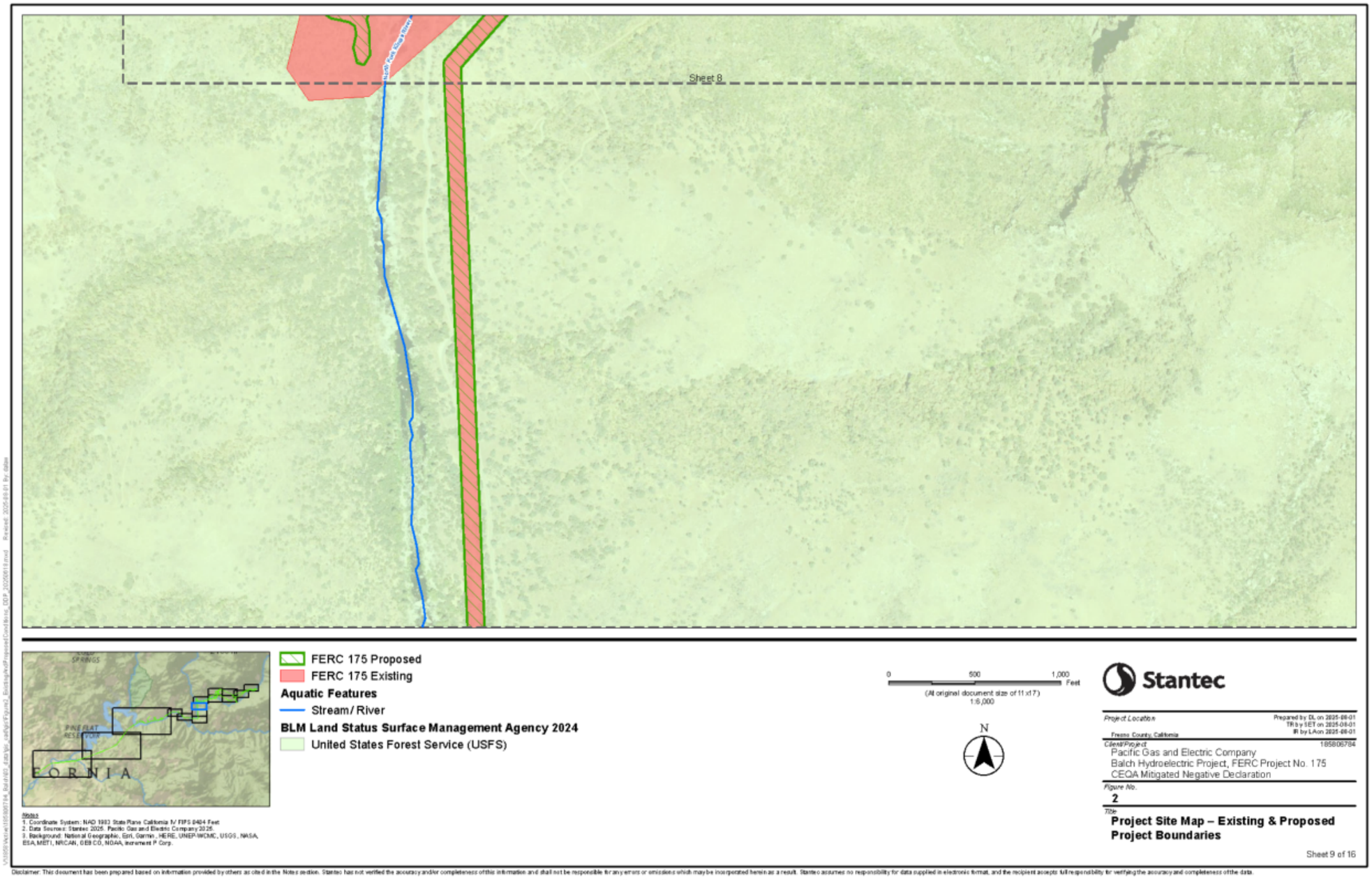

Figure B1i. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 9 of 16

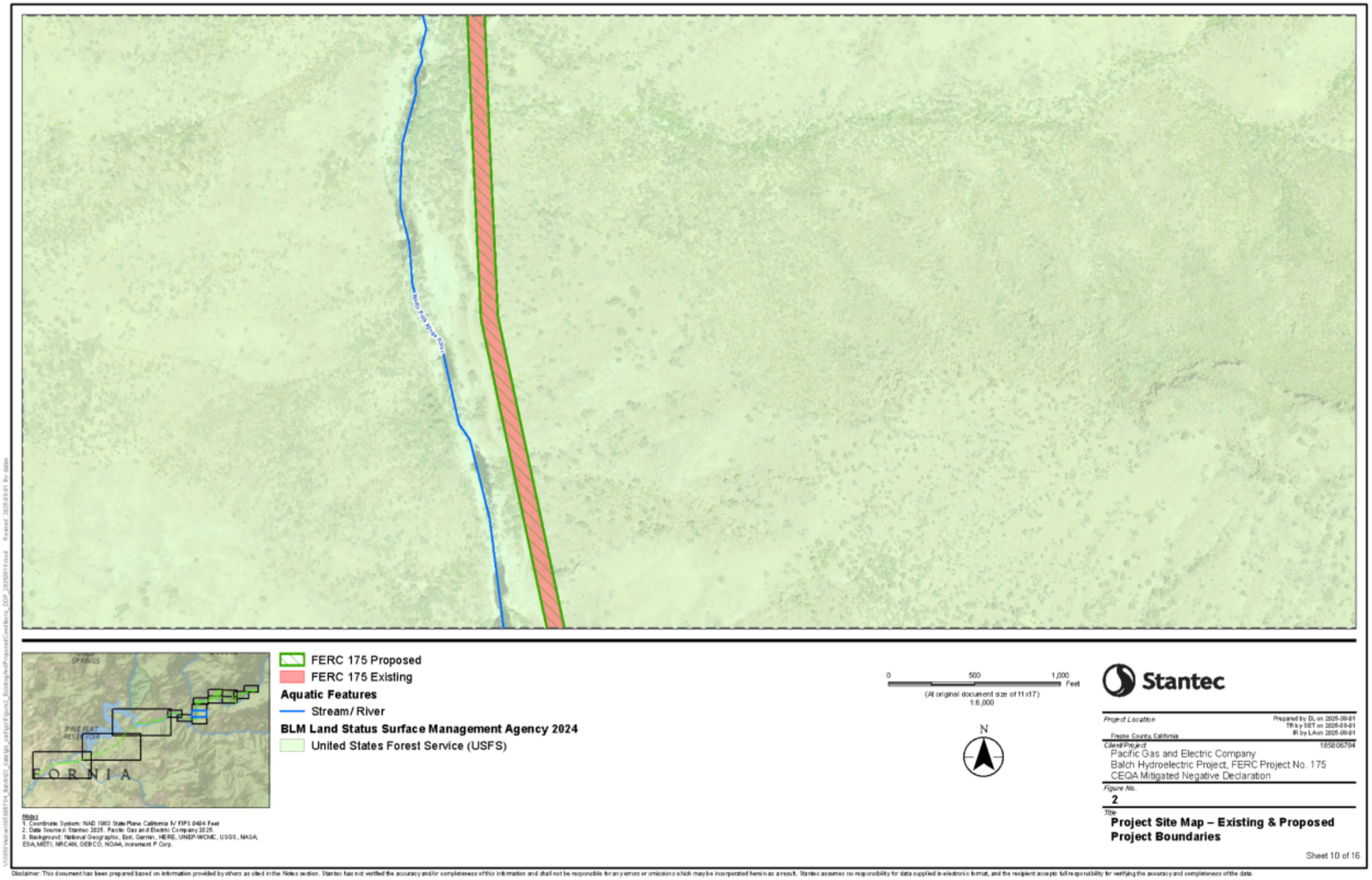

Figure B1j. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 10 of 16

Appendix B Existing and Proposed Project Boundary Maps

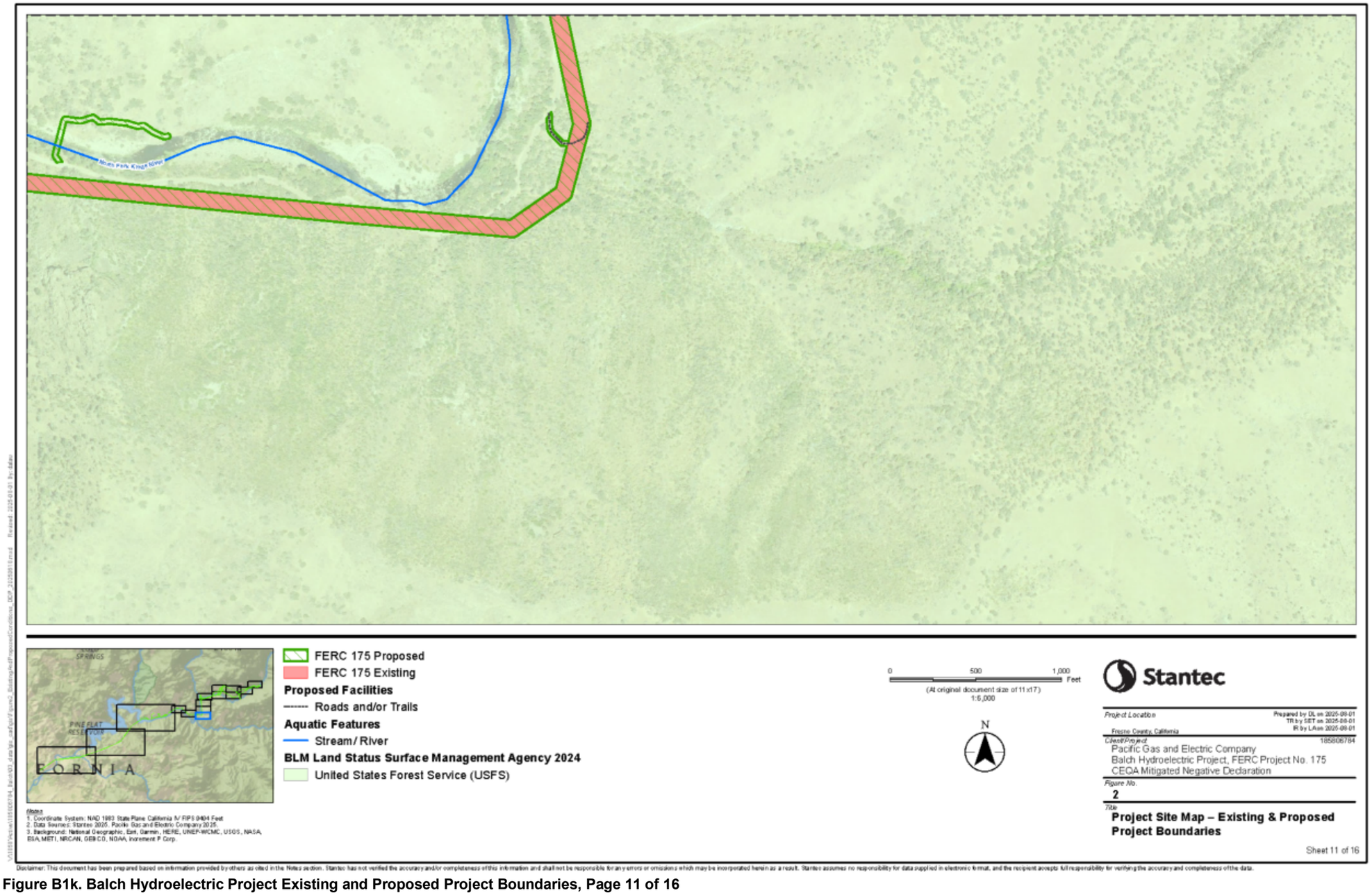

Figure B1k. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 11 of 16

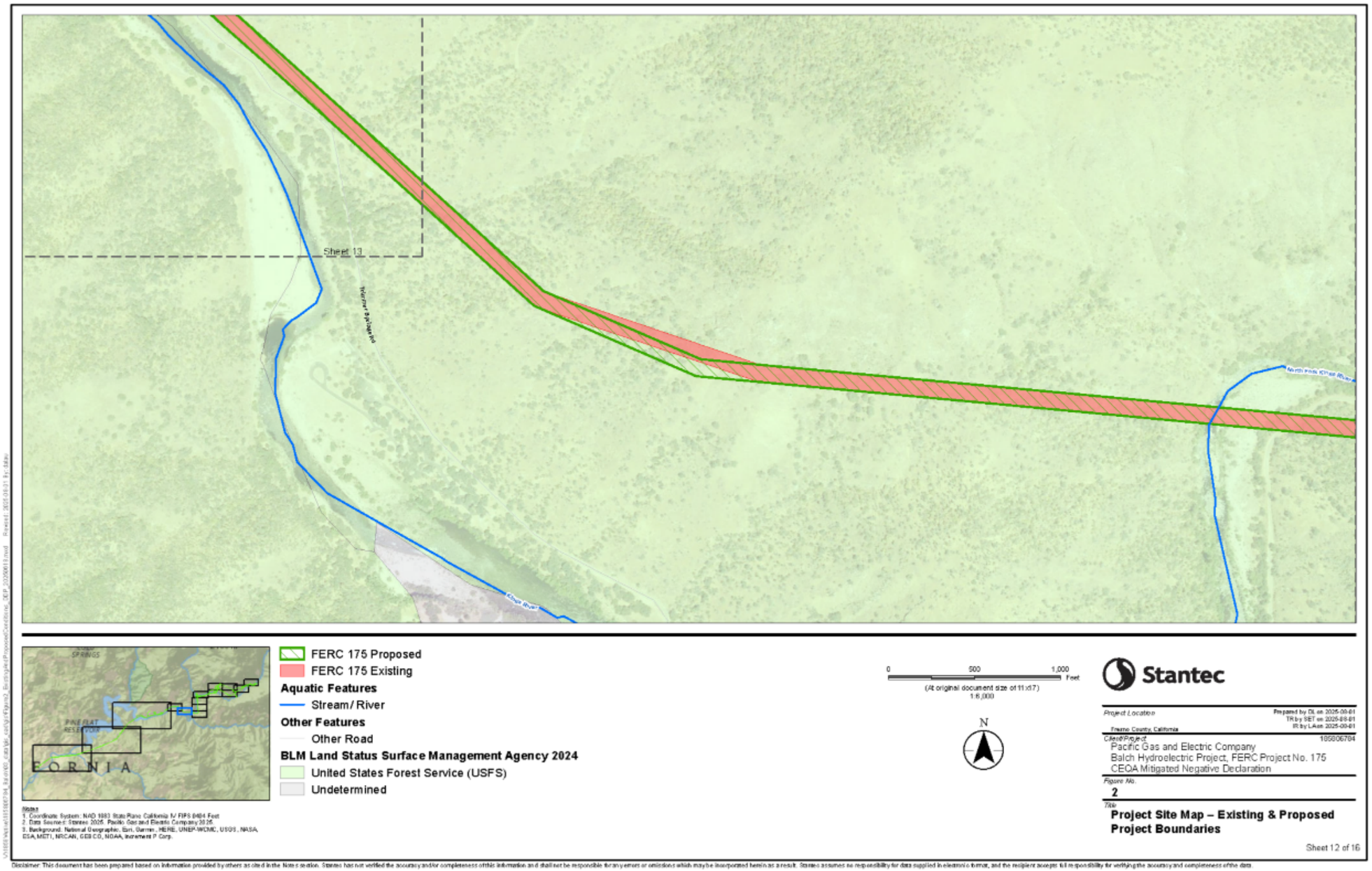

Figure B1l. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 12 of 16

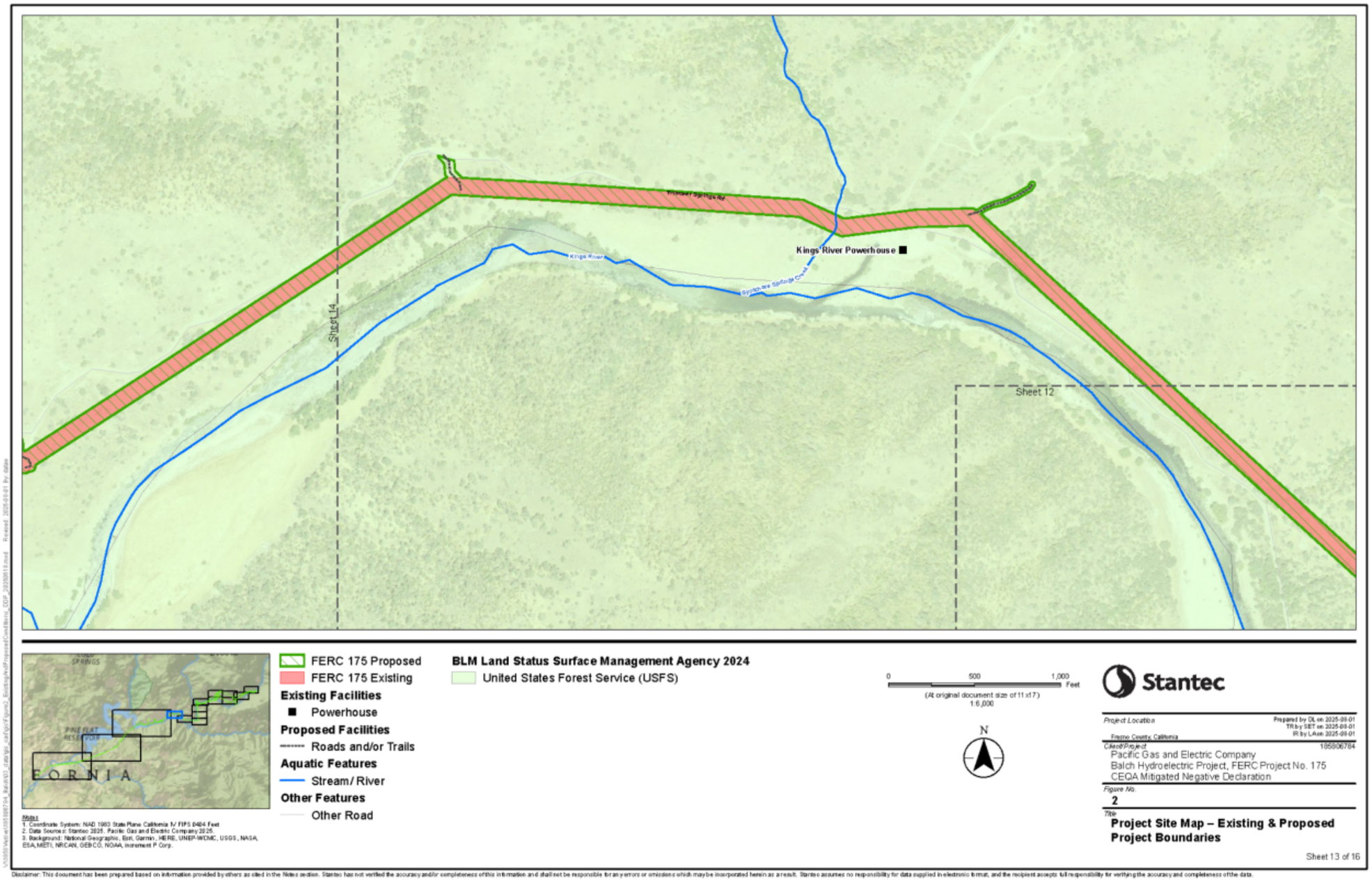

Figure B1m. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 13 of 16

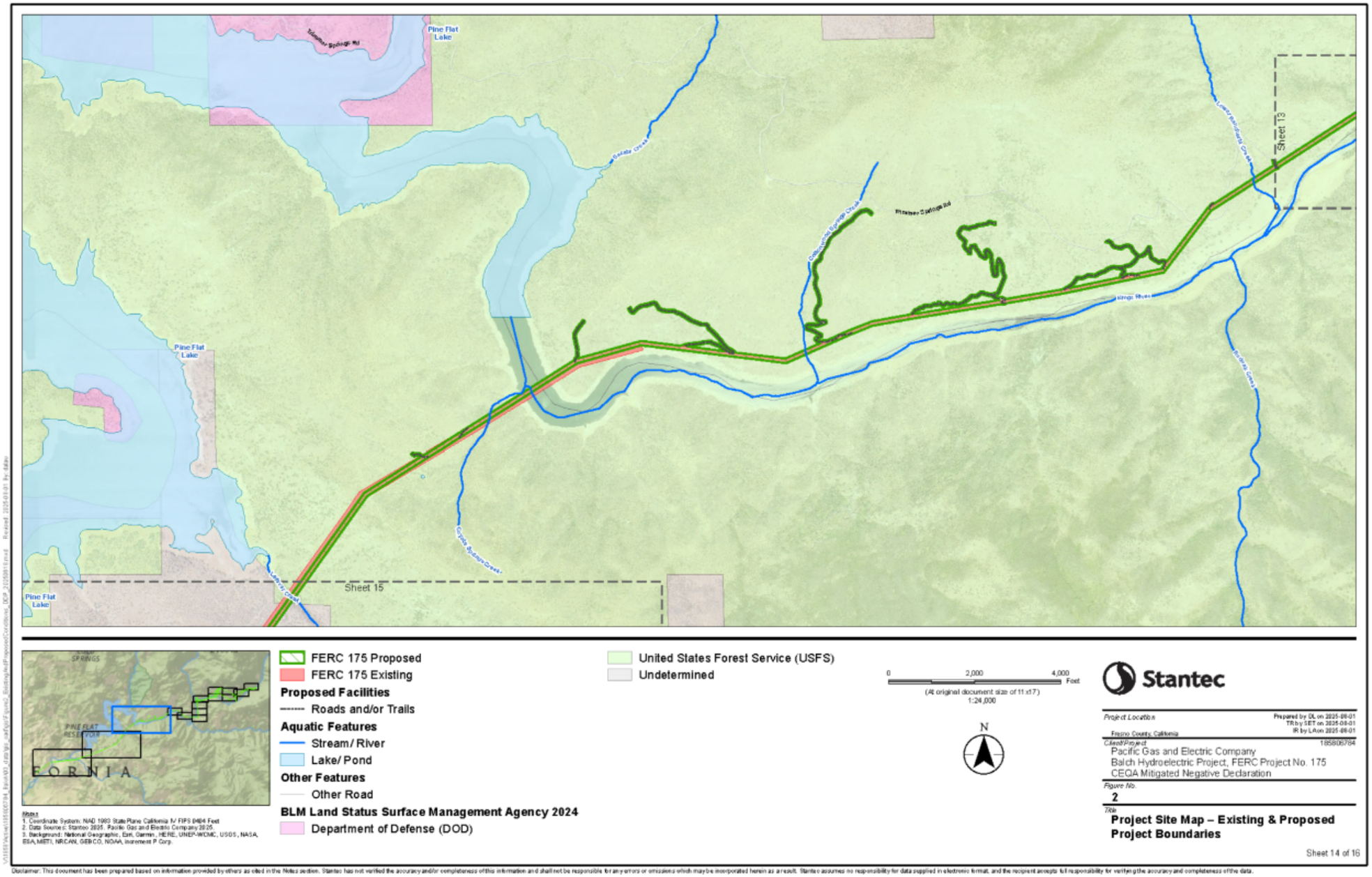

Figure B1n. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 14 of 16

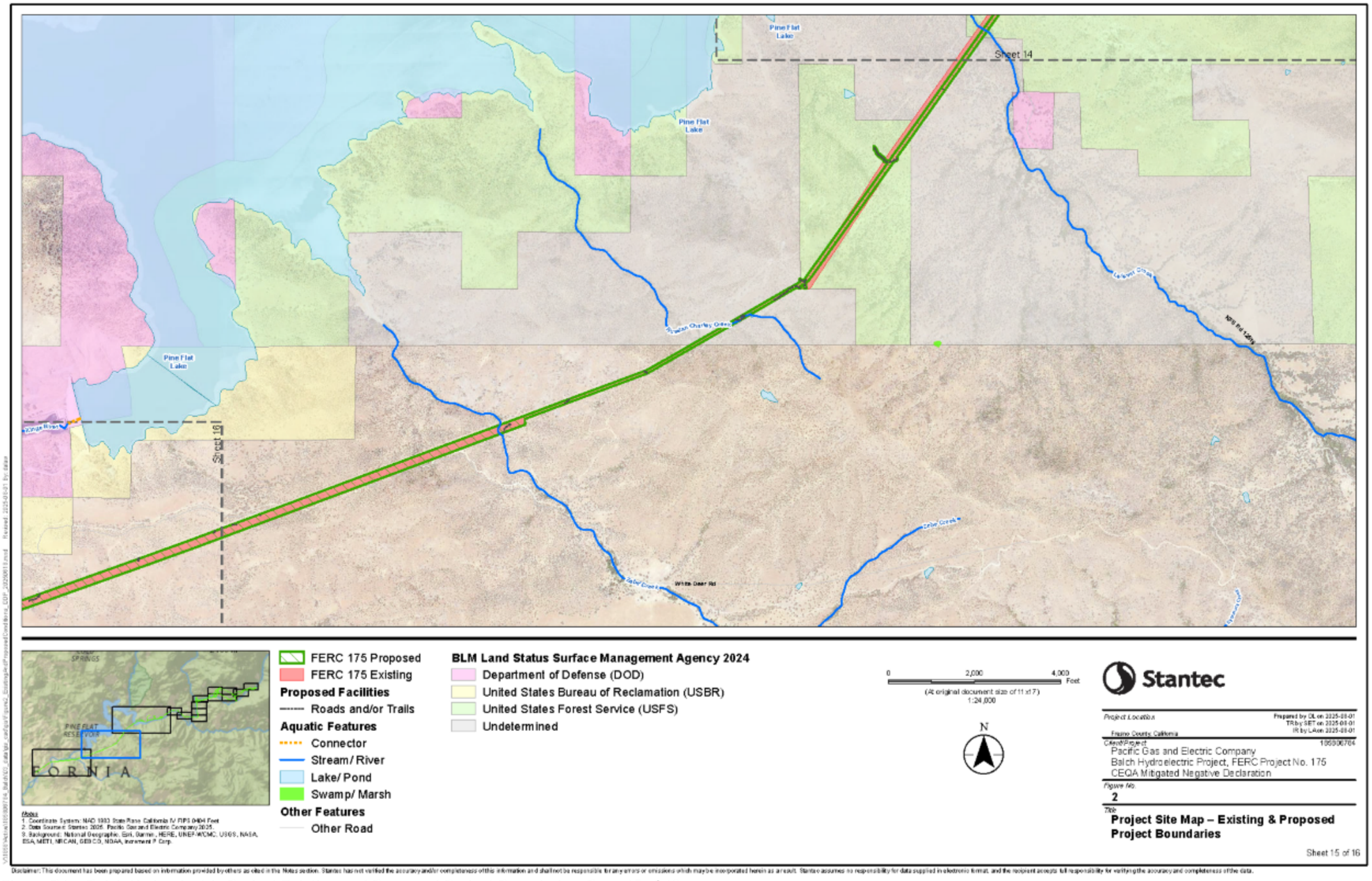

Figure B1o. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 15 of 16

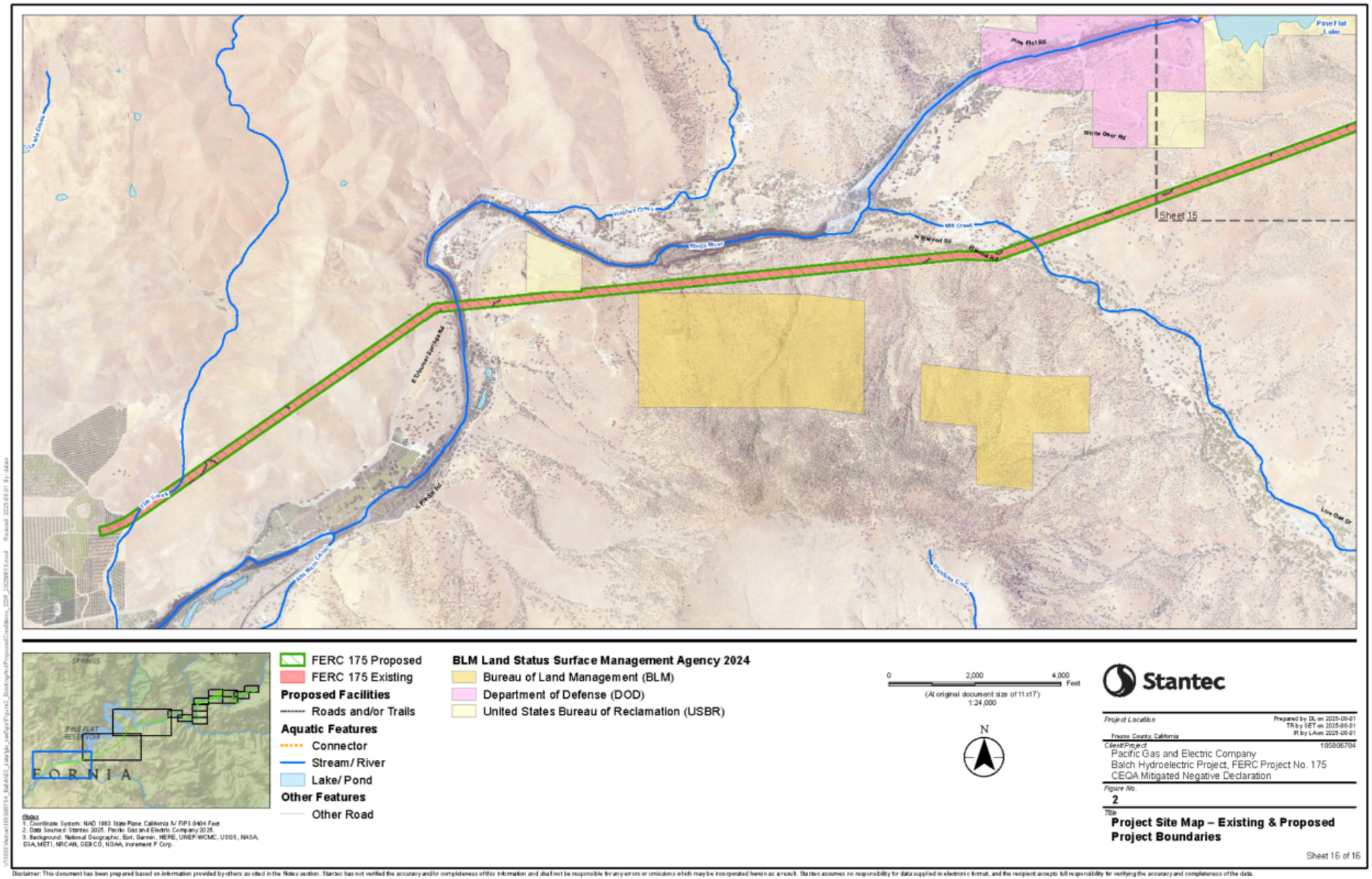

Figure B1p. Balch Hydroelectric Project Existing and Proposed Project Boundaries, Page 16 of 16

APPENDIX C
Response to Comments

Errata to the Balch Hydroelectric Project Draft IS/MND

Commentor	Comment	Clarification / Modification
Pacific Gas & Electric Comment #1 (PG&E)	The description of the Black Rock Reservoir and Balch Afterbay LLO operations in Section 2.2.4, *Proposed Project Operations,* of the IS (page 2-11) and MND (page 2-13) mischaracterizes the capabilities of these Project features, including distinguishing between flow through the outlets versus minimum total river flows. These mischaracterizations incorrectly describe the result of individual and additive flows from the LLO gates: IS: *The Black Rock Reservoir has various low-level outlets to control flow: one 30" gate (250 cfs), two 30" gates (500 cfs), one 60" gate (900 cfs), one 30" and one 60" gate (1,800 cfs), and all gates (2,300 cfs). Balch Afterbay's outlets include: one 30" gate (2,800 cfs), one 30" gate (230 cfs), one 60" gate (460 cfs), both gates (1,680 cfs), and all gates (2,140 cfs).* MND: *The Black Rock Reservoir has various low-level outlets to control flow: one 30-inch gate (250 cfs), two 30-inch gates (500 cfs), one 60-inch gate (900 cfs), one 30-inch and one 60-inch gate (1,800 cfs), and all gates (2,300 cfs). Balch Afterbay's outlets include: one 30-inch gate (2,800 cfs), one 30-inch gate (230 cfs), one 60-inch gate (460 cfs), both gates (1,680 cfs), and all gates (2,140 cfs).* **PG&E Recommendation:** PG&E recommends referencing the description from PG&E's Proposed Condition 5, *Low-level Outlet Operations*, included in Attachment E2 of the FLA, and particularly tables E.2.5-1 and E.2.5-2 for Black Rock Reservoir and Balch Afterbay, respectively. For accuracy, PG&E recommends the following corrections: *The Black Rock Reservoir has various low-level outlets to control flow: one 30-inch gate (250 cfs), two 30-inch gates (500 cfs), one 60-inch gate (900 cfs), one 30-inch and one 60-inch gate (1,800 1,150 cfs), and all gates (2,300 1,400 cfs). Balch Afterbay's outlets include: one 30-inch gate (2,800 cfs), one 30-inch gate (230 cfs), one 60-inch gate (460 840 cfs), and both gates (1,680 1,070 cfs), and all gates (2,140 cfs).*	*In response to the comment, the last paragraph on this page has been modified as follows:* *The Black Rock Reservoir has various low-level outlets to control flow: one 30-inch gate (250 cfs), two 30-inch gates (500 cfs), one 60-inch gate (900 cfs), one 30-inch and one 60-inch gate (1,800 1,150 cfs), and all gates (2,300 1,400 cfs). Balch Afterbay's outlets include: one 30-inch gate (2,800 cfs), one 30-inch gate (230 cfs), one 60-inch gate (460 840 cfs), and both gates (1,680 1,070 cfs), and all gates (2,140 cfs).*

Commentor	Comment	Clarification / Modification
PG&E Comment #2	Section 2.2.5.5, *Minimum Flows and Water Year Types*, of the IS (page 2-12) and MND (page 2-15) incorrectly describes the range of minimum instream flow releases in the existing license and PG&E's Proposed Measure No. 1, *Minimum Flows and Water Year Types: The flows, ranging from 10-15 cfs, are mandated by the FERC license and PG&E's Proposed Measure No. 1.* **PG&E Recommendation:** PG&E clarifies the current (Article 38 of the existing FERC license [1980] and September 16, 1983 Order Amending License) and proposed (Attachment E2 to the PG&E's FLA., Proposed Condition 1 [2024]) minimum instream flow releases range from 2.5 to 30 cfs. For accuracy, PG&E recommends the following minor edits: *The flows, ranging from 10-15 2.5-30 cfs, are mandated by the FERC license and are included in PG&E's Proposed Measure No. 1.*	*The Section 2.2.5.5 on this page has been modified as follows: The flows, ranging from 10-15 2.5-30 cfs, are mandated by the FERC license and are included in PG&E's Proposed Measure No. 1.*
PG&E Comment #3	Table 3.11-1, *Minimum Instream Flow (MIF) Requirements for the North Fork Kings River Under Existing FERC License for the Balch Hydroelectric Project,* on page 3-77 of the MND omits the license-required minimum instream flows in the North Fork Kings River as measured at PG&E stream gage KI-22 (USGS 11218400) **PG&E Recommendation:** PG&E recommends updating Table 3.11-1 of the MND to include North Fork Kings River flow, as measured at PG&E Gage KI-22 (USGS 11-2184.00) described in row (c) of License Article 38 and PG&E's Proposed Measure No. 1, *Minimum Flows and Water Year Types.*	*In response, Table 3.11-1 was updated to reflect the recommendations.*