Butte County
DEVELOPMENT SERVICES

Department of Development Services

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BUTTE COUNTY ZONING ADMINISTRATOR
NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION AND NOTICE OF PUBLIC HEARING
BUTTE CREEK DIVERSION 55 FISH SCREEN PROJECT CEQA17-0006

NOTICE IS HEREBY GIVEN that Butte County Zoning Administrator will conduct a public hearing to consider the Mitigated Negative Declaration for the Butte Creek Diversion 55 Fish Screen Project CEQA17-0006. The hearing will be held on **August 15, 2018 at 10:00 am**, or shortly thereafter, in the Butte County Development Services Conference Room, 7 County Center Drive, Oroville, California.

The Butte Creek Diversion 55 Fish Screen Project includes the proposed installation of a retractable and self-cleaning fish screen system at the Butte Creek Diversion 55 (BC 55) site. The existing agricultural diversion is unscreened, and installation of the fish screen system would prevent the entrainment of special-status fish and would help meet the objectives of the Anadromous Fish Screen Program (AFSP). The AFSP is a program designed to protect juvenile anadromous fish from entrainment by encouraging water diversion screening and is administered by the U.S. Fish and Wildlife Service (USFWS) with oversight from the California Department of Fish and Wildlife (CDFW). The site is located northeast of State Route (SR) 99, just southeast of the city of Chico, on Butte County, Assessor's Parcel Number 040-400-004. The project is located in Township 21 North, Range 2 East, Mount Diablo Baseline and Meridian within the Chico U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.

Butte County has prepared an Initial Study and is considering adoption of a Mitigated Negative Declaration pursuant to CEQA. The Initial Study/Mitigated Negative Declaration (IS/MND) and reference documents for the project are on file for public review and comment starting **Thursday, July 5, 2018 through Friday, August 3, 2018**, at the Butte County Planning Division, 7 County Center Drive, Oroville, CA. The IS/MND is also available for review on the County website at www.buttecounty.net/dds/Planning/CEQA.aspx.

All persons are invited to review the documents. Comments regarding the project may be submitted in writing at any time prior to the hearing or orally at the scheduled hearing listed above or as may be continued to a later date. If you challenge the above project in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice or in written correspondence delivered to the Zoning Administrator at, or prior to the public hearing.

For information, please contact Senior Planner Rowland Hickel, Butte County Development Services Department, Planning Division at (530) 552-3684 or rhickel@buttecounty.net.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in the hearing, please contact us at (530) 552-3663. Notification at least 72 hours prior to the hearing will enable staff to make reasonable arrangements.

BUTTE COUNTY ZONING ADMINISTRATOR
TIM SNELLINGS, DIRECTOR OF DEVELOPMENT SERVICES

DRAFT

BUTTE CREEK DIVERSION 55 FISH SCREEN PROJECT INITIAL STUDY

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June 2018

Butte County Department of Development Services. 2018. *Butte Creek Diversion 55 Fish Screen Project Initial Study*. Draft. June. Prepared by Butte County Department of Development Services with technical assistance from ICF. Oroville, CA.

Contents

Tables and Figures

Acronyms and Abbreviations

2015 Plan	Northern Sacramento Valley Planning Area 2015 Triennial Air Quality Attainment Plan
AB 32	Assembly Bill 32
AFSP	Anadromous Fish Screen Program
AR4	IPCC Fourth Assessment Report
ARB	California Air Resources Board
Basin Plans	Water Quality Control Plans
BC 55	Butte Creek Diversion 55
BCAQMD	Butte County Air Quality Management District
BMP	best management practice
BSFSGG	Brown, Sandbach, Fowler, Scott, Gustafson, and Gustafson
CAA	federal Clean Air Act
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
California CAA	California Clean Air Act
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH_4	methane
CHSC	California Health and Safety Code
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent
CSLC	California State Lands Commission
CVFPB	California Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
DPS	distinct population segment
DWR	California Department of Water Resources

EFH	essential fish habitat
EIR	Environmental Impact Report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FR	*Federal Register*
FWA	Family Water Alliance
GHG	greenhouse gas
GWP	global warming potential
HP	horsepower
HPU	hydraulic power unit
in/sec	inch per second
IPCC	Intergovernmental Panel on Climate Change
IS	initial study
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_{xx}	percentile-exceeded sound level
MBTA	Migratory Bird Treaty Act
mg/L	milligrams per liter
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NCCP	Natural Community Conservation Plan
NFIP	National Flood Insurance Program
NISC	National Invasive Species Council
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos
NO_X	nitrogen oxide
NTU	nephelometric turbidity unit
O_3	ozone
OHWM	ordinary high water mark
PM	particulate matter
PM2.5	PM less than or equal to 2.5 microns in diameter
PM10	PM less than or equal to 10 microns in diameter
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
Regional Water Board	Regional Water Quality Control Board
ROG	reactive organic gas
SB 32	Senate Bill 32
SERP	Small Erosion Repair Program
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide

SOP	Standard Operating Procedure
SR	State Route
SRA	shaded riverine aquatic
SRBPP	Sacramento River Bank Protection Project
State Water Board	State Water Resources Control Board
Superfund	Comprehensive Environmental Response, Compensation, and Liability Act
SVAB	Sacramento Valley Air Basin
SVFSP	Sacramento Valley Fish Screen Program
TAC	toxic air contaminant
TDS	total dissolved solids
TMDL	total maximum daily load
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Chapter 1
Introduction

1.1 Project Purpose

The partnership of Brown, Sandbach, Fowler, Scott, Gustafson, and Gustafson (BSFSGG) is proposing the installation of a retractable and self-cleaning fish screen system at the Butte Creek Diversion 55 (BC 55) site (proposed project). The existing agricultural diversion is unscreened, and installation of the fish screen system would prevent the entrainment of special-status fish and would help meet the objectives of the Anadromous Fish Screen Program (AFSP). The AFSP is a program designed to protect juvenile anadromous fish from entrainment by encouraging water diversion screening and is administered by the U.S. Fish and Wildlife Service (USFWS) with oversight from the California Department of Fish and Wildlife (CDFW).

1.2 Document Purpose and Use

This initial study (IS) was prepared in accordance with Article 5, Section 15060 et seq. of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3). This IS describes the existing environmental resources in the project area, evaluates the environmental impacts of the proposed project on these resources, and identifies mitigation measures to avoid or reduce any potentially significant impacts to a less-than-significant level.

Butte County is the CEQA Lead Agency. The County will consider the findings of this IS in determining whether preparation of an environmental impact report (EIR) would be necessary prior to implementation of the proposed project. The IS will also be used by multiple responsible and trustee agencies, including the Central Valley Regional Water Quality Control Board (CVRWQCB), California State Lands Commission (CSLC), and California Central Valley Flood Protection Board (CVFPB), in taking discretionary actions under various regulatory schemes to authorize the proposed pump station upgrade and fish screen installation.

1.3 Project Area and Setting

BC 55 is within the CDFW Butte Creek Canyon Ecological Reserve, which is a 93-acre site along the middle section of Butte Creek. The property contains more than 1 mile of creek frontage, which is NMFS critical habitat for Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and California Central Valley steelhead (*O. mykiss*).

BC 55 is a privately owned gravity diversion that diverts 7.33 cubic feet per second (cfs) year-round and irrigates 150 acres of pomegranates, olives, and other seasonal crops. BC 55 holds an Adjudication Permit (No. 18917; 5.0 cfs) and an Appropriative Application (No. 22564; 2.3 cfs). The site is northeast of State Route (SR) 99, just southeast of the city of Chico, in Butte County. The project is located in Township 12 North, Range 2 East, Mount Diablo Baseline and Meridian within the Chico U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.

The project site is at latitude 39.702254° North and longitude -121.776578° West on Butte County Assessor's Parcel Number 040-400-004. Access to the site is via SR 99 to Southgate Lane. Entry into the project site is from a private access road located on the reserve. All access agreements will be obtained to allow for the implementation of this proposed project.

1.4 Project Background

The Family Water Alliance (FWA), a coalition seeking to balance fishery resources and local agricultural communities, developed the Sacramento Valley Fish Screen Program (SVFSP) to facilitate the screening of small agricultural diversions within the Sacramento-Central Valley River basins and their tributaries. The goal of the SVFSP is to provide a cost-effective approach for reducing the entrainment of endangered and threatened anadromous fish species while maintaining existing water deliveries. The SVFSP operates with oversight by the AFSP.

1.5 Regulatory Compliance

BSFSGG would seek all necessary permissions, authorizations, concurrences and permits to comply with the following regulatory schemes, as relevant, for implementation of the proposed project.

- National Environmental Policy Act
- Rivers and Harbors Appropriation Act
- California Code of Regulations
- Clean Water Act
- California Fish and Game Code
- National Historic Preservation Act
- Federal Endangered Species Act
- California Endangered Species Act
- Porter-Cologne Water Quality Control Act
- Federal Clean Air Act
- California Clean Air Act

The partnership may also be required to obtain a use lease from the CSLC for placement of fill within public trust lands of the State of California, which includes the bed and banks of the Sacramento River and other navigable rivers.

1.6 Document Organization

This IS is organized as follows.

- Chapter 1, *Introduction*, describes the project background, elements, purpose, and regulatory compliance.

- Chapter 2, *Project Description*, describes the construction of the proposed project as well as operation and maintenance activities.
- Chapter 3, *Environmental Setting and Impacts*, describes the environmental resources present in the project area, and analyzes the proposed project's potential to affect such resources.
- Chapter 4, C*umulative Impacts*, discusses the potential for the proposed project's incremental effect to be cumulatively considerable when combined with other projects causing related impacts.
- Chapter 5, *References*, provides a list of all printed references and personal communications used to prepare this document.
- Chapter 6, *List of Preparers*, presents a list of all personnel who assisted in the preparation of this document.
- Appendix A, *Environmental Checklist*, contains the Environmental Checklist Form from CEQA Guidelines Appendix G.
- Appendix B, *Plant Species Observed in the Study Area*, provides a list of plant species observed in the project area during a site visit.
- Appendix C, *California Native Plant Society List* provides a table of special-status plants identified in the online *Inventory of Rare and Endangered Plants of California* as occurring in the project region.
- Appendix D, *California Natural Diversity Database Results*, contains the special-status species list generated from the database query.
- Appendix E, *U.S. Fish and Wildlife Species List*, provides the list of endangered, threatened, and candidate species that may occur in the project area and/or be affected by the proposed project.
- Appendix F, *Modeling Assumptions and Calculations,* provides the assumptions and calculations made for the air quality analysis.

Chapter 2
Project Description

2.1 Introduction

This chapter describes the proposed project, which would install a fish screen system on the existing gate on BC 55. The fish screen system would include the fish screen unit, control panel, and related components. The conical, brush-cleaned fish screen system would be installed to avoid potential entrainment of special-status fish species.

The fish screen system and associated components would be designed, constructed, and operated to meet the CDFW Statewide Fish Screening Policy, as well as the National Marine Fisheries Service (NMFS) requirements in the Anadromous Salmonid Passage Facility Design guide. The design will satisfy the requirements for anadromous salmonids set forth by the California Department of Fish and Game (June 19, 2000 rules) and NMFS fish screen criteria for self-cleaning screens. The screen design is based around an existing facility retrofit and would offer the best compromise of reducing maintenance dredging, cleaning, and protection.

2.2 Description of Proposed Project

This section includes a discussion of project features and construction details, including project construction methods and activities, site access and staging, equipment and personnel, schedule, and operation and maintenance for the proposed project. The project area includes the area occupied by the existing gate, as well as the proposed locations for site access and work staging (Figure 2-1).

2.2.1 Project Features

The proposed project would involve retrofitting the existing gate with a fish screen system that consists of the following components.

- Brush-cleaned conical screen
- Concrete pad and bypass gate screen base
- Emergency bypass gate and adapter box for the existing intake
- Control panel and hydraulic power unit (HPU)

These components and their associated construction methods are described below.

2.2.2 Construction Methods and Activities

2.2.2.1 Preconstruction Site Preparation

Prior to construction activities, trees would be trimmed if necessary on each side of the construction corridor to allow for excavator access. Environmental controls to limit erosion would also be

Path: K:\Projects_1\Family_Water_Alliance\00504_13_Butte_Creek\Figures\Misc\Project_Area_20170802.mxd; User: 19016; Date: 11/1/2017

Figure 2-1
Project Location

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implemented prior to construction activities, including silt fencing, straw wattles, and other CDFW-approved measures. The toe of the silt fencing would be trenched to ensure that the downslope face of the trench is flat and perpendicular to the line of flow. The silt fencing would be inspected weekly and repaired as needed; accumulated silt would be removed when it reaches a depth of 6 inches.

2.2.2.2 Brush-Cleaned Conical Screen

The nylon brush-cleaned conical screen would have stainless steel wedgewire and 0.068-inch openings (50% open area) with a hydraulic drive unit. The screen would provide fish protection for the diversion with a combined maximum flow capacity of 7.5 cfs. The screen unit area would be approximately 38 square feet when fully submerged and there would be a minimum of 18 inches of screen submergence. If the water is 1 foot above the screen base, there would be 28 square feet of screen surface area available. At peak diversion, this would translate into an average approach velocity of approximately 0.33 feet per second through the screen, even at an extremely low water condition. The surface area would meet the minimum required for fish screen criteria and reduce headloss at low water elevations. The screen would include a hydraulic motor insulated from the frame, a stainless-steel support frame, and an internal flow baffle.

The screen would be lifted into place with an excavator and situated just above the creekbed to provide sufficient screen area and be high enough to prevent being buried by the moving bedload. The internal flow baffle would evenly distribute water flow across the screen surface. The wedgewire bearing bars and stiffeners will be provided for structural integrity and to resist collapse.

The brush cleaning system would use pressurized hydraulic fluid to rotate the brushes during a cleaning cycle (rotation both clockwise and counterclockwise). Hoses from the HPU mounted inside the control panel would run to the submerged cone screen through a buried conduit. The HPU would pump oil to the hydraulic motor situated inside the cone screen. The brush cross would be connected to the hydraulic motor shaft, which would rotate the brushes on the screen's surface during a cleaning cycle at approximately three revolutions per minute. The cleaning cycles may be set for periodic or continuous operation. Hydraulic relief valves, pressure switches, and unit monitoring would ensure that the system would not over pressurize or be damaged. To inhibit corrosion, all screen components except the hydraulic motor would be made of stainless steel. The hydraulic motor would be painted with an epoxy coating, electrically isolated, and cathodically protected. Hoses and fittings would also be protected from corrosion, wear, and ultraviolet damage.

2.2.2.3 Concrete Pad and Bypass Gate Screen Base

Dewatering would be required to install the concrete pad and screen base. An excavator would fill large sandbags and place them in the creek from just outside the conical screen base location to the existing intake area. The water depth after dam removal and sandbag placement is only anticipated to be about 2 feet. After the sandbags are in place, a cofferdam would be utilized. The existing headwall would be used as the downstream end of the cofferdam. A silt curtain would be placed on the outer surface of the sandbags to seal the cofferdam. Pumps would be used to dewater the area and all discharge would be directed into the existing owner's pipeline. The concrete pad area for the conical screen base would be excavated once the area is dry. The new pipeline section pipeline would subsequently be installed in the creekbed and on top of the existing dam apron. The intake adapter would be placed over the existing intake, sealed, and connected to the new pipeline section. The conical screen base would be formed around the pipe intake entrance and concrete would be poured into the forms and around the new pipeline. Anchor bolts would be set into the concrete and the top of the concrete base would be flat to support the conical screen. The concrete would be allowed to cure for several days before turning off the dewatering pumps. The cofferdam would not be removed until about a week after the concrete is set.

The conical screen would be mounted on a 7-foot-wide concrete base with an 18-inch-diameter inlet pipe that would be connected to the existing intake. There would be no disturbance to the existing concrete that is a part of the Durham Mutual diversion dam. There would be removal of rocks and silt (and possibly broken concrete that is not a part of the dam structure) to allow for the installation of the concrete pad and fish screen base.

2.2.2.4 Emergency Bypass Gate and Adapter Box

An epoxy-coated steel adapter box would attach to and surround the existing gate. The adapter box would have an emergency bypass gate mounted to its face and an inlet pipe connected to the screen base approximately 8 feet upstream. The box would be angled upstream to avoid the concrete and the inlet pipe would be excavated below the creekbed.

2.2.2.5 Control Panel and Hydraulic Power Unit

The timer-based control panel would control the cleaning cycle intervals and durations for the fish screen, as well as monitor the functions of the screen's hydraulic and electrical systems. The control panel and HPU would be installed in an enclosure approximately 100 feet away from the screen. The enclosure would contain all hydraulic and electrical control systems necessary for the manual and automatic operation of the fish screen cleaning system, including fuses, alarm outputs, and an emergency shutoff. The control panel would be in a pole mounted cabinet that would be 4 feet high by 2 feet wide by 1 foot deep and installed near the meter box or pole drop. The fish screen would be connected to a 480-volt, three-phase electric power supply. The HPU would have a 1-horsepower motor, oil pump, oil reservoir, relief valve, low oil sensor, filter, valve manifold, and directional valve for rotating the screen during a cleaning cycle.

An excavator would be used to dig a trench for the power line from the fish screen to the fence line and along the fence line to the power pole. The excavated area would be approximately 40 inches deep and 2 feet wide. The trench would run adjacent to the existing CDFW fence, which CDFW would remove prior to construction. The area of ground disturbance would be limited to the area required to complete the work and effects on the surrounding riparian vegetation would be avoided or minimized.

2.2.3 Site Access and Staging

The project area would be accessed from a private road on the Butte Creek Canyon Ecological Reserve. The private road connects to Southgate Lane, which intersects with SR 99. The potential staging area would be the concrete area just inside the gate, and vehicles would be parked at the end of the private road near the fence line.

2.2.4 Construction Equipment and Personnel

Approximately three individuals would be onsite daily during construction of the project. Construction personnel would park their private vehicles within the staging area. The equipment used in the project area would consist of a front-end loader, an excavator, a 35-foot-long trailer pulled by a large pickup truck, a flatbed delivery truck, and two 3-inch pumps with portable gasoline motors (for dewatering).

2.2.5 Construction Schedule

Construction is expected to occur from 8:00 a.m. to 4:00 p.m. Monday through Friday between September 1, 2019 and December 31, 2019. Most of the site work is anticipated to be within a 2-week period following the initiation of work. In-water construction activities would be completed between September 1, 2019 and October 31, 2019.

2.2.6 Operation and Maintenance Activities

The project would include monitoring and system adjustments for a period of 1 year after installation. Work would include two site visits during the 1-year period following a completed installation and would include the following: 1) visual inspection of the screen, track, and control system; 2) dive inspection to observe the underwater portions of the system and observation of fish activities (dates may be adjusted pending creek conditions); 3) check of overall mechanical operation; 4) minor adjustments to the systems; and 5) check for debris accumulation, river bottom conditions, bio-fouling, fish activities, and hydraulic leaks. Maintenance activities would also remain the same, although one additional trip to the diversion per year would be required for maintenance of the fish screen system.

Chapter 3
Environmental Setting and Impacts

3.1 Introduction

This chapter 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 environmental impacts on the resource. The chapter is organized by resource topic and corresponds to the Environmental Checklist Form of the State CEQA Guidelines. A complete environmental checklist for each potentially affected resource is provided in Appendix A.

Implementation of the mitigation measures specified in the impact analysis would either avoid adverse impacts completely or reduce the impacts to a less-than-significant level. Butte County would adopt a mitigation and monitoring plan at the time it adopts the mitigated negative declaration. The purpose of the plan is to ensure that the mitigation measures adopted as part of the project approval would be implemented when the project is constructed. Some impacts have been avoided by including certain measures in the project description.

The following terminology is used to describe the level of significance of impacts.

- A finding of *no impact* is appropriate if the analysis concludes that the project would not affect the particular topic area in any adverse way.
- An impact is considered *less than significant* if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of mitigation measures that have been agreed to by the applicant.
- An impact is considered *significant and unavoidable* if the analysis concludes that it could have a substantial adverse effect on the environment and mitigation to a less-than-significant level of impact is not feasible.

3.2 Resources Not Likely to Be Affected

Initial evaluation identified several resources that would not likely be affected by implementation of the proposed project. The resources for which there would be little to no impact are discussed below.

3.2.1 Aesthetics

The proposed project consists of installing a fish screen system on the existing gate on the BC 55. The proposed screen system would be located in an existing gap in the dense riparian vegetation and would be on the Butte Creek Canyon Ecological Reserve. The site is fenced and has no public access from the landside. Industrial lands are present just north and east of proposed project area—Knife River Corporation has a processing and storage facility on the north side of the proposed project area and Sunset Moulding has a facility on the other side of the creek. Direct views of the current and proposed facilities are only available to recreationists using the reserve. The staging areas and most of the construction area would be obscured by the dense riparian vegetation.

The proposed project would not substantially degrade the existing visual character of the site and its surroundings because the post-construction view would be similar to existing conditions. Project implementation would not damage any scenic resources. Construction activities would take place during daytime hours and would not include the introduction of any light sources that would adversely affect daytime or nighttime views in the area. Although construction activities and equipment would potentially affect views from the creek and left bank, these effects would be localized and temporary (i.e., limited to the construction period). The site would be nearly identical to existing conditions following construction. Overall, the proposed project would have little to no impact on aesthetic resources, and these resources are not considered further in this IS.

3.2.2 Agriculture and Forestry Resources

No agricultural lands are adjacent to the project site. The nearest agricultural lands are on the opposite side (i.e., east side) of the creek, beyond the ecological reserve. This area would not be affected by construction or staging. In addition, the proposed project would not conflict with existing zoning for forestland or timberland and would not result in the loss or conversion of forest land. Therefore, the proposed project would not result in impacts on agriculture and forestry resources, and these resources are not considered further in this IS.

3.2.3 Geology and Soils

One soil map unit occurs in the project area: xerorthents, tailings and 0–50% slopes (Natural Resources Conservation Service 2017). This soil map unit has a low shrink-swell potential and has a very low runoff rate (Natural Resources Conservation Service 2017). Because construction would not occur on unstable or expansive soil, the project area is relatively level, and only shallow excavation would be required, the proposed project would not pose a risk of offsite landslide, lateral spreading, subsidence, liquefaction, or collapse. Additionally, because the project area is not located in an Alquist-Priolo earthquake zone, and there are no known active faults nearby (California

Geological Survey 2017), the proposed project would not expose people or structures to substantial adverse effects related to fault rupture, ground shaking, liquefaction, or landslides.

Because erosion control measures would be implemented prior to beginning construction activities, construction and implementation of the project would not result in substantial soil erosion or the loss of topsoil. The proposed project is not located in an area that requires the disposal of wastewater and the proposed project does not involve the use of septic tanks or alternative wastewater disposal systems. The proposed project would not directly or indirectly destroy any known unique paleontological resource or geologic feature. Consequently, impacts related to geology and soils are not considered further in this IS.

3.2.4 Land Use and Planning

The lands adjacent to the project area are classified as industrial (Butte County 2017). The proposed project would not change the land use in the project area. Removal of the existing agricultural diversion and construction of the new facility would not physically divide an established community or conflict with any applicable land use plan, policy, or regulation, including the Butte County General Plan. Implementation of the project would therefore not result in any changes to existing land uses, and these resources are not discussed further in this IS.

3.2.5 Mineral Resources

The project site is not located in or near a mineral extraction site; therefore, the proposed project would not result in the loss of availability of mineral resources or otherwise prevent the extraction of important mineral resources. The proposed project would have no impact on mineral resources, and these resources are not considered further in this IS.

3.2.6 Population and Housing

The proposed project would not involve the construction of any new housing units, businesses, roads, or major infrastructure. Project implementation would not displace existing housing units or residents and the construction of replacement housing units offsite would not be required. Accordingly, impacts related to population and housing are not discussed further in this IS.

3.2.7 Public Services

Public services in the project area consist of law enforcement, fire protection, and emergency medical assistance. There are no schools, parks, or other public facilities near the project area. Construction vehicles accessing the project site would have the potential to briefly slow traffic during construction hours. However, because the number of vehicles and vehicle trips needed for construction would be negligible, emergency access would be maintained during construction and implementation of the proposed project. Therefore, the proposed project would not result in any degradation of service ratios, response times, or other performance objectives. Accordingly, impacts on public services are not expected and are not considered further in this IS.

3.2.8 Recreation

There are no regional parks or other recreation facilities in or near the project area, and the proposed project would not potentially increase the use of any facilities or cause their physical deterioration. Although boaters use Butte Creek, construction activities would have minimal intrusion into the creek and would not inhibit recreation opportunities along the creek. The proposed project does not include the construction or expansion of recreational facilities. Therefore, impacts on recreation are not considered further in this IS.

3.2.9 Transportation and Traffic

Implementation of the proposed project would involve minimal vehicle trips due to the small amount of construction involved. A total of three personnel would be onsite on any given day, and only two flatbed trucks would be needed to haul material to and from the project area. Construction vehicles accessing the project area may temporarily slow traffic as they turn onto Southgate Lane, but the proposed project would not conflict with any applicable plan, ordinance, or policy related to the performance of the circulation system or with any congestion management program. There would be no change to air traffic patterns and no increase in hazards because of design features; implementation of the proposed project would not result in inadequate emergency access as discussed in Section 3.2.7, *Public Services*. No public transit or bicycle facilities would be affected by the proposed project. Therefore, impacts related to transportation and traffic are not considered further in this IS.

3.2.10 Utilities and Service Systems

Wastewater treatment would not be part of the proposed project, and the proposed project would not require, or result in, the construction or expansion of stormwater drainage facilities. No additional water supply would be needed. The proposed project would comply with statutes and regulations related to solid waste and would be served by the Neal Road Recycling and Waste Facility, located in Butte County, which has sufficient capacity to accommodate solid waste disposal needs. A power line would be required to bring power to the fish screen. The line would be installed underground from the existing power pole in the northeastern corner of the project area, along the CDFW fence line, to the fish screen. The appropriate authorizations for the installation and use of power would be obtained. Accordingly, impacts related to utilities and service systems are not considered further in this IS.

3.2.11 Growth Inducement

System capacity and current water diversion volumes and schedules would not change as a result of the proposed project. Land use designations, growth rates, employment, and housing values would continue to be determined by local government regulations and economic conditions and would not be affected by the proposed project. Accordingly, the proposed project is not growth-inducing, and no further discussion is required for this IS.

3.3 Hydrology and Water Quality

3.3.1 Existing Conditions

The proposed project is within the Sacramento River Hydrologic Region. The Sacramento River Hydrologic Region encompasses approximately 17.4 million acres (27,200 square miles) and contains all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa Counties (California Department of Water Resources 2003a). Most of northern California is in the Sacramento River Hydrologic Region, which encompasses several watersheds of varying sizes.

3.3.1.1 Surface Water Hydrology

The proposed project is on the right bank of Butte Creek approximately 0.5 mile upstream of SR 99 in Butte County (Figure 2-1). According to USGS, the project area is within the Lower Sacramento, Butte Creek watershed (USGS Hydrologic Unit Code #18020158) (U.S. Geological Survey 2017). The project area is on a meander bend on the creek channel. The creek is approximately 160 feet wide at low water in the project area and drains from north to south. The project area is on a bank that is part of the Sacramento River Flood Control Project levees (Flood Control Act of March 1917, Public 367-64th Congress). The creek originates in the Butte Meadows region, and the hydrology has been significantly modified by several diversions for power supply and irrigation (Sacramento River Watershed Program 2010).

3.3.1.2 Groundwater Hydrology

The California Department of Water Resources (DWR) delineates groundwater basins throughout California under the State's Groundwater Bulletin 118. The proposed project is in the Sacramento Valley Groundwater Basin, West Butte Subbasin (Basin Number 5-21.58). This basin, which has a total surface area of 181,560 acres (284 square miles), is bounded by the Sacramento River on the west and south, by the Big Chico Creek on the north, by the Chico Monocline on the northeast, and by Butte Creek on the east (California Department of Water Resources 2004).

Groundwater level data show an average seasonal fluctuation of approximately 15 to 25 feet for normal years, and up to 30 feet in dry years. Groundwater levels decreased by 10 to 15 feet between the 1950s and 2004. DWR calculated groundwater storage capacity in the subbasin at 2,794,330 acre-feet to a depth of 200 feet (California Department of Water Resources 2004).

3.3.1.3 Surface Water Quality

The *Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins* describes beneficial uses for the Sacramento River (Table 3.3-1) (Central Valley Regional Water Quality Control Board 2016). Clean Water Act (CWA) Section 303(d) establishes the total maximum daily load (TMDL) process to assist in guiding the application of state water quality standards. CWA Section 303(d) requires states to identify streams in which water quality is impaired (i.e., affected by the presence of pollutants or contaminants) and to establish the TMDL, which is the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects. Table 3.3-2 shows CWA Section 303(d)–listed impairments for Butte Creek based on the 2010 California Integrated Report (State Water Resources Control Board 2011).

Table 3.3-1. Designated Beneficial Uses for Surface Water Bodies within the Project Vicinity

Water Body	Designated Beneficial Uses
Butte Creek	Municipal and domestic supply, irrigation, stock watering, power, water contact recreation, canoeing and rafting, warm and cold freshwater habitat, warm and cold fish migration, warm and cold fish spawning, wildlife habitat.

Source: Central Valley Regional Water Quality Control Board 2016:II-5.00

Table 3.3-2. Clean Water Act Section 303(d) Listed Impaired Waters with Potential to be Affected by the Proposed Project

Water Body	Pollutant Stressors	Potential Sources	TMDL Completion Date
Butte Creek	Mercury	Resource extraction	Est. 2021
	pH	Unknown	Est. 2021

Source: State Water Resources Control Board 2011.
Est. = Estimated
TMDL = total maximum daily load

Water quality in Butte Creek varies by reach. Mercury from mining and pH are listed as water quality issues for the entire length of the creek (State Water Resources Control Board 2011), but water quality in upper Butte Creek is generally good to excellent (Butte Creek Watershed Conservancy 1998). Water quality degrades in the lower reaches, and issues include seasonal variability related to weather patterns and reduced flow resulting from water diversions, increased water temperature, and sediment from surface erosion (Sacramento River Watershed Program 2010).

3.3.1.4 Groundwater Quality

Groundwater quality in the West Butte Subbasin is characterized as calcium-magnesium bicarbonate and magnesium-calcium bicarbonate types. Total dissolved solids (TDS) values range from 130 to 676 milligrams per liter (mg/L), averaging 293 mg/L. Local impairments include high nitrate levels in the Chico area, high calcium, conductivity, boron, TDS, and adjusted sodium absorption ratio (California Department of Water Resources 2004).

3.3.1.5 Flooding and Flood Management

Levees are present along Butte Creek in the project area (California Department of Water Resources 2017). The proposed project is considered to be within a 100-year floodplain (Zone A), as designated by the Federal Emergency Management Agency (FEMA), and is located on Flood Insurance Rate Map 06007C0510E (Federal Emergency Management Agency 2011).

3.3.2 Regulatory Setting

3.3.2.1 Federal

The following federal regulations related to hydrology and water quality may apply to implementation of the proposed project.

Clean Water Act Sections 404, 401, and 303(d)

Section 404

CWA Section 404 regulates the discharge of dredged and fill material into waters of the United States, which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from the U.S. Army Corps of Engineers (USACE) for all discharges of dredged or fill material into waters of the United States before proceeding with a proposed activity. Before any actions that may affect surface waters are implemented, a delineation of jurisdictional waters of the United States must be completed, following USACE protocols, to determine whether the project area contains wetlands or other waters of the United States that qualify for CWA protection.

Section 401

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval [such as issuance of a Section 404 permit]) also must comply with CWA Section 401. In California, the authority to grant water quality certification has been delegated to the State Water Resources Control Board (State Water Board), and applications for water quality certification under CWA Section 401 are typically processed by the Regional Water Quality Control Board (Regional Water Board) with local jurisdiction. Water quality certification requires evaluation of potential impacts in light of water quality standards and CWA Section 404 criteria governing discharge of dredged and fill material into waters of the United States.

Section 303(d) and Total Maximum Daily Loads

In California, the State Water Board develops the list of water quality-limited segments; the U.S. Environmental Protection Agency (EPA) approves each state's list. Waters on the list do not meet water quality standards, even after point sources of pollution have been equipped with required pollution control technology. CWA Section 303(d) also establishes the TMDL process to improve water quality in listed waterways.

Rivers and Harbors Appropriation Act of 1899

The River and Harbors Appropriation Act of 1899 addresses activities that involve the construction of dams, bridges, dikes, and other structures across any navigable water, or that place obstructions to navigation outside established federal lines and excavate from or deposit material in such waters. These activities require permits from USACE.

Rivers and Harbors Act Section 14 (33 U.S. Code [USC] 408) requires approval from the USACE Chief of Engineers, or designee, for alterations to certain public works, including federal project levees, so long as the alteration would not be injurious to the public interest and does not impair the usefulness of the work. Section 408 alterations include actions that could change the hydraulic capacity of the floodway or change the authorized geometry of the federal project.

National Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 were intended to reduce the need for large, publicly funded flood risk management structures and disaster relief by restricting development on floodplains. FEMA administers the National Flood Insurance Program (NFIP) to subsidize flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA issues Flood Insurance Rate Maps for communities participating in the NFIP. These maps delineate flood hazard zones in the community. These maps are designed for flood insurance purposes only and do not necessarily show all areas subject to flooding. The maps designate lands likely to be inundated during a 100-year storm event and elevations of the base flood. They also depict areas between the limits affected by 100-year and 500-year events and areas of minimal flooding. These maps often are used to establish building pad elevations to protect new development from flooding effects.

Requirements for Federal Emergency Management Agency Certification

Communities can find guidance on floodplain management and floodplain hazard identification in FEMA guidelines, as defined in 44 Code of Federal Regulations (CFR) 59 through 77. In order for a levee to be recognized by FEMA under the NFIP, the community must provide evidence demonstrating that adequate design and operation and maintenance systems are in place to provide reasonable assurance that protection from the base flood (1% or 100-year flood) exists. These specific requirements are outlined in 44 CFR 65.10, *Mapping of Areas Protected by Levee Systems*.

U.S. Army Corps of Engineers Levee Design Criteria

The levee in the proposed project area is federally authorized and falls under USACE jurisdiction. The levee evaluation for the proposed project area conforms to the engineering criteria established by USACE for the assessment and repair of levees.

Executive Order 11988 Floodplain Management

Executive Order (EO) 11988 addresses floodplain issues related to public safety, conservation, and economics. The order generally requires federal agencies constructing, permitting, or funding actions meet the following requirements.

- Avoid incompatible floodplain development.
- Be consistent with the standards and criteria of the NFIP.
- Restore and preserve natural and beneficial floodplain values.

3.3.2.2 State

The following state regulations related to hydrology and water quality may apply to implementation of the proposed project.

Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Water Quality Control Act established the State Water Board and nine Regional Water Boards as the primary state agencies with regulatory authority over California water quality and appropriative surface water rights allocations. Under this act (and the CWA), the state is required to adopt a water quality control policy and waste discharge requirements to be implemented by the State Water Board and nine Regional Water Boards. The State Water Board also establishes Water Quality Control Plans (i.e., Basin Plans) and statewide plans. The Regional Water Boards carry out State Water Board policies and procedures throughout the state. Basin Plans designate beneficial uses for specific surface water and groundwater resources and establish water quality objectives to protect those uses.

Central Valley Regional Water Quality Control Board

The CVRWQCB is responsible for implementing its Basin Plan for the Sacramento River and its tributaries (Central Valley Regional Water Quality Control Board 2016). The Basin Plan identifies beneficial uses of the river and water quality objectives to protect those uses. Numerical and narrative criteria are contained in the Basin Plan for several key water quality constituents, including dissolved oxygen, water temperature, trace metals, turbidity, suspended material, pesticides, salinity, radioactivity, and other related constituents.

Central Valley Flood Protection Board

The CVFPB (formerly the California Reclamation Board) of the State of California regulates the modification and construction of levees and floodways in the Central Valley defined as part of the Sacramento Valley and San Joaquin Valley flood control projects. Rules promulgated in Title 23 of the California Code of Regulations (CCR) (Title 23, Division 1, Article 8 [Sections 111–137]) regulate the modification and construction of levees to ensure public safety. The rules state that existing levees may not be excavated or left partially excavated during the flood season, which is generally November 1–April 15 for the Sacramento River and Sacramento Bypass.

Title 23 CCR Sections 6 and 7 stipulate permitting authority to the CVFPB. Section 6(a) outlines the need to obtain a permit from the CVFPB for “Every proposal or plan of work, including the placement, construction, reconstruction, removal, or abandonment of any landscaping, culvert, bridge, conduct fence, projection, fill, embankment, building….that involves cutting into the levee wholly or in part within any area for which there is an adopted plan of flood control, must be approved by the board prior to the commencement of work.” Section 7(a) requires that “Prior to submitting an encroachment permit application to the board, the application must be endorsed by the agency responsible for maintenance of levees within the area of the proposed work….”

The CVFPB has primary jurisdiction approval of levee design and construction. The CVFPB standards are found in Title 23, Division 1, Article 8 (Sections 111 through 137) of the CCR, and constitute the primary state standard. Section 120 of the CCR directs that levee design and construction be in accordance with the USACE’s Engineer Manual EM 1110-2-1913, Design and Construction of Levees. This document is the primary federal standard applicable to this project, as supplemented by additional prescriptive standards contained in Section 120 of the CCR. These additional standards prescribe minimum levee cross-sectional dimensions, construction material types, and compaction levels.

3.3.2.3 Local

The following local regulations related to hydrology and water quality may apply to implementation of the proposed project.

Butte County General Plan

The Water Resources Element and the Health and Safety Element of the Butte County General Plan contain goals, policies, and actions related to water quality and flood safety (County of Butte 2012a, 2012b). The following may apply to the proposed project.

Goal W-1 Maintain and enhance water quality.

Policies

W-P1.1 County planning and programs shall be integrated with other watershed planning efforts, including best management practices, guidelines and policies of the Central Valley Regional Water Quality Control Board (CVRWQCB).

W-P1.2 The County shall cooperate with State and local agencies in efforts to identify and eliminate or minimize all sources of existing and potential point and non-point sources of pollution to ground and surface waters, including leaking fuel tanks, discharges from storm drains, auto dismantling, dump sites, sanitary waste systems, parking lots, roadways and logging and mining operations.

W-P1.3 Regulations that protect water quality from the impacts from agricultural activities shall be maintained.

W-P1.7 Agriculture, logging, mining, recreational vehicle use and other open space uses shall follow best management practices to minimize erosion and protect water resources.

Actions

W-A1.1 Evaluate the expansion of the monitoring and reporting efforts of Butte County's Department of Water and Resource Conservation.

W-A1.3 Develop standards to determine where Low Impact Development techniques are appropriate.

Goal W-2 Ensure an abundant and sustainable water supply to support all uses in Butte County.

Policies

W-P2.1 The County supports solutions to ensure the sustainability of community water supplies.

W-P2.2 The County may continue the Four-County Memorandum of Understanding (MOU) with Colusa, Glenn, Tehama and Sutter Counties, and may support the development of the Northern Sacramento Valley Integrated Regional Water Management Plan.

W-P2.3 Water resources shall be planned and managed in a way that relies on sound science and public participation.

W-P2.4 The County's State Water Project allocation should be fully utilized within Butte County.

W-P2.6 The County supports water development projects that are needed to supply local demands.

W-P2.7 The Butte County Water Commission and the Department of Water and Resource Conservation shall continue to be utilized as important partners in the water resource planning process.

W-P2.8 The County supports Area of Origin water rights, the existing water right priority system and the authority to make water management decisions locally to meet the county's current and future needs, thereby protecting Butte County's communities, economy and environment.

Actions

W-A2.1 Implement and periodically update the Integrated Water Resources Plan to ensure the sustainability of water resources within the county.

W-A2.3 Encourage and cooperate with water purveyors to support the delivery of surface water for the economic development of agriculture.

Policies

W-P5.4 Temporary facilities shall be installed as necessary during construction activities in order to adequately treat stormwater runoff from construction sites.

Goal W-6 Improve streambank stability and protect riparian resources.

Policies

W-P6.1 Any alteration of natural channels for flood control shall retain and protect riparian vegetation to the extent possible while still accomplishing the goal of providing flood control.

Where removing existing riparian vegetation is unavoidable, the alteration shall allow for reestablishment of vegetation without compromising the flood flow capacity.

W-P6.2 Where streambanks are already unstable, as demonstrated by erosion or landslides along banks, tree collapse, or severe inchannel sedimentation, proponents of new development projects shall prepare a hydraulic and/or geomorphic assessment of on-site and downstream drainageways that are affected by project area runoff.

B. Goals, Policies and Actions

Goal HS-2 Protect people and property from flood risk.

Policies

HS-P2.1 The County supports the efforts of regional, State and federal agencies to improve flood management facilities along the Sacramento River while conserving the riparian habitat of the river.

HS-P2.2 The County supports the efforts of private landowners and public agencies to maintain existing flood management facilities.

HS-P2.3 The County supports the Flooding Mitigation Action Plan in the Butte County Multi-Jurisdictional All-Hazard Pre-Disaster Mitigation Plan (MHMP).

a. Create danger to life and property due to increased flood heights or velocities caused by excavation, fill, roads and intended use.

b. Create difficult emergency vehicle access in times of flood.

c. Create a safety hazard due to the height, velocity, duration, rate of rise and sediment transport of the flood waters expected at the site.

d. Create excessive costs in providing governmental services during and after flood conditions, including maintenance and repair of public facilities.

e. Interfere with the existing water conveyance capacity of the floodway.

f. Substantially increase erosion and/or sedimentation.

g. Require significant storage of material or any substantial grading or substantial placement of fill that is not approved by the County through a development agreement, discretionary permit, or other discretionary entitlement; a ministerial permit that would result in the construction of a new residence; or a tentative map or parcel map.

h. Conflict with the provisions of the applicable requirements of Government Code Sections 65865.5, 65962 or 66474.5.

Actions

HS-A2.2 Amend the Flood Protection Ordinance to reflect the standards of Policy HS-P2.4 and FEMA-adopted 100-year floodplain maps.

HS-A2.3 Work with the county's municipalities, special districts, the farming community and property owners to jointly prepare and implement a Basin-Wide Master Storm Drainage Plan to address downstream flooding and to protect properties and the public from flooding.

Goal HS-3 Prevent and reduce flooding.

Policies

HS-P3.1 Watersheds shall be managed to minimize flooding by minimizing impermeable surfaces, retaining or detaining stormwater and controlling erosion.

Goal HS-4 Reduce risks from levee failure.

Policies

HS-P4.1 The County supports the efforts of regional, State or federal agencies to study levee stability throughout the county, particularly levees that were designed and constructed to provide a minimum 100-year level of protection.

Goal HS-5 Reduce risks from dam inundation.

Policies

HS-P5.1 New development proposals in dam inundation areas, as mapped in Figure HS-2 or the most current available mapping, shall consider risks from failure of these dams.

HS-P5.2 Risk of failure on new development proposals in the dam inundation areas for the Black Butte, Whiskeytown and Shasta dams shall be coordinated between the Bureau of Reclamation, Butte County Department of Development Services and Butte County Office of Emergency Management.

Actions

HS-A5.1 Continue to maintain and update emergency response plans that address potential flooding in dam inundation areas.

HS-A5.2 Coordinate with other agencies to seek funding and implement the stabilization of the Magalia Dam.

3.3.3 Environmental Effects

Potential impacts of the proposed project on hydrology and water quality are discussed in the context of State CEQA Guidelines Appendix G checklist items.

a. Violate any water quality standards or waste discharge requirements?

Impact WQ-1: Introduction of pollutants to surface waters (less than significant with mitigation)

Installation of the new fish screen system would result in a small amount of ground disturbance, and heavy machinery would be used within the Butte Creek channel. Contamination of riverbank soils could result from construction activities because heavy machinery would be used near the creek. Spills of petroleum products and other pollutants could occur during vehicle operation, parking, and maintenance. Improper handling, storage, or disposal of these materials in the vicinity of Butte Creek could cause degradation of surface water quality if they are eventually washed into the creek.

Installation of the new fish screen system could stir up sediment and contribute to downstream sedimentation, which would increase turbidity. However, temporary silt fencing would be installed. The toe of the silt fencing would be trenched so that the downslope face of the trench is flat and perpendicular to the line of flow. The fencing would be inspected weekly and repaired as needed, and accumulated silt would be removed when it reaches a depth of 6 inches. Additionally, silt curtains or other approved methods would be installed around the perimeter of in-water work to prevent any sediment that may be stirred up during construction activities from increasing turbidity in Butte Creek. Nevertheless, soil could be washed downstream during construction if the silt fencing or silt curtains were to be damaged or displaced.

Because construction activities associated with the proposed project could result in soil erosion, siltation, and contamination of surface waters, this impact would be potentially significant. Implementation of Mitigation Measures WQ-MM-1a and WQ-MM-1b would reduce this impact to a less-than-significant level.

Mitigation Measure WQ-MM-1a: Implement Construction Best Management Practices

BSFSGG will require the construction contractor to implement appropriate best management practices (BMPs) to avoid or minimize impacts on water quality. Such BMPs will include the following.

- To the extent possible, equipment and materials will be staged in areas that have already been disturbed.
- The construction contractor will minimize ground disturbance and the disturbance/destruction of existing vegetation through establishing designated equipment staging areas, ingress and egress corridors, equipment exclusion zones prior to the commencement of any grading operations, and protection of existing trees.

- The construction contractor will install silt fences and silt curtains as necessary to prevent sediment-laden water from leaving the construction area.
- The construction contractor will follow written Standard Operating Procedures (SOPs) for refueling and servicing construction vehicles and equipment, as well as any additional provisions required by CDFW, the Regional Water Board, USACE, and Butte County. The SOPs will include the following measures to reduce potential for accidental spills of hazardous materials:
  - Refueling and servicing will be conducted in designated areas located away from drainages to prevent runoff;
  - Drip pans will be placed under equipment and vehicles during servicing to catch potential spills;
  - Refueling will be conducted using only approved pumps and hoses;
  - All disconnected hoses will be stored in containers to catch residual fluids that may remain in the hoses;
  - Vehicles and equipment engines will be turned off during refueling;
  - Fire extinguishers and spill containment equipment will be kept onsite during construction activities;
  - No open flames or smoking will be allowed in designated refueling or servicing areas;
  - Should any hazardous material spills occur, contaminated soil will be placed in containers and disposed of in accordance with Federal, state, and local regulations;
  - All hazardous material containers will be inspected at least weekly and all servicing and refueling areas will be inspected monthly. Inspection information will be recorded in a logbook that will be stored onsite.

Mitigation Measure WQ-MM-1b: Monitor Turbidity and Reduce Earth-Disturbing Activities as Needed

BSFSGG or its contractor will monitor turbidity in Butte Creek during construction to determine whether turbidity is being affected by construction and ensure that construction does not affect turbidity levels and increase sediment loads.

The *Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins (Fourth Edition)* (Central Valley Regional Water Quality Control Board 2016) contains turbidity objectives. The plan states that where natural turbidity is less than 1 nephelometric turbidity unit (NTU), controllable factors shall not cause downstream turbidity to exceed 2 NTUs; where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU; where natural turbidity is between 5 and 50 NTUs, turbidity levels may not be elevated by 20% above ambient conditions; where ambient conditions are between 50 and 100 NTUs, conditions may not be increased by more than 10 NTUs; and where natural turbidity is greater than 100 NTUs, increases shall not exceed 10%.

Monitoring will take place approximately 100 feet upstream and 100 feet downstream of construction activities to determine whether turbidity is being affected by construction. Grab samples will be collected at locations that are representative of the flow near the construction site. If there is a visible sediment plume being created from construction, the sample will be collected within this plume. Monitoring will occur every 4 hours during in-water demolition and installation work.

If turbidity limits exceed Basin Plan standards, construction-related earth-disturbing activities will be slowed to a level that will alleviate the problem. BSFSGG will notify the CVRWQCB of the issue immediately and provide an explanation of the cause.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

No excavation would be required to install the new fish screen system. Consequently, the groundwater table would not be exposed. The proposed project would not involve groundwater extraction or lowering of the local groundwater table. Therefore, there would be no impact.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?

The new fish screen system would occupy a footprint similar to that of the existing facility and no other changes to the creek would occur. The new fish screen system is therefore not likely to alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation onsite or offsite. There would be no impact.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?

The new fish screen system would be similar to the existing facility, and its construction would not result in an increase in impervious surfaces or change the existing drainage pattern of the project area. Therefore, the proposed project would not increase the rate or amount of surface runoff in a manner that would result in onsite or offsite flooding, and there would be no impact.

e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The proposed project would not alter the capacity of existing or planned stormwater drainage systems. In addition, the proposed project would not provide new sources of polluted runoff, and all disturbed areas would be revegetated to prevent soil erosion. There would be no impact.

f. Otherwise substantially degrade water quality?

All project elements with the potential to cause water quality impacts are discussed above and mitigation assigned, as appropriate. There would be no further impact on water quality caused by the proposed project.

g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed project would not involve the construction of housing. There would be no impact.

h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?

The proposed project would involve replacement of an existing structure within the 100-year flood hazard area. The proposed facility would be substantially similar to the facility being removed in size and footprint, and would not impede or redirect floodflows. Accordingly, there would be no impact.

i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The proposed project would not increase the present potential for failure of any levee, dam, or instream structure. No people or structures would be exposed to a significant risk of loss, injury, or death involving flooding. There would be no impact.

j. Contribute to inundation by seiche, tsunami, or mudflow?

The proposed project would not alter the contours of the creek bank in the project area and would not involve alterations that would increase susceptibility of surrounding communities to inundation by seiches, tsunamis, or mudflows. The proposed project is not located in a tsunami zone, and seiches occur in lakes. Also, no part of the proposed project would contribute to mudflow inundation. There would be no impact.

3.4 Biological Resources

3.4.1 Methods

The methods used to identify biological resources that could be affected by the proposed project consisted of a prefield investigation and field survey. These methods and additional information obtained for the study area are described below.

3.4.1.1 Prefield Investigation

The prefield investigation conducted by ICF biologists consisted of a review of the following information pertaining to vegetation and wildlife resources in the project vicinity.

- A search of the California Native Plant Society's (CNPS's) online Inventory of Rare and Endangered Plants of California for the U.S. Geological Survey (USGS) 7.5-minute Chico, Richardson Springs, Paradise West, Hamlin Canyon, Shippee, Nelson, Llano Seco, Ord Ferry, and Nord quadrangles (California Native Plant Society 2017) (Appendix C).
- A California Natural Diversity Database records search of portions of the USGS 7.5-minute Chico, Richardson Springs, Paradise West, Hamlin Canyon, Shippee, Nelson, Llano Seco, Ord Ferry, and Nord quadrangles (California Department of Fish and Wildlife 2017a) (Appendix D).
- A USFWS list of endangered, threatened, and candidate species for the study area obtained from the USFWS website (U.S. Fish and Wildlife Service 2017) (Appendix E).

3.4.1.2 Field Survey

An ICF fish biologist, wildlife biologist, and botanist conducted a reconnaissance-level site visit on July 26, 2017. The fish biologist documented existing conditions within the study area (defined below), including special-status fish habitats, the existing water diversion, and associated structures. The wildlife biologist and botanist documented the land cover types, wildlife habitats, vegetation, and potential waters of the United States.

3.4.2 Existing Conditions

3.4.2.1 Study Area

The study area for biological resources was different for terrestrial and fisheries resources. For terrestrial resources, the original project footprint was surveyed for special-status species and their habitats, land cover types, and potential waters of the United States (Figure 3.4-1). Additionally, the ICF wildlife biologist examined accessible areas within 165 feet of the study area to identify potential habitat (i.e., blue elderberry shrubs [*Sambucus nigra* ssp. *caerulea*]) for the federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). For purposes of assessing impacts on fisheries resources (e.g., elevated turbidity and noise), the study area consisted of the Butte Creek water column, substrate, shoreline, and bank within the footprint of the proposed fish screen and pump upgrade project up to the ordinary high water mark (OHWM) and surrounding aquatic habitat. The study area is located within 93-acre CDFW Butte Creek Canyon Ecological Reserve. Elevations in the study area range from approximately 230 to 238 feet above

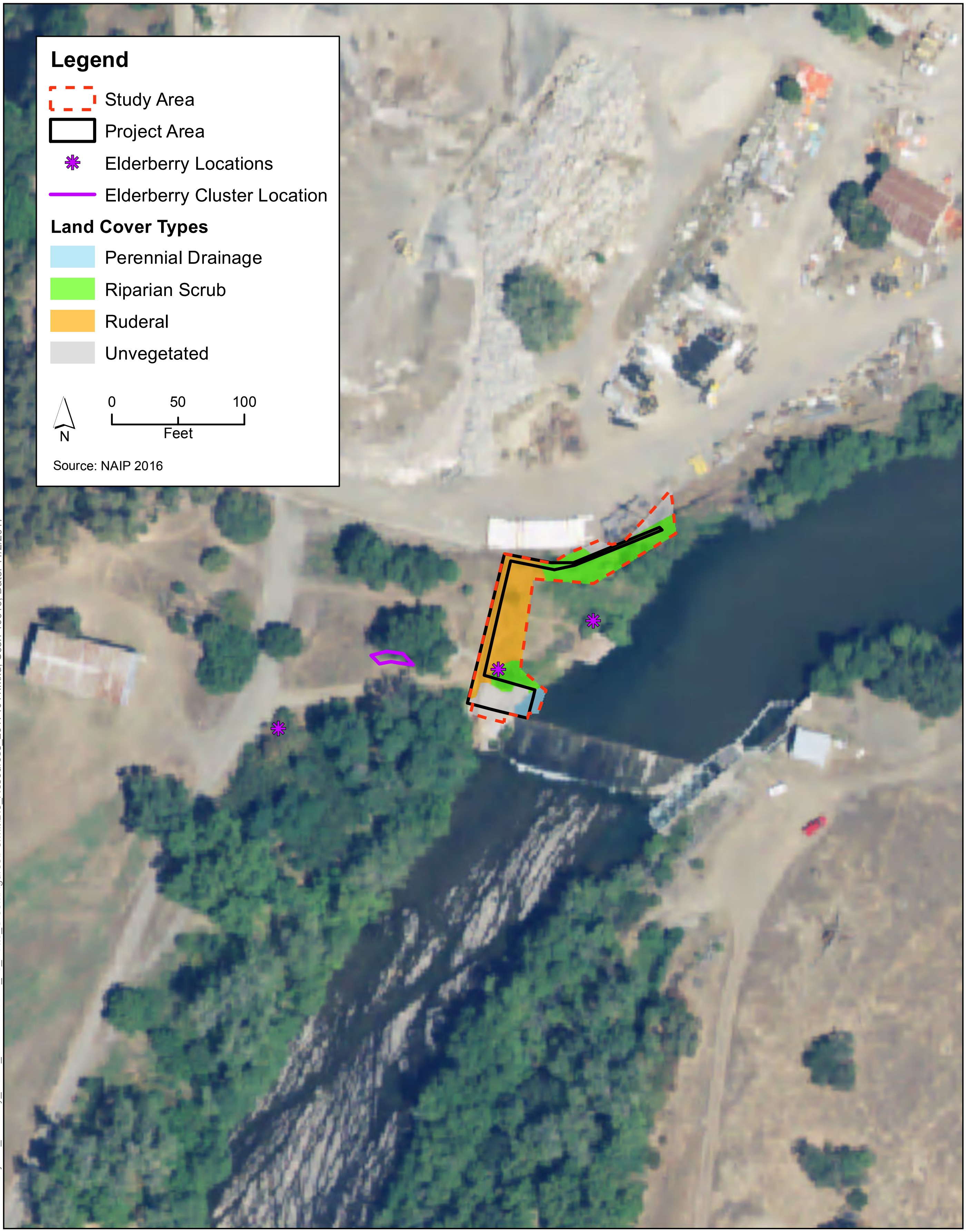

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Figure 3.4-1
Land Cover Types and Sensitive Biological Resources in the Study Area

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mean sea level, with the higher elevation at the top of the slope (north) and the lower elevation near the water and the diversion (south). The lands surrounding the study area include industrial, agricultural, and open space/recreation areas.

3.4.2.2 Land Cover Types

The land cover types identified in the study area during the field survey of the study area were riparian scrub, ruderal, perennial drainage, and unvegetated. Each of these land cover types are discussed below and shown on Figure 3.4-1. The list of plant species observed during the field survey is provided in Appendix B.

Riparian Scrub

Riparian scrub can be composed of native or nonnative emergent aquatic plants, herbs, trees or shrubs that root close to water. This vegetation provides foraging and breeding habitat for numerous wildlife species. The riparian scrub found within the study area encompasses approximately .009 acre and occurs adjacent to the walkway and pad around the existing fish screen platform and northeast of the fish screening area from the creek to the fence line, where trenching will occur. The overstory of the riparian scrub consists of a grouping of thin, tall privets just east of the pad and adjacent to the fish screening area. California grape (*Vitis californica*) is the dominant species and grows over most of the riparian scrub overstory. Areas of wild rose (*Rosa californica*) and Himalayan blackberry (*Rubus armeniacus*) can be found throughout the riparian scrub but are largely concentrated directly adjacent (north and east) of the fish screen system and Butte Creek.

Ruderal

Ruderal habitat is repeatedly disturbed, and the vegetation is consequently composed largely of nonnative disturbance-tolerant grasses and forbs. The dominant species found within the understory of the ruderal habitat in the study area include yellow star thistle (*Centaurea solstitialis*), nonnative grasses, and black mustard (*Brassica nigra*). The canopy consists of a single interior live oak (*Quercus wislizeni*). The ruderal habitat covers approximately .019 acre and occurs along the fence line on the west to northwest edge of the study area.

Perennial Drainage—Butte Creek

The perennial drainage in the study area consists of 0.004 acre of Butte Creek.

Unvegetated

The unvegetated portion of the study area encompasses approximately .015 acre and consists of foot trails, concrete stairs leading down to a pad adjacent to the fish screening area, and a gabion wall with riprap lining the edge of Butte Creek.

3.4.3 Regulatory Setting

3.4.3.1 Federal

The following federal regulations related to biological resources apply to implementation of the proposed project.

Federal Endangered Species Act

The federal Endangered Species Act (ESA) protects fish and wildlife species and their habitats that have been identified by NMFS or USFWS as threatened or endangered. *Endangered* refers to species, subspecies, or distinct population segments (DPSs) that are in danger of extinction through all or a significant portion of their range. *Threatened* refers to species, subspecies, or DPSs that are likely to become endangered in the near future.

The ESA is administered by USFWS and NMFS. In general, NMFS is responsible for protection of ESA-listed marine species and anadromous fish, and USFWS is responsible for other listed species. Provisions of Sections 7 and 9 of the ESA are relevant to this proposed project and summarized below.

Section 7: Endangered Species Act Authorization Process for Federal Actions

Section 7 of the ESA provides a means for authorizing take of threatened and endangered species by federal agencies. Under Section 7, the federal agency conducting, funding, or permitting an action (for this project, USACE) must consult with NMFS or USFWS, as appropriate, to ensure that the proposed project would not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. The study area supports moderate to highly suitable habitat for federally listed valley elderberry longhorn beetle, Central Valley spring-run Chinook salmon and Central Valley steelhead that could be adversely affected by the proposed project. Therefore, the proposed project has the potential to result in take of a federally listed species, and consultation would be initiated with NMFS and USFWS.

Section 9: Endangered Species Act Prohibitions

Section 9 of the ESA prohibits the take of any fish or wildlife species listed under ESA as endangered. Take of threatened species also is prohibited under Section 9, unless otherwise authorized by federal regulations.[1] *Take*, as defined by the ESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” *Harm* is defined as “any act that kills or injures the species, including significant habitat modification.” In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

Critical Habitat

Critical habitat, as defined in ESA Section 3, is the specific area within the geographic area occupied by a species, at the time it is listed in accordance with ESA, on which are found those biological features essential to the conservation of the species, and may require special management considerations or protection. It also includes specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. The study area does not overlap with critical habitat for valley elderberry longhorn beetle. The study area is within the critical habitat designated for Central Valley spring-run Chinook salmon and Central Valley steelhead.

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[1] In some cases, exceptions may be made for threatened species under ESA Section 4(d); in such cases, USFWS or NMFS issues a “4(d) rule” describing protections for the threatened species and specifying the circumstances under which take is allowed.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act requires all federal agencies to consult with NMFS regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat (EFH). EFH is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (U.S. Code [USC], Title 16, Section 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union (now Russia). The MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase, or barter any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11). EO 13186 (January 10, 2001) directs each federal agency taking actions that have or may have a negative effect on migratory bird populations to work with USFWS to develop a memorandum of understanding that will promote the conservation of migratory bird populations. The study area supports known migratory bird nests and potential nesting habitat that could be affected by implementation of the proposed project.

Clean Water Act

The Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers the EPA to set national water-quality standards and effluent limitations and includes programs addressing both point-source and non-point-source pollution. *Point-source pollution* is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. *Non-point-source pollution* originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following sections provide additional details on pertinent sections of the CWA.

Section 404

USACE and EPA regulate the discharge of dredged and fill material into waters of the United States under Section 404 of the CWA. USACE's jurisdiction over nontidal waters of the United States extends to the OHWM, provided the jurisdiction is not extended by the presence of wetlands (33 CFR Part 328 Section 328.4). The OHWM is defined in the federal regulations as follows.

> [T]hat line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. (33 CFR Part 328 Section 328.3[e].)

USACE typically will exert jurisdiction over that portion of the study area that contains waters of the United States and adjacent wetlands. This jurisdiction equals approximately the bank-to-bank portion of a creek along its entire length up to the OHWM and adjacent wetlands areas that would be directly or indirectly adversely affected by the proposed project. The OHWM area of Butte Creek is under USACE jurisdiction, and placement of project structures within the OHWM could require a CWA Section 404 permit.

Section 401

Under CWA Section 401, applicants for a federal license or permit to conduct activities that might result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. A CWA Section 401 water quality certification from the CVRWQCB would be required for construction in Butte Creek.

Executive Order 13112: Prevention and Control of Invasive Species

EO 13112, signed February 3, 1999, directs all federal agencies to prevent and control the introduction of invasive species in a cost-effective and environmentally sound manner. The EO established the National Invasive Species Council (NISC), which is composed of federal agencies and departments, and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. In 2008, NISC released an updated national invasive species management plan (National Invasive Species Council 2008) that recommends objectives and measures to implement the EO and to prevent the introduction and spread of invasive species. The EO requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them. The proposed project may introduce or spread invasive species; therefore, federal agencies are required to consider this EO prior to issuing permits. Measures identified in the Environmental Effects section will avoid or minimize the introduction and spread of invasive species as a result of project activities.

3.4.3.2 State

The following state regulations related to biological resources apply to implementation of the proposed project.

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code [CFGC] Sections 2050 through 2116) states that all native species or subspecies of a fish, amphibian, reptile, mammal, or plant and their habitats that are threatened with extinction and those experiencing a significant decline that, if not halted, would lead to a threatened or endangered designation will be protected or preserved.

Under Section 2081 of the CFGC, a permit from CDFW is required for projects that could result in the take of a species that is state-listed as threatened or endangered. Under CESA, *take* is defined as an activity that would directly or indirectly kill an individual of a species. The definition does not include *harm* or *harass*, as the definition of take under ESA does. As a result, the threshold for take under CESA is higher than that under ESA. For example, habitat modification is not necessarily considered take under CESA.

Section 2090 of the CFGC requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. CDFW administers the act and authorizes take through CFGC Section 2081 incidental take agreements (except for species designated as fully protected) and Section 2080.1 consistency determinations. If it is determined that the proposed project will result in take of a state-listed species, an incidental take permit or consistency determination will be obtained through consultation with CDFW. The study area supports moderate to highly suitable habitat for state-listed Central Valley spring-run Chinook salmon, and potential nesting habitat for the state-listed Swainson's hawk.

For Swainson's hawks, CDFW has developed survey guidance, conservation strategies, and best practices for avoiding, minimizing, and mitigating project impacts on the species. The most recent guidance published by CDFW is the *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California* (California Energy Commission and California Department of Fish and Game 2010). Although this guidance is not specific to the project area, it provides the most up-to-date information on Swainson's hawk survey recommendations and protection measures.

California Fully Protected Species

CFGC Sections 3511, 3513, 4700, and 5050 pertain to fully protected wildlife species (birds in Sections 3511 and 3513, mammals in Section 4700, and reptiles and amphibians in Section 5050) and strictly prohibit the take of these species. CDFW cannot issue a take permit for fully protected species, except under narrow conditions for scientific research or the protection of livestock, or if a Natural Community Conservation Plan (NCCP) has been adopted. The study area supports moderate to highly potential nesting habitat for the fully protected white-tailed kite and bald eagle that could be affected by implementation of the proposed project.

Sections 3503, 3503.5, and 3513 of the California Fish and Game Code

CFGC Sections 3503, 3503.5, and 3513 protect all native birds, birds of prey, and all nongame birds, including eggs and nests, that are not already listed as fully protected and that occur naturally within the state. Eggs and nests of all birds are protected under Section 3503, while Section 3503.5 protects all birds of prey as well as their eggs and nests. Migratory non-game birds are protected under Section 3513. Except for take related to scientific research, take as described above is prohibited. Many bird species potentially could nest in the project area or vicinity. These birds, their nests, and eggs would be protected under these sections of the CFGC. The study area supports known bird nests and potential nesting habitat that could be affected by implementation of the proposed project.

California Native Plant Protection Act

CESA defers to the CNPPA to ensure that state-listed plant species are protected when state agencies are involved in projects subject to CEQA. Plants listed as rare under CNPPA are not protected under CESA but rather under CEQA. Two state-listed endangered species (Butte County meadowfoam, and Greene's tuctoria) occur in the project region, but do not have suitable habitat that would be affected by the project.

Sections 1600–1603 of the California Fish and Game Code

CFGC Sections 1600–1603 state that it is unlawful for any person or agency to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources, or to use any material from the streambeds, without first notifying CDFW. A Lake and Streambed Alteration Agreement must be obtained if effects are expected to occur. The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks, and that supports wildlife, fish, or other aquatic life. This definition includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife extending to the tops of banks and often including the outer edge of riparian vegetation canopy cover. Butte Creek and associated riparian habitat within the study area are within CDFW jurisdiction, and construction activities in the creek and riparian habitat would require a Section 1602 streambed alteration agreement.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, the State of California, through the Regional Water Boards, regulates discharges of waste into any waters of the state, regardless of whether USACE has concurrent jurisdiction under CWA Section 404. *Waters of the state* include all surface water or groundwater within the state. Butte Creek is a water of the state that would be affected by implementation of the project. Because Butte Creek is also a water of the United States, regulation by the CVRWQCB would occur under CWA Section 401, as described above.

3.4.3.3 Local

The following local policies related to biological resources apply to implementation of the proposed project.

Butte County

Butte County 2030 General Plan

The goals, policies, and actions below are taken from the Conservation and Open Space Element and the Water Resources Element of the Butte County 2030 General Plan, adopted on October 26, 2010 (County of Butte 2012: Section 10 and Section 8) and are designed to guide planning related to and affecting habitat and biological resources, including vegetation and wetlands, within Butte County's jurisdiction.

Goal COS-6: Engage in cooperative planning efforts to protect biological resources.

Goal COS-7: Conserve and enhance habitat for protected species and sensitive biological communities.

Policy COS-P7.3: Creeks shall be maintained in their natural state whenever possible, and creeks and floodways shall be allowed to function as natural flood protection features during storms.

Policy COS-P7.7: Construction barrier fencing shall be installed around sensitive resources on or adjacent to construction sites. Fencing shall be installed prior to construction activities and maintained throughout the construction period.

Policy COS-P7.8: Where sensitive on-site biological resources have been identified, construction employees operating equipment or engaged in any development-associated activities involving vegetation removal or ground-disturbing activities in sensitive resources areas shall be trained by a qualified biologist and/or botanist who will provide information on the on-site biological resources (sensitive natural communities, special-status plant and wildlife habitats, nests of special-status birds, etc.), avoidance of invasive plant introduction and spread, and the penalties for not complying with biological mitigation requirements and other State and federal regulations.

Policy COS-P7.9: A biologists shall be retained to conduct construction monitoring in and adjacent to all habitats for protected species when construction is taking place near such habitat areas.

Goal COS-8: Maintain and Promote native vegetation.

Policy COS-P8.1: Native plant species shall be protected and planting and regeneration of native plant species shall be encouraged, wherever possible, in undisturbed portions of development sites.

Policy COS-P8.4: Introduction or spread of invasive plant species during construction of development projects shall be avoided by minimizing surface disturbance; seeding and mulching disturbed areas with certified weed-free native mixes; and using native, noninvasive species in erosion control plantings.

Goal COS-9: Protect identified special-status plant and animal species.

Policy COS-P9.1: A biological resources assessment shall be required for any proposed development project where special-status species or critical habitat may be present. Assessments shall be carried out under the direction of Butte County. Additional focused surveys shall be conducted during the appropriate season if necessary. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), assessment requirements of the HCP/NCCP shall be implemented for development projects within the HCP/NCCP area.

Policy COS-P9.2: If special-status plant or animal species are found to be located within a development site, proponents of the project shall engage in consultation with the appropriate federal, State and regional agencies and mitigate project impacts in accordance with State and federal law. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), mitigation requirements of the HCP/NCCP shall be implemented for development projects within the HCP/NCCP area. Examples of mitigation may include:

a. Design the proposed project to avoid and minimize impacts.

b. Restrict construction to specific seasons based on project-specific special-status issues (e.g. minimizing impacts to special-status nesting birds by constructing outside of the nesting season).

c. Confine construction disturbance to the minimum area necessary to complete the work.

d. Mitigate for the loss of special-status species by purchasing credits at an approved conservation bank (if a bank exists for the species in question), funding restoration or habitat improvement projects at existing preserves in Butte County, or purchasing or donating mitigation lands of substantially similar habitat.

e. Maintain a minimum 100-foot buffer on each side of all riparian corridors, creeks and streams for special-status and common wildlife.

f. Establish setbacks from the outer edge of special-status species habitat areas.

g. Construct barriers to prevent compaction damage by foot or vehicular traffic.

Goal W-6: Improve streambank stability and protect riparian resources.

Policy W-P6.1: Any alteration of natural channels for flood control shall retain and protect riparian vegetation to the extent possible while still accomplishing the goal of providing flood control. Where removing existing riparian vegetation is unavoidable, the alteration shall allow for reestablishment of vegetation without compromising the flood flow capacity.

3.4.4 Sensitive Biological Resources

3.4.1.1 Special-Status Species

Special-status species are those that are legally protected under CESA, ESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. For the purposes of this analysis, special-status species include the following.

- Species listed or proposed for listing as threatened or endangered under ESA (Code of Federal Regulations [CFR], Title 50, Section 17.12 [listed plants] and various notices in the *Federal Register* [FR] [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under ESA (81 FR 87246; December 2, 2016).
- Species listed or proposed for listing by the State of California as threatened or endangered under CESA (California Code of Regulations, Title 14, Section 670.5).
- Species that meet the definitions of rare or endangered under CEQA Guidelines Section 15380.
- Animals that are identified as California species of special concern or fully protected species on California Department of Fish and Wildlife's Special Animals List (California Department of Fish and Wildlife 2017b).
- Bats identified as medium or high priority on the Western Bat Working Group regional priority species matrix (Western Bat Working Group 2007).
- Plants listed as rare under the California Native Plant Protection Act (CNPPA) (CFGC Section 1900 et seq.).
- Plants identified by CDFW and CNPS to be "rare, threatened, or endangered in California" (California Rare Plant Ranks 1B and 2; California Department of Fish and Wildlife 2017c, California Native Plant Society 2017).
- Plants identified by CDFW and CNPS as plants about which more information is needed to determine their status and plants of limited distribution (California Rare Plant Ranks 3 and 4; California Department of Fish and Wildlife 2017c, California Native Plant Society 2017), which may be included as special-status species on the basis of local significance or recent biological information.

Special-Status Plants

Twenty-seven special-status plant species were identified as having potential to occur in the study area (California Native Plant Society 2017; California Department of Fish and Wildlife 2017a) (Appendices C and D). The status, distribution, habitat requirements, and identification period for each of the 27 species are shown in Table 3.4-1. Of the 27 species, 24 have habitat or microhabitat requirements (e.g., vernal pools, marsh, and coniferous forest) that are not present in the study area.

Three species woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*), slender-leaved pondweed (*Stuckenia filiformis* ssp*. alpina*), and California satintail (*Imperata brevifolia*), have marginally suitable habitat in the study area.

The timing of the July 2017 field survey coincided with the appropriate identification (blooming) period for 13 of the 27 species, two of which had suitable habitat within the study area (woolly rose-mallow and slender-leaved pondweed). No special status species were identified during the survey. Spring blooming-period surveys have not been conducted in the study area to document the presence or absence of the other 14 species. Only the California satintail was found to have suitable habitat in the study area, so there is a low likelihood of finding the other 13 during the spring blooming-period surveys.

Table 3.4-1. Special-Status Plants with Potential to Occur in the Vicinity of the Study Area

Common and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution	Habitat Requirements[b]	Identification Period	Potential for Occurrence in Study Area
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	–/–/1B.1	Historical range included the Central Valley from Butte to Solano County but currently only occurs in Butte, Glenn, Colusa, Sutter, and Yolo Counties	Seasonally wet areas in meadows and seeps, subalkaline flats in valley and foothill grassland; 7–246 feet	Apr-May	No suitable habitat present in study area. Nearest recorded occurrence is ~10 miles northwest of the study area.
Big-scale balsamroot *Balsamorhiza macrolepis*	–/–/1B.2	Scattered occurrences in the Coast Ranges and Sierra Nevada Foothills	Sometimes on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 295–5,102 feet	Mar-Jun	No suitable habitat or serpentine soils present in study area. Nearest recorded occurrence is ~3 miles northwest of the study area.
Watershield *Brasenia schreberi*	–/–/2B.3	Scattered occurrences in north and central California; widespread across US	Freshwater marshes; 98–7,218 feet	Jun-Sep	No marsh habitat present along the river in study area. Nearest recorded occurrence is ~11.5 miles southwest of the study area. Not observed during July 2017 survey.
Round-leaved filaree *California macrophylla*	–/–/1B.2	Scattered occurrences in the Great Valley, southern North Coast Ranges, San Francisco Bay Area, South Coast Ranges, Channel Islands, Transverse Ranges, and Peninsular Ranges	Cismontane woodland, valley and foothill grassland on clay soils; 49–3,937 feet	Mar-May	No suitable habitat present in study area Nearest recorded occurrence is ~11.5 miles southwest of the study area.

Common and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution	Habitat Requirements[b]	Identification Period	Potential for Occurrence in Study Area
Butte County morning-glory *Calystegia atriplicifolia* ssp. *buttensis*	–/–/4.2	Cascade Range and North Coast Range foothills: Butte, Contra Costa?, Del Norte, Mendocino, Shasta, and Tehama Counties	Rocky sites in chaparral and lower montane coniferous forest; 1,854–5,000 feet	May-Jul	No suitable habitat present in study area. Nearest recorded occurrence is ~11 miles northeast of the study area. Not observed during July 2017 survey.
Dissected-leaved toothwort *Cardamine pachystigma* var. *dissectifolia*	–/–/1B.2	Sierra Nevada Foothills and interior North Coast Ranges: Butte, Glenn, Mendocino, Placer, Sonoma, and Tehama Counties	Typically rocky serpentine soils in chaparral and lower montane coniferous forest; 837–6,890 feet	Feb-May	No suitable habitat or soils present in study area. Nearest recorded occurrence is ~12.5 miles southeast of the study area.
Pink creamsacs *Castilleja rubicundula* var. *rubicundula*	–/–/1B.2	Inner North Coast Ranges with occurrences in Butte, Contra Costa, Colusa, Glenn, Lake, Napa, Santa Clara, and Shasta Counties	Serpentine soils in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland; 66–2,986 feet	Apr-Jun	No suitable habitat present in study area. Nearest recorded occurrence is ~7.5 miles southeast of the study area.
White-stemmed clarkia *Clarkia gracilis* ssp. *albicaulis*	–/–/1B.2	Southern Cascade Range foothills, Butte, Lake, and Tehama Counties	Chaparral, cismontane woodland, sometimes on serpentine soils; 804–3,560 feet	May-Jul	No suitable habitat present in study area. Nearest recorded occurrence is ~6.5 miles northeast of the study area. Not observed during July 2017 survey.
Recurved larkspur *Delphinium recurvatum*	–/–/1B.2	Central Valley from Colusa* to Kern Counties	Alkaline soils in valley and foothill grassland, saltbush scrub, cismontane woodland; 10–2,592 feet	Mar-Jun	No suitable habitat present in study area. Nearest recorded occurrence is 11.5 miles south of the study area.

Common and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution	Habitat Requirements[b]	Identification Period	Potential for Occurrence in Study Area
Ahart's buckwheat *Eriogonum umbellatum* var. *ahartii*	–/–/1B.2	Butte and Yuba Counties	On serpentine substrates on slopes and in opening in chaparral and oak woodland; 1,312–6,562 feet	Jun-Sep	No suitable habitat or soils present in study area. Nearest recorded occurrence is ~13.5 miles northeast of the study area. Not observed during July 2017 survey.
Hoover's spurge *Euphorbia hooveri*	T/–/1B.2	Central Valley from Butte County to Tulare County.	Below the high-water mark of large northern hardpan and volcanic vernal pools; 82–820 feet.	Jul–Sep (Oct)	No suitable habitat present in study area. Nearest recorded occurrence is ~13 miles northwest of the study area. Not observed during July 2017 survey.
Butte County fritillary *Fritillaria eastwoodiae*	–/–/3.2	Sierra Nevada Foothills, from Shasta to El Dorado Counties; also Oregon	Chaparral, cismontane woodland, openings in lower montane coniferous forest, sometimes on serpentine; 164–4,921 feet	Mar-Jun	No suitable habitat present in study area. Nearest recorded occurrence is ~3 miles southwest of the study area.
Adobe-lily *Fritillaria pluriflora*	–/–/1B.2	Northern Sierra Nevada Foothills, Inner North Coast Ranges, edges of Sacramento Valley	Chaparral, cismontane woodland, valley and foothill grassland, often on adobe soils; 197–2,313 feet	Feb-Apr	No suitable habitat present in study area. Nearest recorded occurrence is ~3 miles southwest of the study area.
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–/–/1B.2	Scattered locations in central California in the Central and southern Sacramento Valley, deltaic Central Valley, from Butte to San Joaquin County	Freshwater marshes and swamps along rivers and sloughs, often in riprap on sides of levees; below 394 feet	Jun-Sep	Marginal habitat present in riprap along the creek. Nearest recorded occurrence is ~6.75 miles southwest of the study area. Not observed during July 2017 survey.

Common and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution	Habitat Requirements[b]	Identification Period	Potential for Occurrence in Study Area
California satintail *Imperata brevifolia*	–/–/2B.1	Butte, Fresno, Imperial, Inyo, Kern, Lake*, Los Angeles, Orange, RiversIde, San Bernardino, Tehama, Tulare, Ventura Counties; Arizona, Baja California-Mexico, New Mexico*, Nevada, Texas, Utah	Mesic sites in chaparral, coastal scrub, Mojave desert scrub, meadows often alkali, riparian scrub; below 3,986 feet	Sep-May	Marginal habitat present in study area. Nearest recorded occurrence is ~7.25miles northeast of the study area. Survey was not conducted during the species blooming period.
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	–/–/1B.2	Northern Sacramento Valley and Cascade Range foothills with occurrences in Butte, Placer, Shasta, and Tehama Counties	Seasonally wet areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; 115–4,101 feet	Mar-Jun	No suitable habitat present in study area. Nearest recorded occurrence is ~10 miles east of the study area.
Butte County meadowfoam *Limnanthes floccosa* ssp. *californica*	E/E/1B.1	Endemic to Butte County	Wet areas in valley and foothill grassland, vernal pools and swales; 151–3,051 feet	Mar-May	No suitable habitat present in study area. Nearest recorded occurrence is ~2.2 miles north of the study area.
Woolly meadowfoam *Limnanthes floccosa* ssp. *floccosa*	–/–/4.2	Northern Sacramento Valley and Cascade Range foothills, from Siskiyou County to Butte County; Oregon	Seasonally wet areas in chaparral, oak woodland openings, valley and foothill grassland, vernal pools; 196–4,380 feet	Mar-May(Jun)	No suitable habitat present in study area. Nearest recorded occurrence is ~5.5 miles north of the study area.
Veiny monardella *Monardella venosa*	–/–/1B.1	Occurrences in the northern and central Sierra Nevada Foothills; also historically known from the Sacramento Valley	Cismontane woodland, valley and foothill grassland on heavy clay soils; 197–1,345 feet	May-Jul	No suitable habitat or soils present in study area. Nearest recorded occurrence is ~3.4 miles southeast of the study area. Not observed during July 2017 survey.

Common and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution	Habitat Requirements[b]	Identification Period	Potential for Occurrence in Study Area
Ahart's paronychia *Paronychia ahartii*	–/–/1B.1	Northern Central Valle in Butte, Shasta, and Tehama Counties	Cismontane woodland, valley and foothill grassland, vernal pools; 197–1,673 feet	Feb-Jun	No suitable habitat present in study area. Nearest recorded occurrence is ~ 6 miles northwest of the study area.
California beaked-rush *Rhynchospora californica*	–/–/1B.1	Scattered occurrences in northwestern California, northern and central Sierra Nevada Foothills, and northern San Francisco Bay	Bogs and fens, meadows and seeps, lower montane coniferous forest, freshwater marshes and swamps; 148–3,314 feet	May-Jul	No bog or marsh habitat present along the river in study area. Nearest recorded occurrence is ~4.75 miles north of the study area.
Brownish beaked-rush *Rhynchospora capitellata*	–/–/2B.2	Scattered occurrences in Northwestern California and northern Sierra Nevada Foothills	Wet areas in lower and upper montane coniferous forest, meadows and seeps, freshwater marshes and swamps; 148–6,562 feet	Jul-Aug	No marsh habitat present along the river in study area. Study area in not in a coniferous forest habitat. Nearest recorded occurrence is ~8 miles northeast of the study area.
Butte County checkerbloom *Sidalcea robusta*	–/–/1B.2	Endemic to Butte County	Chaparral, cismontane woodland; 295–5,249 feet	Apr-Jun	No suitable habitat is present in the study area. Nearest record occurrence is ~3.25 miles southeast of the study area.
Slender-leaved pondweed *Stuckenia filiformis* ssp. *alpina*	–/–/2B.2	Scattered locations in California: Contra Costa, El Dorado, Lassen, Merced, Mono, Modoc, Mariposa, Placer, Santa Clara*, and Sierra Counties; Arizona, Nevada, Oregon, Washington	Freshwater marsh, shallow emergent wetlands and freshwater lakes, drainage channels; 984–7,054 feet	May-Jul	Marginal habitat present along the creek in study area. Nearest recorded occurrence is ~ 0.75 mile east of the study area. Not observed during July 2017 survey.

Common and Scientific Name	Legal Status[a] Federal/ State/CNPS	Geographic Distribution	Habitat Requirements[b]	Identification Period	Potential for Occurrence in Study Area
Butte County golden clover *Trifolium jokerstii*	–/–/1B.2	Known only from Butte County	Moist areas in valley and foothill grassland, swales, vernal pool margins; 164–1,263 feet	Mar-May	No vernal pool habitat present in study area. Nearest recorded occurrence is~10 miles southeast of the study area.
Greene's tuctoria *Tuctoria greenei*	E/R/1B.1	Scattered distribution along eastern Central Valley and foothills from Shasta County to Tulare County	Dry vernal pools; 98–3,510 feet	May-Jul(Sep)	No vernal pool habitat present in study area. Nearest recorded occurrence is ~.3 miles northwest of the study area.
Brazilian watermeal *Wolffia brasiliensis*	–/–/2B.3	Known in California from a few occurrences along the Sacramento River in Butte, Glenn, Sutter, and Yuba Counties; widespread elsewhere in the U.S.	Shallow freshwater in marshes and swamps; 66–328 feet	Apr-Dec	No marsh habitat present along the river in study area. Nearest recorded occurrence is ~8.5 miles west of the study area.

Sources: California Native Plant Society 2017; California Department of Fish and Wildlife 2017a.
? = Uncertainty about distribution or identity
* = Extirpated
[a] Status explanations:
Federal
E = listed as endangered under the federal Endangered Species Act.
– = no listing.
State
E = listed as endangered under the California Endangered Species Act.
R = listed as rare under the California Endangered Species Act.
– = no listing.
California Rare Plant Rank
1B = rare, threatened, or endangered in California and elsewhere.
2B = rare, threatened, or endangered in California but more common elsewhere.
3 = more information is needed about this plant.
0.1= seriously endangered in California.
0.2= fairly endangered in California.
[b] Elevations in the study area vary from approximately 230 to 238 feet (70 to 73 meters) above mean sea level.

Special-Status Wildlife

Twenty-one special-status wildlife species were identified as having potential to occur in the study area. Nineteen of the species were identified from both the USFWS (2017) list and the CNDDB query (California Department of Fish and Wildlife 2017a). Two additional species were added because they were determined to have at least a moderate potential to occur in the study area based on species habitat requirements and professional judgment (white-tailed kite [*Elanus leucurus*] and western red bat [*Lasiurus blossevillii*]). All wildlife species considered are listed in Table 3.4-2, which contains their regulatory status, distribution, habitat requirements, and a rationale for their potential to occur in the study area. Nine of the 21 special-status wildlife species were identified as having a moderate or high potential to occur in the study area given their known range, reports of occurrence, or the presence of suitable habitat. These species include:

- Valley elderberry longhorn beetle
- Western pond turtle (*Actinemys marmorata*)
- Swainson's hawk (*Buteo swainsoni*)
- White-tailed kite
- Bald eagle (*Haliaeetus leucocephalus*)
- Western red bat
- Pallid bat (*Antrozous pallidus*)
- Silver-haired bat (*Lasionycteris noctivagans*)
- Hoary bat (*Lasiurus cinereus*)

The remaining 12 species have a low or no potential to occur in the study area because suitable habitat for these species is not present or because the species range does not extend into the study area. A brief explanation for the absence of these species is included in Table 3.4-2.

In addition to the 21 special-status species discussed in Table 3.4-2, non-special-status migratory birds and raptors have the potential to nest in or adjacent to the study area, and their occupied nests and eggs are protected by CFGC Sections 3503 and 3503.5 and the federal MBTA.

Table 3.4-2. Special-Status Wildlife with Potential to Occur in the Vicinity of the Study Area

Common and Scientific Names	Status[a] Federal/ State/Other	Geographic Distribution	Habitat Requirements	Potential Occurrence in Biological Study Area
Invertebrates				
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–/–	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.	Common in vernal pools; also found in sandstone rock outcrop pools.	None—no suitable habitat present in the study area.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–/–	Streamside habitats below 3,000 feet (915 meters) throughout the Central Valley.	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant.	High—suitable habitat present; species occurrences in the study area.
Vernal pool tadpole shrimp *Lepidurus packardi*	E/–/–	Shasta County south to Merced County.	Vernal pools and ephemeral stock ponds.	None—no suitable habitat present in the study area.
Conservancy fairy shrimp *Branchinecta conservatio*	E/–/–	Disjunct occurrences in Solano, Merced, Tehama, Ventura, Butte, and Glenn Counties.	Large, deep vernal pools in annual grasslands.	None—no suitable habitat present in affected area.
Amphibians				
California red-legged frog *Rana draytonii*	T/SSC/–	Found along the coastal mountain ranges of California from Humboldt County to San Diego County, and in the Sierra Nevada and Cascade Range from Tehama County to Fresno County.	Quiet, clear pools of permanent (or nearly permanent) streams, marshes and ponds. Prefers vegetated shorelines	None—considered extirpated from the valley floor (U.S. Fish and Wildlife Service 2002).
Western spadefoot *Spea hammondii*	–/SSC/–	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California.	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.	Low—limited suitable aquatic habitat and unsuitable surrounding upland habitat; Nearest recorded occurrence is approximately 5 miles northwest of the study area.

Common and Scientific Names	Status[a] Federal/ State/Other	Geographic Distribution	Habitat Requirements	Potential Occurrence in Biological Study Area
Reptiles				
Giant garter snake *Thamnophis gigas*	T/T/–	Central Valley from the vicinity of Burrel in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno.	Sloughs, canals, low gradient streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	Low— limited suitable aquatic habitat due to the high-flow water associated with the weir and the fish ladder and unsuitable surrounding upland habitat; no occurrences recorded within 5 miles of the study area.
Western pond turtle *Actinemys marmorata*	–/SSC/–	Occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada.	Ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests.	Moderate—suitable aquatic and basking habitat present; one occurrence approximately 1.5 miles northwest of the study area.
Birds				
Tricolored blackbird *Agelaius tricolor*	–/E/–	Permanent resident in the Central Valley from Butte County to Kern County; breeds at scattered coastal locations from Marin County south to San Diego County and at scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen Counties.	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony.	Low—suitable foraging and habitat present; no suitable nesting habitat present; One occurrence approximately 2.5 miles north of the study area.

Common and Scientific Names	Status[a] Federal/ State/Other	Geographic Distribution	Habitat Requirements	Potential Occurrence in Biological Study Area
Western burrowing owl *Athene cunicularia hypogea*	–/SSC/–	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast.	Level, open, dry, heavily grazed or low-stature grassland or desert vegetation with available burrows.	None—no existing burrows or suitable habitat in the study area.
Swainson's hawk *Buteo swainsoni*	–/T/–	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County.	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields.	Moderate—suitable nesting habitat along Butte Creek; one occurrence approximately 2.5 miles southwest of the study area.
White-tailed kite *Elanus leucurus*	–/FP/–	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging.	Moderate—suitable nesting habitat; no occurrence within 5-miles of the study area.
American peregrine falcon *Falco peregrinus anatum*	–/SSC/–	Widely distributed areas of Alaska and the western United States including Utah, Arizona, western Colorado and northern California.	Nests in substrates on ledges of cliffs ranging from 8-400 m in height almost always near water. Utilize open habitats for foraging.	Low—no nesting habitat in the vicinity of the study area; one occurrence approximately 4 miles southeast of the study area.
Bald eagle *Haliaeetus leucocephalus*	–/E, FP/–	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County.	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean.	Moderate— suitable nesting and foraging habitat along Butte Creek; one occurrence was recorded approximately 5 miles north of the study area.

Common and Scientific Names	Status[a] Federal/ State/Other	Geographic Distribution	Habitat Requirements	Potential Occurrence in Biological Study Area
California black rail *Laterallus jamaicensis coturniculus*	–/T/–	Permanent resident in the San Francisco Bay and eastward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties. Several, scattered populations extend north of Chico in Butte County south through Nevada County	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations. Has been detected in emergent marshes in Butte County and the Sierra Nevada foothills.	None—no suitable habitat in the study area
Least Bell's vireo *Vireo bellii pusillus*	E/E/–	Formerly a common and widespread summer resident .throughout Sacramento and San Joaquin valleys. Currently breeds in central and southern California, and northwestern Baja California through coastal Santa Barbara County to San Diego County, San Bernardino, Riverside, and Inyo Counties	Nests and forages in low riparian thickets of willows and shrubs, usually near water but sometimes along dry, intermittent streams; other associated vegetation includes cottonwood trees, blackberry, mulefat, and mesquite (in desert).	Low—uncommon in the Central Valley. One occurrence approximately 4 miles northeast of the study area is a specimen that was collected in 1906.
Mammals				
Western red bat *Lasiurus blossevillii*	–/SSC/ WBWG: High priority	Scattered throughout much of California at lower elevations.	Found primarily in riparian and wooded habitats. Occurs at least seasonally in urban areas. Day roosts in trees in the foliage. Found in fruit orchards and sycamore riparian habitats in the Central Valley.	Moderate—suitable roosting and foraging habitat; no occurrences within 5 miles of the study area.

Common and Scientific Names	Status[a] Federal/ State/Other	Geographic Distribution	Habitat Requirements	Potential Occurrence in Biological Study Area
Pallid bat *Antrozous pallidus*	–/SSC/ WBWG: High priority	Occurs throughout California, except the high Sierra, from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations.	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts.	Moderate—suitable roosting and foraging habitat; Nearest recorded occurrence is ~4 miles northwest of the study area.
Western mastiff bat *Eumops perotis californicus*	–/SSC/ WBWG: High priority	Occurs along the western Sierra primarily at low to mid-elevations and widely distributed throughout the southern coast ranges. Recent surveys have detected the species north to the Oregon border.	Found in a wide variety of habitats from desert scrub to montane conifer. Roosts and breeds in deep, narrow rock crevices, but also may use crevices in trees, buildings, and tunnels.	Low— uncommon in the Central Valley and roost sites primarily associated with crevices in cliff faces and boulders. One occurrence approximately 4 miles southwest of the study area.
Silver-haired bat *Lasionycteris noctivagans*	–/– /WBWG: Moderate priority	Found from the Oregon border south along the coast to San Francisco Bay and along the Sierra Nevada and Great Basin region to Inyo County. Also occurs in southern California from Ventura and San Bernardino Counties south to Mexico. Has been recorded in Sacramento, Stanislaus, Monterey, and Yolo Counties.	During spring and fall migrations, may be found anywhere in California. Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	Moderate—suitable roosting and foraging habitat. Nearest recorded occurrence is approximately 4 miles northwest of the study area.

Common and Scientific Names	Status[a] Federal/ State/Other	Geographic Distribution	Habitat Requirements	Potential Occurrence in Biological Study Area
Hoary bat *Lasiurus cinereus*	–/–/ WBWG: Moderate priority	Occurs throughout California from sea level to 13,200 feet.	Found primarily in forested habitats. Also found in riparian areas and in park and garden settings in urban areas. Day roosts in foliage of trees.	Moderate—suitable roosting and foraging habitat. Nearest recorded occurrence is approximately 4 miles northwest of the study area.

Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

C = candidate species for which U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.

– = no listing.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

FP = fully protected under the California Fish and Game Code.

SSC = species of special concern in California.

– = no listing.

Other

WBWG = Western Bat Working Group 2007. Available: http://www.wbwg.org/spp_matrix.html.

Moderate priority = species status is unclear because of a lack of data; this designation indicates a level of concern that should warrant (1) closer evaluation and more research of the species and possible threats and (2) conservation actions benefiting the species.

High priority = species are imperiled or at high risk of imperilment.

Special-Status Fish Species

Nine special-status fish species were identified as having the potential to occur in the study area on the basis of their critical habitat and life histories (Table 3.4-3). The potential to occur within the study area was rated high for all species accept riffle sculpin, which generally has disjunct distribution; however, the likelihood of occurrence depends on the timing of fish presence in the study area and their ability to successfully avoid the affected areas of Butte Creek.

Table 3.4-3. Special-Status Fish with Potential to Occur in the Vicinity of the Study Area

Common and Scientific Name	Legal Status[a] Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in Study Area
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	T/T	The Sacramento River, Feather River, Yuba River, Butte Creek, Mill Creek, Deer Creek, Antelope Creek, Battle Creek, Clear Creek, and Beegum Creek tributary to Cottonwood Creek.	Occurs in tributaries of the Sacramento River that maintain well-oxygenated, cool, riverine habitat with water temperatures from 8.0–12.5°C. Habitat types are riffles, runs, and pools (Moyle 2002).	High—during adult migration and juvenile rearing/migration.
Chinook salmon—fall and late fall–run *Oncorhynchus tshawytscha*	SSC/–	The main stem Sacramento River and tributaries. The San Joaquin River tributaries.	Occurs in streams and rivers within the Sacramento and San Joaquin River drainage that well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools (Moyle 2002).	High—during adult migration into Sacramento River and tributaries.
California Central Valley steelhead *Oncorhynchus mykiss*	T/–	Riverine and stream habitat within the Sacramento-San Joaquin River drainages that contain suitable habitat needed for steelhead survival.	Occurs in streams and rivers within the Sacramento River drainage that are well-oxygenated, cool, riverine habitat with water temperatures from 7.8–18°C (Moyle 2002). Habitat types are riffles, runs, and pools.	High—during adult migration and juvenile rearing/migration.
Pacific lamprey *Entosphenus tridentatus*	–/SSC	Sacramento, San Joaquin, and Napa Rivers; tributaries of San Francisco Bay (Moyle 2002).	Adults live in the Pacific ocean and migrate into fresh water to spawn.	High—during adult migration and juvenile rearing/migration.
River lamprey *Lampetra ayresi*	–/SSC	Sacramento, San Joaquin, and Napa Rivers; tributaries of San Francisco Bay (Moyle 2002).	Adults live in the SF Estuary and migrate into fresh water to spawn.	High—during adult migration and juvenile rearing/migration.

Common and Scientific Name	Legal Status[a] Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in Study Area
Hardhead *Mylopharodon conocephalus*	–/SSC	Sacramento, San Joaquin, and Russian Rivers and tributaries (Moyle 2002).	Typically occur in undisturbed, low- to mid-elevation streams and main stem Sacramento River and tributaries.	High. Encountered in Glenn Colusa Irrigation District sampling upstream of site area.
Sacramento splittail *Pogonichthyes macrolipidotus*	–/SSC	The Sacramento river, sloughs, backwaters and oxbow lakes to Red Bluff Diversion Dam.	Backwater habitat that is shallow, low velocity, suitable temperature, and food availability.	High—during adult migration and juvenile rearing/migration.
Sacramento hitch *Lavinia exilicauda*	–/SSC	The Sacramento-San Joaquin rivers, sloughs, backwaters and oxbow lakes.	Slow, warm water with aquatic vegetation, sandy runs or pools, food availability.	High—during spawning, juvenile rearing/residence/migration
Riffle sculpin *Cottus gulosus*	–/SSC	The Sacramento-San Joaquin rivers, permanent cold water streams.	Permanent cold water, riffles and pools, where rocky substrates predominate, moderate gradient, shallow, clear fast flowing water.	Moderate, riffle sculpin have disjunct distribution patterns reflecting their narrow habitat requirements and poor dispersal abilities of adults and young (Moyle 2002).

DPS = distinct population segment.
Status explanations:
Federal
E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
C = candidate for listing as threatened or endangered under the federal Endangered Species Act.
– = no listing.
State
E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
– = no listing.

Table 3.4-4. Life Stage Timing and Distribution of Special-Status Fish Species Potentially Affected by the Project

Species/Life Stage	Distribution	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Spring-Run Chinook Salmon													
Adult migration	San Francisco Bay to upper Sacramento River and tributaries												
Juvenile movement	Upper Sacramento River and tributaries to San Francisco Bay												
Late Fall–Run Chinook Salmon													
Adult migration	San Francisco Bay to upper Sacramento River and tributaries												
Juvenile movement and rearing	Upper Sacramento River and tributaries												
Fall-Run Chinook Salmon													
Adult migration and holding	San Francisco Bay to upper Sacramento River and tributaries												
Juvenile movement and rearing	Upper Sacramento River and tributaries to San Francisco Bay												
Steelhead													
Adult migration	San Francisco Bay to upper Sacramento River and tributaries												
Juvenile and smolt movement	Upper Sacramento River and tributaries to San Francisco Bay												
Pacific Lamprey													
Adult migration and spawning	Pacific Ocean to Sacramento River and Tributaries												
Ammocoete stage, metamorphosis and movement	Sacramento River to Delta												
River Lamprey													
Adult migration and spawning	San Francisco Bay to Sacramento-River and Tributaries												

Species/Life Stage	Distribution	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ammocoete stage, metamorphosis and movement	Sacramento- River and Tributaries to Delta												
Hardhead													
Adult migration and spawning	Sacramento-River and Tributaries												
Juvenile rearing	Sacramento-River and Tributaries												
Sacramento Splittail													
Adult migration and spawning	Suisun Bay/Marsh to lower Sacramento and San Joaquin Rivers												
Sacramento Hitch													
Adult spawning	Sacramento-San Joaquin Rivers and Tributaries												
Juvenile rearing	Sacramento-San Joaquin Rivers and Tributaries												
Riffle Sculpin													
Adult spawning	Sacramento-San Joaquin Rivers and Tributaries												
Juvenile rearing	Sacramento-San Joaquin Rivers and Tributaries												

Sources: Hallock et al. 1957; Hallock 1989; U.S. Fish and Wildlife Service 1996; Yoshiyama et al. 1998; Snider and Titus 1998; Snider and Titus 2000a–c; McEwan 2001; Moyle 2002; Beamesderfer et al. 2005; Roberts 2007; Heublein et al. 2009; Moyle et al. 2015.

Note: Dark Gray shading indicates primary periods of migratory species and life stage occurrence, light gray indicates species could be a resident year-round, both are included in the assessment of project effects.

Waters of the United States, Including Wetlands

Butte Creek is a waters of the United States because of its direct hydrologic connection to the Sacramento River. Butte Creek is the only waters of the United States within the study area. The proposed project is on the right bank of Butte Creek within the Lower Sacramento, Butte Creek watershed (USGS Hydrologic Unit Code #18020158) (U.S. Geological Survey 2017). A delineation of the OHWM of the Butte Creek has not yet been conducted. No wetlands were identified in the study area.

3.4.1.2 Invasive Species

Several plant species that were dominant in ruderal portions of the study area are considered invasive (Table 3.4-5). Invasive plant species include species designated as noxious weeds by the California Department of Agriculture (2017) and invasive plants identified by the California Invasive Plant Council (2017). Invasive plants displace native species, change ecosystem processes, alter plant community structure, and lower wildlife habitat quality (California Invasive Plant Council 2017).

Table 3.4-5. Invasive Plant Species Identified in the Biological Study Area

Species	CDFA	Cal-IPC
Avena barbata (wild oat)	-	Moderate
Brassica nigra (black mustard)	-	Moderate
Bromus diandrus (ripgut brome)	-	Moderate
Bromus madritensis ssp. *rubens* (red brome)	-	High
Carduus tenuiflorus and *C. pycnocephalus* (Italian thistle)	C	Limited
Centaurea solstitialis (yellow starthistle)	-	High
Conium maculatum (poison hemlock)	-	Moderate

Note: The California Department of Agriculture (CDFA) and California Invasive Plant Council (Cal-IPC) lists assign ratings that reflect the CDFA and Cal-IPC views of the statewide importance of the pest, likelihood that eradication or control efforts would be successful and present distribution of the pest in the state. These ratings are guidelines that indicate the most appropriate action to take against a pest under general circumstances. The Cal-IPC species list is more inclusive than the CDFA list.

The CDFA categories indicated in the table are defined as follows:

C: State-endorsed holding action and eradication only when found in a nursery; action to retard spread outside nurseries at the discretion of the county agricultural commissioner.

The Cal-IPC categories indicated in the table are defined as follows:

High: Species with severe ecological impacts, high rates of dispersal and establishment, and usually widely distributed.

Moderate: Species with substantial and apparent ecological impacts, moderate to high rates of dispersal, establishment dependent on disturbance, and limited to widespread distribution.

Limited: Species with minor ecological impacts, low to moderate rates of invasion, limited distribution, and locally persistent and problematic.

3.4.5 Environmental Effects

Potential impacts of the proposed project on biological resources are discussed in the context of State CEQA Guidelines Appendix G checklist items.

a. ***Will 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 CDFW or USFWS?***

Impact BIO-1: Disturbance or Loss of Special Status Plant Species (less than significant with mitigation)

The proposed project has potential to affect special-status plants if any occur within the permanent or temporary impact areas. Not all species could not be identified at the time of the July 2017 botanical survey so the absence of special-status plants cannot be confirmed. Blooming period surveys would need to be completed prior to project construction in order to determine whether the project would have an impact on special-status plants.

Mitigation Measure BIO-MM-1a: Conduct Floristic Surveys for Special-Status Plants during Appropriate Identification Periods

Retain a qualified botanist to survey the study area to document the presence or absence of special-status plants before project construction. The botanist will conduct a floristic survey that follows the CDFW botanical survey guidelines (California Department of Fish and Game 2009). All plant species observed will be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable, generally during the blooming period. To account for special-status plant identification periods, a field survey will be conducted prior to any project construction and in the months of April and June.

If any special-status plants are identified during the surveys, the botanist will photograph and map locations of the plants, document the location and extent of the special-status plant population on a CNDDB Survey Form, and submit the completed survey form to the CNDDB. The amount of compensatory mitigation required will be based on the results of these surveys, as described in Measure 1b.

Mitigation Measure BIO-MM-1b: Compensate for Permanent Loss of Special-Status Plants

If complete avoidance of special-status plants is not feasible, the effects of the proposed project on special-status plants will be compensated by off-site preservation at a minimum ratio of 1:1 (1 acre of mitigation for each acre of occupied habitat removed), but the final ratio will be negotiated with the resource agencies (CDFW and/or USFWS, depending on the plant's listing status). Suitable habitat for affected special-status plant species will be purchased within a conservation area, preserved, and managed in perpetuity. Detailed information will be provided to CDFW and USFWS, if necessary, on the location and quality of the preservation area, the feasibility of protecting and managing the area in perpetuity, and the responsible parties involved. Other pertinent information will also be provided, to be determined through future coordination with CDFW and USFWS, if necessary. Alternatively, credits for affected special-status plant species may be purchased at a mitigation bank, if available

Impact BIO-2: Disturbance or Loss of Valley Elderberry Longhorn Beetles and Their Habitat (Elderberry Shrub) (less than significant with mitigation)

Elderberry shrubs/groupings of shrubs (host plant for the valley elderberry longhorn beetle) are present within 50 meters (165 feet) of the project area (Figure 3.4-1). The nearest shrub is approximately 10 feet from the project area.

No elderberry shrubs will be trimmed or removed as a result of project construction. Based on the proximity of suitable valley elderberry longhorn beetle habitat to the project area, there is a potential for take if project activities damage elderberry stems containing valley elderberry longhorn beetle larvae or adults or if construction equipment collides with adult valley elderberry longhorn beetle while they are actively flying and foraging. Because project activities would be restricted to between September 1 and December 31, no encounters with valley elderberry longhorn beetle are expected as the adult stage is March through May, when beetles are actively foraging and breeding. Although no excavation is proposed within the dripline of the shrubs, the movement of large construction equipment in the vicinity of the shrubs has the potential to inadvertently break or damage overhanging limbs. Noise and dust generated during construction could directly affect adult valley elderberry longhorn beetle or exposed larvae or eggs (Talley and Holyoak 2009:10). This impact would be significant. With the implementation of proper fencing and signage and dust control within the project area, avoidance of direct impacts on shrubs that border the project area is feasible. Implementation of Mitigation Measures BIO-MM-2a and BIO-MM-2b will reduce this impact to a less-than-significant level.

Mitigation Measure BIO-MM-2a: Establish Buffers around Elderberry Shrubs

The following measures will be implemented to avoid and minimize impacts on valley elderberry longhorn beetle.

- Protective buffer areas will be created for elderberry shrubs by installing orange construction fencing along the dripline of the shrubs shown in Figure 3.4-1. In buffer areas, signs will be posted along fencing for the duration of construction. The signs will contain the following information.
    - This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.
- Buffer area fences around elderberry shrubs will be inspected twice a week by a qualified biologist during ground-disturbing activities until project construction is complete or until the fences are removed, as approved by the biological monitor and the resident engineer. The biological monitor will be responsible for ensuring that the contractor maintains the buffer-area fences around elderberry shrubs throughout construction. Biological inspection reports will be provided to the project lead and USFWS as requested.
- If any tree trimming is to occur in the vicinity of an elderberry shrub, a biological monitor will be present to ensure that no elderberry shrubs are damaged during tree trimming activities.
- The project proponent will ensure that the project area will be watered down as necessary to prevent dust from becoming airborne and accumulating on elderberry shrubs in and adjacent to the project site.

Mitigation Measure BIO-MM-2b: Conduct Mandatory Biological Resources Awareness Training for All Project Personnel and Implement General Protection Measures

Before any ground-disturbing work (including vegetation clearing, grading, and equipment staging) occurs in the project area, a qualified biologist will conduct a mandatory biological resources awareness training for all construction personnel. The awareness training will be provided to all construction personnel to brief them on the need to avoid impacts on sensitive biological resources (e.g., riparian habitat, special-status species, special-status wildlife habitat) and the penalties for not complying with permit requirements. The biologist will inform all construction personnel about the life history of special-status species with potential for onsite occurrence, the importance of maintaining habitat, and the terms and conditions of the biological opinion or other authorizing document. Proof of this instruction will be submitted to USFWS, CDFW, or another overseeing agency, as appropriate. The training will also cover the restrictions and guidelines that must be followed by all construction personnel to reduce or avoid impacts on special-status species during project construction. The construction crew leader will be responsible for ensuring that crew members adhere to the guidelines and restrictions. Educational training will be conducted for new personnel as they are brought on the job during the construction period. The project proponent will clearly delineate the construction limits through the use of survey tape, pin flags, orange barrier fencing, or other means, and prohibit any construction-related traffic outside these boundaries. General restrictions and guidelines for vegetation and wildlife that will be followed by construction personnel are listed below.

- Project-related vehicles will observe the posted speed limit on hard-surfaced roads and a 10-mile-per-hour speed limit on unpaved roads during travel in the project area.
- Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area.
- All food-related trash will be disposed of in closed containers and removed from the project site at least once a week during the construction period. Construction personnel will not feed or otherwise attract fish or wildlife to the project area.
- No pets or firearms will be allowed in the project area.
- To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside designated staging areas.
- Any worker who inadvertently injures or kills a special-status wildlife species or finds one dead, injured, or entrapped will immediately report the incident to the biological monitor. The monitor will immediately notify the project proponent, who will provide verbal notification to the USFWS Endangered Species Office or the local CDFW warden or biologist within 3 working days. The project proponent will follow up with written notification to USFWS or CDFW within 5 working days.

In addition to the measures above, the project proponent will retain a qualified biologist to monitor construction activities adjacent to sensitive biological resources (e.g., riparian trees, active nests, and occupied bat roosts). The biologist will assist the construction crew, as needed, to comply with all proposed project implementation restrictions and guidelines. In addition, the biologist will be responsible for ensuring that the project proponent or its contractors maintain the construction barrier fencing adjacent to sensitive biological resources.

Impact BIO-3: Potential Mortality or Disturbance of Western Pond Turtle (less than significant with mitigation)

Aquatic habitat for western pond turtle may be temporarily disturbed by construction activities. Declines in populations of western pond turtles throughout the species range have been documented (Jennings and Hayes 1994). Loss of individuals in the project area could diminish the local population and lower reproductive potential, which could contribute to the further decline of this species. This impact would be significant, but implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-MM-3: Conduct Preconstruction Surveys for Western Pond Turtle and Monitor Construction Activities if Turtles are Observed

One week before and within 24 hours of beginning work in suitable aquatic habitat, a qualified biologist (one who is familiar with different species of turtles) will conduct surveys for western pond turtle. The surveys should be timed to coincide with the time of day and year when turtles are most likely to be active (during the cooler part of the day between 8 a.m. and 12 p.m. during spring and summer). Prior to conducting the surveys, the biologist should locate the microhabitats for turtle basking (logs, rocks, brush thickets) and determine a location to quietly observe turtles. Each survey should include a 30-minute wait time after arriving on site to allow startled turtles to return to open basking areas. The survey should consist of a minimum 15-minute observation time per area where turtles could be observed. If western pond turtles are observed during either survey, a biological monitor should be present during construction activities in the aquatic habitat where the turtle was observed and will capture and remove, if possible, any entrapped turtle. The biological monitor's CDFW scientific collecting permit will include capture and relocation of turtles.

Impact BIO-4: Loss of Nesting and Foraging Habitat for Swainson's Hawk and other Migratory Birds and Raptors (less than significant with mitigation)

The study area supports riparian vegetation and large trees that could provide nesting habitat for birds and raptors, including the state-listed Swainson's hawk and the fully protected white-tailed kite. There is suitable nesting habitat for bald eagle and western yellow-billed cuckoo downstream of the study area. No permanent removal of trees is anticipated for construction access or in the footprint of the new diversion; however, construction activities for the new diversion may include trimming of riparian trees (most likely a black locust tree) adjacent to the existing rock weir gabion and intake pipe to allow for long-arm excavator access. The proposed project would not affect nesting migratory birds and raptors based on a construction schedule from September 1 through December 31, 2019. However, if construction was delayed, and construction activities were to occur during the breeding season (generally February 15 through August 30), then tree trimming, increased noise, and ground disturbance from large equipment could result in the removal of active nests, abandonment of an active nest, or forced fledging of young. This impact is potentially significant because it could result in an appreciable reduction in the reproductive success of a sensitive species. If construction activities become necessary during the nesting season (February 15 through August 30), preconstruction surveys would be required to identify the location of active special-status and non–special-status migratory bird or raptor nests, and appropriate buffers would be implemented according to Mitigation Measure BIO-MM-4 to reduce this impact. Conducting mandatory biological awareness training for all project personnel and implementing general protection measures, as required under Mitigation Measure BIO-MM-2b (described above), would further reduce this impact to a less-than-significant level.

Mitigation Measure BIO-MM-4: Avoid Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and Non-Special-Status Migratory Birds and Raptors and Conduct Preconstruction Nesting Bird Surveys

To avoid and minimize effects on nesting special-status and non-special-status migratory birds and raptors, the project proponent will implement the appropriate surveys and restrictions, as follows.

- To avoid removing or disturbing any active Swainson's hawk or other migratory bird and raptor nests, construction activities (vegetation removal, including tree trimming) will be conducted during the nonbreeding season (generally between September 1 and February 14) or after a qualified biologist determines that fledglings have left an active nest. If construction activities cannot be postponed, preconstruction surveys and no-disturbance will be required, as described below.
- If construction or tree-removal activities will occur during the breeding season (February 15 through August 31), a qualified wildlife biologist (with knowledge of the species to be surveyed) will be retained to conduct a preconstruction survey for nesting birds and raptors in all trees, shrubs, and ground-nesting habitat within 500 feet (0.25 mile for Swainson's hawk) of construction activities, including vegetation removal and staging areas. The nesting survey will be conducted no more than 14 days prior to the start of construction.
- If the biologist determines that the area surveyed does not contain any active nests, then construction activities—including removal or pruning of trees and shrubs—can commence without any further mitigation.
- If an active nest is located in the study area, an appropriate no-disturbance buffer will be established by the biologist. The buffer distance should be determined based on the species, nature of construction activities, and line of sight from the work area. At a minimum, all work will be conducted no less than 250 feet from an active raptor nest, 100 feet from an active migratory bird nest, or another distance as determined during informal consultation with CDFW and/or USFWS. A qualified wildlife biologist will monitor the nest to determine when the young have fledged. The biological monitor will have the authority to halt construction if there is any sign of distress to any raptor or migratory bird. Reference to this requirement and the MBTA will be included in the construction specifications.

Impact BIO-5: Potential Injury, Mortality or Disturbance of Tree-Roosting Bats and Removal of Roosting Habitat (less than significant with mitigation)

Construction is anticipated to occur during the end of the maternity season of bats (April 1 through September 15); however construction would be ongoing during the beginning of the hibernation period (November 1). The proposed project would not result in the removal of trees, which provide suitable roosting habitat (cavities, crevices, furrowed bark, and foliage) for special-status bats (western red bat and pallid bat) and bats for which conservation actions are warranted (hoary bat and silver-haired bat) (Western Bat Working Group 2007). However, tree trimming and noise or other construction activities could result in the injury, mortality, or disturbance of roosting bats, if present in cavities, crevices, furrowed bark, or foliage of trees. Mortality of tree-roosting bats during the maternity season or hibernation period that results from tree removal/trimming or other disturbances could affect the local populations of these species and would be considered a significant effect. Implementation of Mitigation Measure BIO-MM-5 would lessen effects on western red bat, pallid bat, and other bat species.

Mitigation Measure BIO-MM-5: Identify Suitable Roosting Habitat for Bats and Implement Avoidance and Protective Measures

If tree trimming cannot be conducted between September 15 and October 30, qualified biologists will examine trees to be removed or trimmed for suitable bat roosting habitat before trimming. High-quality habitat features (large tree cavities, basal hollows, loose or peeling bark, larger snags, etc.) will be identified and the area around these features searched for bats and bat sign (guano, culled insect parts, staining, etc.). Riparian woodland and stands of mature broadleaf trees should be considered potential habitat for solitary foliage–roosting bat species. Measures to avoid and minimize impacts on sensitive bats species may include the following.

- Tree trimming will be avoided between April 1 and September 15 (the maternity period) to avoid effects on pregnant females and active maternity roosts (whether colonial or solitary).
- All tree trimming will be conducted between September 15 and October 30, which corresponds to a time period when bats have not yet entered torpor or would be caring for nonvolant young.
- If a maternity roost is located, whether solitary or colonial, that roost will remain undisturbed until September 15 or a qualified biologist has determined the roost is no longer active.

Impact BIO-6: Disturbance of Special-Status Fish Species and Habitat Loss (less than significant with mitigation)

The placement and removal of the temporary silt curtain (to isolate the in-water work area from the Butte Creek); removal of the existing rock weir gabion and the installation of upgraded concrete pad, fish screen manifold and concrete incased pipe for the new self-cleaning fish screen could result in localized, temporary disturbance of aquatic habitat that may alter natural behavior patterns of adult and juvenile fish and potentially result in physical injury and death of individuals. Potential behavioral impacts include displacement and temporary disruption of feeding, migration, and other essential behaviors from noise and elevated levels of suspended sediment, turbidity, and sediment deposition generated during in-water construction activities. These impacts could extend beyond the project area because noise and sediment may be propagated downstream of the construction area while construction is taking place; however, these effects would be temporary (i.e., only during the construction period) and localized.

The extent of construction-related impacts depends on the timing, duration, and in-water extent of these activities; the timing of fish presence in the project area; and the ability of fish to successfully avoid the affected areas. Construction activities are scheduled for a 4-month period, starting as early as September 1 and lasting through the end of December; however, in-water activities would be limited to the period of September 1 to October 15. This construction timing would avoid the primary adult and juvenile migration periods of winter-run Chinook salmon, spring-run Chinook salmon, fall/late fall–run Chinook salmon, Sacramento splittail, Pacific lamprey, and hardhead (Table 3.4-4). Although historical records indicate that steelhead, fall/late fall, and river lamprey adults may migrate past the project area and resident hardhead juveniles, Sacramento hitch and riffle sculpin may be present during the September 1 to October 15 in-water construction period, adult salmonids in general are not expected to be adversely affected by proposed in-water construction activities because of their large size, rapid migration rates, and mobility, which allow them to readily avoid in-water disturbances.

The primary source of underwater sound associated with the project during construction would be the removal of the existing rock weir gabion and intake pipe for the new manifold and concrete platform. However, because these activities would be done with a long-arm excavator, underwater sound levels sufficient to cause injury to or mortality of fish would be avoided—excavators are not an impact type piece of construction equipment and produce a low continuous sound while operating that is not known to cause injury to fish. In addition, demolition would only be conducted during daylight hours, resulting in extended overnight periods each day for migrating fish to pass the project area undisturbed.

Removal of the existing rock weir gabion and intake pipe, dewatering, and the excavation and installation of the new concrete pad would result in disturbance of soil and riverbed sediments, which could create temporary and localized sediment plumes in Butte Creek. Increased levels of turbidity and suspended sediments could affect the physiology and behavior of special-status fish species that are in the vicinity of the project site during construction, leading to injury or increased mortality of individuals. However, any sediment generated while dewatering would be diverted into the existing diversion and any other disturbance during construction would be contained by the silt curtain, thereby minimizing the potential for turbidity and suspended sediment levels to increase in the Butte Creek as a result of project construction.

Site clearing and vegetation trimming would result in temporary impacts on riparian habitat, as minimal tree trimming would be required to create a corridor for excavator access (see Impact BIO-8: Loss of Riparian Scrub Habitat discussed below). Trimming of trees would result in only temporary impacts on riparian habitat function (e.g., shaded riverine aquatic [SRA] cover), although permanent impacts would occur if tree trimming resulted in the mortality of trees and resultant permanent loss of SRA cover. SRA cover is an important component of fish habitat in Butte Creek, especially for special-status fish species, including juvenile salmonids. Permanent impacts on riparian habitat and associated SRA cover would be considered potentially significant because of the importance of this habitat component for special-status fish species.

The general maintenance requirements of the new fish screen structure are not expected to result in substantial effects on special-status fish species. Although the fish screens would undergo routine maintenance and inspection, maintenance and cleaning of the new fish screens would occur on a predetermined cycle, but the brushes on the outside of the screen are in motion only for a short period of time and are not expected to affect fish species; therefore, general maintenance activities would have no impact on fish species.

As there is potential for special-status fish species to be in the project area during construction, this impact would be significant. Implementation of Mitigation Measures WQ-MM-1b (Monitor Turbidity and Reduce Earth-Disturbing Activities as Needed) discussed in Section 3.3, *Hydrology and Water Quality*, BIO-MM-6a, BIO-MM-6b, and BIO-MM-8a (Protect Riparian Trees During Trimming, described under Impact BIO-8) would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-MM-6a: Limit In-Water Construction Activities to September 1–October 15

To protect aquatic species, including special-status fish species, all in-water construction activities will be conducted between September 1 and October 15, unless earlier and/or later dates for in-water construction activities are approved by CDFW and NMFS. Construction activities requiring in-water work will include installation and removal of the silt curtain, removal of the existing rock weir gabion, and installation of a new concrete pad and screen manifold below the water surface of the Butte Creek.

Mitigation Measure BIO-MM-6b: Guide Fish from Affected Habitats Prior to Initiating In-Water Work

Prior to initiating in-water work, including the installation of the silt curtain, a qualified fish biologist who has authorization from CDFW and NMFS will guide fish from affected habitats with nets. No fish will be captured or handled during fish guiding activities.

The methods to guide fish from the work area will be limited to nets (e.g., seines) and will be developed by the project proponent in cooperation with CDFW and NMFS. The methods will also specify the type, construction, and material of the nets used to guide fish from the work area. Fish will not be captured or handled in any manner during seining activities to guide fish from the work area. The fish biologist will contact CDFW and NMFS immediately in the unlikely event that any Chinook salmon, or steelhead are found dead or injured following fish guiding activities.

Immediately after fish have been guided from the work area with seines, the silt curtain will be installed to isolate the in-water work area from the Butte Creek. Once installed, the silt curtain will exclude fish from the in-water work area for the duration of construction.

Impact BIO-7: Exposure of Aquatic Organisms to Contaminants (less than significant with mitigation)

Construction activities could result in the discharge of contaminants that are potentially lethal or injurious to fish from accidental spills or leakage from the equipment used during project construction. Contaminants such as gasoline, lubricants, and other petroleum-based products can affect the survival, growth, and reproductive success of fish and other aquatic organisms. Exposure to nonlethal levels of contaminants can cause physiological stress and increased susceptibility to other sources of mortality (e.g., disease, predation). The level of effect would depend on the species, life stage sensitivity, duration of exposure, condition or health of exposed individuals, and the physical and chemical properties of the water (e.g., temperature, pH, dissolved oxygen). This impact would be potentially significant.

Implementation of Mitigation Measure WQ-MM-1a (Implement Construction Best Management Practices), described in Section 3.3, *Hydrology and Water Quality*, would ensure that the risk of exposing aquatic organisms to contaminants would be minimized and that the level of this potential impact would be less than significant.

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 CDFW or USFWS?

Impact BIO-8: Loss of Riparian Scrub Habitat (less than significant with mitigation)

No permanent removal of trees is anticipated for construction access or in the footprint of the new diversion; however, construction activities for the new diversion may include trimming of riparian scrub trees adjacent to the existing rock weir gabion and intake pipe to allow for long-arm excavator access. Most likely, a Chinese privet (*Ligustrum sinense*), black walnut (*Juglans hindsii*) and valley oak (*Quercus lobata*) tree would require trimming for access.

Trimming of trees should result in only temporary impacts, but if trimmed excessively or incorrectly, could result in adverse effects on or the death of riparian trees and a permanent loss of riparian scrub habitat.

Riparian habitat is regulated by CDFW. Any permanent loss of riparian habitat would be considered significant because the removal of mature woody vegetation would adversely affect the small amount of existing riparian habitat in this area. Because the levees are federally regulated, tree replacement on the levee would not be permitted without a variance for the USACE's standard levee vegetation guidelines (U.S. Army Corps of Engineers 2014).

The temporary impacts would be considered potentially significant because of the potential for loss of the riparian scrub habitat, if trees die as a result of trimming. The loss of riparian scrub habitat could also affect special-status bird species, as the tree removal (if necessary) would reduce the habitat. Implementation of Mitigation Measures BIO-MM-2b and BIO-MM-8a would reduce the potential permanent and temporary impacts on riparian habitat to less-than-significant levels.

Mitigation Measure BIO-MM-8a: Protect Riparian Trees During Trimming

To reduce the risk of damage that would result in tree death, BSFSGG will ensure that pruning will be performed by, or under the direction of, a certified arborist, qualified tree care specialist, or certified tree worker. All cuts must be made clean and to the bark collar of the closest joint on the branch allowing for clearance. International Society of Arboriculture pruning guidelines will be followed. If a branch or root greater than 2 inches in diameter is damaged, the branch or root should be cut clean.

Mitigation Measure BIO-MM-8b: Avoid the Introduction and Spread of Invasive Plants

BSFSGG or their contractor will be responsible for avoiding the introduction of new invasive plants and the spread of invasive plants previously documented in the study area. Accordingly, two or more of the following measures will be implemented during construction.

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of invasive weeds.
- Dispose of invasive species material removed during project construction offsite at an appropriate disposal facility to avoid the spread of invasive plants into natural areas.
- Minimize surface disturbance to the greatest extent feasible to complete the work.
- Use weed-free imported erosion-control materials (or rice straw in upland areas).

c. Have a substantial adverse effect on federally protected wetlands or nonwetland other waters as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact BIO-9: Loss of Waters of the United States (less than significant with mitigation)

The placement of a concrete base, inlet pipe, and screen unit in Butte Creek, a water of the United States, would occur as a result of the new diversion construction. An approximately 49 square feet (.001 acre) concrete base would be placed on the creek bed, below the OHWM, and secured at each corner by a piling. An 18-inch inlet pipe would be connected to the concrete base and the existing intake. The screen unit would be approximately 38 square feet (.0009 acre) when fully submerged and there would be a minimum of 18 inches of screen submergence.

USACE would consider the placement of a concrete pad in Butte Creek to be fill, thus, a Section 404 Nationwide Permit would likely be required. General Condition 23 (Mitigation) for Nationwide Permits states that losses of streams “may require compensatory mitigation” to ensure that impacts are minimal. Because the extent of fill is only .001 acre, compensatory mitigation might not be required, but this would be determined during the permitting process. Construction would also require a Section 401 water quality certification from the CVRWQCB, and CDFW could impose additional requirements as part of the streambed alteration agreement under Section 1602 of the CFGC.

Temporary impacts on the surrounding channel bank could occur as a result of construction access to the site. However, the excavator used to remove the existing rock weir gabion and piping would be on a platform above the OHWM of Butte Creek, and no additional areas of the creek would be temporarily affected during construction.

Indirect impacts on the part of Butte Creek outside of the construction area could occur as a result of disturbing sediment on the channel bed and bank during excavation of the concrete pad. This impact would be avoided by the installation of silt fencing/curtains around the extent of the in-water work area to prevent any sediment that may be disturbed and suspended during construction from increasing turbidity in the creek. Impacts on water quality and mitigation measures, including installation of silt fencing/curtains, are described further in Section 3.3, *Hydrology and Water Quality*. Erosion control measures would also be implemented prior to demolition activities, including straw wattles and other CDFW-approved erosion control measures. All disturbed slopes would be hydroseeded once construction is completed to stabilize soils and prevent erosion.

Direct, temporary, and indirect impacts on Butte Creek as a result of fish screen upgrade construction would be considered potentially significant because these activities would affect a federally protected water of the United States and could indirectly affect water quality in the creek. However, implementation of Mitigation Measure WQ-MM-1a (described in Section 3.3, *Hydrology and Water Quality*) would reduce this impact to a less-than-significant level.

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

Impact BIO-10: Effects on Fish Movement (less than significant)

The project would not interfere substantially with the movement of any native resident or migratory fish because the proposed work window excludes the heaviest migration periods; the migration pathway through Butte Creek is on the opposite bank from the project, and no nighttime work will occur. The area affected by in-water work and the silt curtain during construction would represent only a fraction of the entire width of the Butte Creek, which is approximately 150 feet wide in the vicinity of the project area and on the opposite side of the creek from the existing fish ladder. Therefore, resident and migratory fish would have an adequate zone of passage around the project area during construction.

The new fish screen system would meet or exceed CDFW and NMFS fish screening guidelines, and would prevent fish, including listed species, in Butte Creek from being entrained with water diverted by the project applicant, thereby improving migratory habitat for fish over the long term. In addition, the new fish screen and associated structures would have a low profile and, therefore, would not be beneficial to predatory fish species, which could prey on juvenile fish and degrade migratory habitat. There would be no impact.

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

Butte County does not have a tree preservation policy or ordinance. Through compliance with state and federal regulations protecting other sensitive biological resources, including waters of the United States and special-status species, the project would not conflict with any of the Countywide General Plan policies. There would be no impact.

f. Conflict with the provisions of an adopted HCP, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

Project impacts and mitigation measures would be in compliance with Butte County policies under the Countywide General Plan and do not conflict with the provisions of the draft Butte County HCP/NCCP. There would be no impact.

3.5 Air Quality

3.5.1 Existing Conditions

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources. Meteorological and topographical conditions are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Air quality is indicated by ambient concentrations of criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and particulate matter (PM), which consists of PM less than or equal to 10 microns in diameter (PM10) and PM less than or equal to 2.5 microns in diameter (PM2.5).

3.5.1.1 Climate and Topography

The project area is in Butte County, which is in the Sacramento Valley Air Basin (SVAB). The SVAB is bounded on the north by the Cascade Range, on the south by the San Joaquin Valley Air Basin, on the east by the Sierra Nevada, and on the west by the Coast Ranges.

The SVAB has a Mediterranean climate characterized by hot, dry summers and cool, rainy winters. During winter, the North Pacific storm track intermittently dominates Sacramento Valley weather, and fair weather alternates with periods of extensive clouds and precipitation. Periods of dense and persistent low-level fog, which are most prevalent between storms, are also characteristic of winter weather in the valley. The frequency and persistence of heavy fog in the valley diminish with the approach of spring. The average yearly temperature range for the Sacramento Valley is 20°F to 115°F, with summer high temperatures often exceeding 90°F and winter low temperatures occasionally dropping below freezing.

In general, the prevailing winds are moderate in strength and vary from moist clean breezes from the south to dry land flows from the north. The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants under certain meteorological conditions. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells collect over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduce the influx of outside air and allow air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with temperature inversions that trap pollutants near the ground.

The O_3 season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing the prevailing wind patterns to move north carrying the pollutants out, the Schultz Eddy causes the wind pattern to circle back to the south. Essentially, this phenomenon causes the air pollutants to be blown south toward the Sacramento Valley and Yolo County. The Schultz Eddy has the effect of exacerbating the pollution levels in the area and increases the likelihood of violating federal or state standards. The eddy normally dissipates around noon when the Delta sea breeze arrives (Sacramento Metropolitan Air Quality Management District 2016).

3.5.1.2 Background Information on Air Pollutants

Air quality studies generally focus on five pollutants most commonly measured and regulated, and referred to as criteria air pollutants: O_3, CO, inhalable PM (i.e., PM10 and PM2.5), NO_2, and SO_2. Because O_3, a photochemical oxidant, is not emitted into the air directly from sources, emissions of O_3 precursors, including nitrogen oxide (NO_X) and reactive organic gas (ROG), are regulated with the aim of reducing O_3 formation in the lowermost region of the troposphere.

Ozone and NO_2 are considered regional pollutants because they (or their precursors) affect air quality on a regional scale: NO_2 reacts photochemically with ROG to form O_3, and this reaction occurs at some distance downwind of the source of pollutants. Pollutants such as CO, PM10, and PM2.5 are considered to be local pollutants because they tend to disperse rapidly with distance from the source.

The principal characteristics surrounding these pollutants are discussed below. Toxic air contaminants (TACs) are also discussed below, although no air quality standards exist for these pollutants.

Ozone

O_3 is an oxidant that attacks synthetic rubber, textiles, and other materials and causes extensive damage to plants by leaf discoloration and cell damage. It is also a severe eye, nose, and throat irritant and increases susceptibility to respiratory infections. O_3 is not emitted directly into the air; it forms from a photochemical reaction in the atmosphere. O_3 precursors, including ROG and NO_X, are emitted by mobile sources and stationary combustion equipment and react in the presence of sunlight to form O_3. Because reaction rates depend on the intensity of ultraviolet light and air temperature, O_3 is primarily a summertime problem.

Carbon Monoxide

CO is essentially inert to most materials and to plants but can significantly affect human health because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea and death. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter, when periods of light wind combine with the formation of ground-level temperature inversions—typically from evening through early morning. These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Particulate Matter

PM refers to finely divided solids or liquids, such as soot, dust, aerosols, and mists. Coarse PM with an aerodynamic diameter of 10 microns or less is referred to as PM10. A subgroup of finer particles that have an aerodynamic diameter of 2.5 microns or less is referred to as PM2.5. Suspended particulates aggravate chronic heart and lung disease problems, produce respiratory problems, and often transport toxic elements. They also absorb sunlight, producing haze and reducing visibility.

PM10 and PM2.5 are caused primarily by dust from grading and excavation activities, agricultural uses, and motor vehicles, particularly diesel-powered vehicles. These particles pose a greater health risk than larger particles because these fine particles can more easily penetrate the defenses of the human respiratory system. Chronic exposure to PM10 and PM2.5 can lead to respiratory disease and cause lung damage and cancer.

Nitrogen Dioxide

NO_2 is a brownish gas that contributes to the formation of ground-level O_3 pollution. Nitrogen dioxide increases respiratory disease and irritation and may reduce resistance to certain infections. The majority of ambient NO_2 is not directly emitted but is formed rather quickly from the reaction of nitric oxide (NO) and oxygen in the atmosphere. Nitric oxide and NO_2 are the primary pollutants that make up the group of pollutants referred to as NO_X. In the presence of sunlight, complex reactions of NO_X with O_3 and other air pollutants produce the majority of NO_2 in the atmosphere. NO_2 is one of the NO_X emitted from high-temperature combustion processes, such as those occurring in trucks, cars, and power plants. Indoors, home heaters and gas stoves also produce substantial amounts of NO_2.

Sulfur Dioxide

SO_2 is a colorless, irritating gas with a “rotten egg” smell, formed primarily by the combustion of sulfur-containing fossil fuels. SO_2 is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives and off-road diesel equipment. SO_2 also is emitted from several industrial processes, such as petroleum refining and metal processing.

Toxic Air Contaminants

TACs are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body’s natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, California Air Resources Board (ARB) identified PM from diesel-fueled engines—commonly called diesel particulate matter (DPM)—as a TAC. Compared to other air toxics ARB has identified, DPM emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (California Air Resources Board 2000:1).

3.5.1.3 Existing Air Quality Conditions

The existing air quality conditions in the project area can be characterized by monitoring data collected in the region. There are a number of air quality monitoring stations in Butte County, the closest of which with current data is the Chico East Avenue Station, which is 5.3 miles northwest of the project area.

Table 3.5-1 summarizes air quality monitoring data from the Chico East Avenue monitoring station for the last 3 years for which complete data are available (2014–2016). As shown in this table, these stations have experienced occasional violations of the state 1-hour O_3 PM10, and national PM2.5 standards, and more frequent violations of the state and federal 8-hour O_3 standards.

Table 3.5-1. Ambient Air Quality Monitoring Data Measured at the Chico East Avenue Monitoring Station

	2014	2015	2016
1-hour O_3 (ppm)			
Maximum 1-hour concentration	0.096	0.080	0.080
1-hour California designation value	0.08	0.08	0.08
1-hour expected peak day concentration	0.077	0.077	0.078
Number of days standard exceeded:[a]			
CAAQS 1-hour (>0.09 ppm)	1	0	0
8-hour O_3 (ppm)			
National maximum 8-hour concentration	0.077	0.069	0.073
National second-highest 8-hour concentration	0.071	0.068	0.070
State maximum 8-hour concentration	0.078	0.069	0.074
State second-highest 8-hour concentration	0.071	0.069	0.070
8-hour national designation value	-	0.066	0.066
8-hour California designation value	0.071	0.071	0.074
8-hour expected peak day concentration	0.072	0.072	0.074
Number of days standard exceeded:[a]			
NAAQS 8-hour (>0.070 ppm)	2	0	1
CAAQS 8-hour (>0.070 ppm)	2	0	1
CO (ppm)			
Maximum 8-hour concentration	2	1.3	1.4
Second-highest 8-hour concentration	1.4	1.2	1.3
Maximum 1-hour concentration	3	1.6	1.7
Second-highest 1-hour concentration	2.9	1.5	1.7
Number of days standard exceeded:[a]			
NAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35.0 ppm)	0	0	0
Particulate matter (PM10)[d] (μg/m³)			
National[b] maximum 24-hour concentration	40.1	67.8	42.3
National[b] second-highest 24-hour concentration	38.8	67.6	35.0
State[c] maximum 24-hour concentration	47.6	66.4	42.1
State[c] second-highest 24-hour concentration	43.9	65.5	34.8
State annual average concentration[e]	-	-	-
National annual average concentration	19.4	21.6	15.3
Number of days standard exceeded:[a]			
NAAQS 24-hour (>150 μg/m³)[f]	0	0	0
CAAQS 24-hour (>50 μg/m³)[f]	0	8	0
Particulate matter (PM2.5) (μg/m³)			
National[b] maximum 24-hour concentration	58.6	39.0	26.8
National[b] second-highest 24-hour concentration	32.5	37.9	20.9
State[c] maximum 24-hour concentration	62.8	39.0	29.6
State[c] second-highest 24-hour concentration	35.1	37.9	22.7

	2014	2015	2016
National annual designation value	-	29	-
National annual average concentration	8.8	-	-
State annual designation value	9	9	9
State annual average concentration [e]	8.8	-	-
Number of days standard exceeded:[a]			
NAAQS 24-hour (>35 μg/m^3)[f]	1	2	0

Sources: California Air Resources Board 2017; U.S. Environmental Protection Agency 2017a.
μg/m^3 = micrograms per cubic meter.
CAAQS = California Ambient Air Quality Standards.
NAAQS = National Ambient Air Quality Standards.
ppm = parts per million.
– = insufficient data available to determine the value.
[a] An exceedance is not necessarily a violation.
[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using Federal reference or equivalent methods.
[c] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California approved samplers.
[d] Measurements usually are collected every 6 days.
[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been rounded.

3.5.1.4 Attainment Status

Local monitoring data (Table 3.5-1) are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) (discussed in Section 3.5.2.1). The four designations are further defined as follows.

- Nonattainment—Assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—Assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—Assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—Assigned to areas were data are insufficient to determine whether a pollutant is violating the standard in question.

Table 3.5-2 summarizes the attainment status of the project portion of Butte County with regard to the NAAQS and CAAQS.

Table 3.5-2. Federal and State Attainment Status of Butte County

Pollutant	NAAQS	CAAQS
8-hour O_3	Marginal Nonattainment	Nonattainment
CO	Attainment	Attainment
PM2.5	Moderate Nonattainment	Nonattainment
PM10	Attainment	Nonattainment

Sources: California Air Resources Board 2016a; U.S. Environmental Protection Agency 2017b.

3.5.1.5 Sensitive Receptors

Sensitive receptors are frequently occupied locations where people who might be especially sensitive to air pollution are expected to live, work, or recreate. These types of receptors include residences, schools, churches, health care facilities, convalescent homes, and daycare centers. The project is located in a rural area, with primarily industrial uses nearby and with considerable distances (in excess of 1,000 feet) between the areas of the project site where construction will occur and the nearest receptors. Table 3.5-3 lists sensitive receptors that were identified in the project area and the distances to the nearest area where construction will occur.

Table 3.5-3. Sensitive Receptors in the Project Area

Sensitive Receptor	Distance from Project Area to Receptor (feet)
Residence off Skyway Road	1,816 feet northeast
Residence off Cramer Lane	3,606 feet northwest
Chico Christian School	3,612 feet northwest
Neighborhood Church of Chico	4,264 feet northwest

Note: Sensitive receptors and distances in this table were obtained using Google Earth imagery

3.5.2 Regulatory Setting

This section summarizes federal, state, and local regulations that apply to air quality. The air quality management agencies of direct importance in the project area are EPA, ARB, and Butte County Air Quality Management District (BCAQMD). EPA has established federal air quality standards for which ARB and BCAQMD have primary implementation responsibility. ARB and BCAQMD are also responsible for ensuring that state air quality standards are met.

3.5.2.1 Federal and State Ambient Air Quality Standards

The federal Clean Air Act (CAA) was first enacted in 1963 and has been amended numerous times in subsequent years (1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards—NAAQS—and specifies future dates for achieving compliance. The CAA also mandates that the state submit and implement a State Implementation Plan for local areas not meeting those standards. The plan must include pollution control measures that demonstrate how the standards will be met.

At the state level, the California Clean Air Act (California CAA) establishes a statewide air pollution control program. The California CAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the CAA, the California CAA does not set precise attainment deadlines. Instead, the California CAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS are listed together in Table 3.5-4.

Table 3.5-4. National and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards[a]	
			Primary	Secondary
Ozone	1-hour	0.09 ppm	None	None
	8–hour	0.070 ppm	0.070 ppm	0.070 ppm
Particulate matter (PM10)	24-hour	50 μg/m³	150 μg/m³	150 μg/m³
	Annual mean	20 μg/m³	None	None
Fine particulate matter (PM2.5)	24-hour	None	35 μg/m³	35 μg/m³
	Annual mean	12 μg/m³	12.0 μg/m³	15 μg/m³
Carbon monoxide	8-hour	9.0 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	None
Nitrogen dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	None
Sulfur dioxide[b]	Annual mean	None	0.030 ppm	None
	24-hour	0.04 ppm	0.014 ppm	None
	3-hour	None	None	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day average	1.5 μg/m³	None	None
	Calendar quarter	None	1.5 μg/m³	1.5 μg/m³
	3-month average	None	0.15 μg/m³	0.15 μg/m³
Sulfates	24-hour	25 μg/m³	None	None
Hydrogen sulfide	1-hour	0.03 ppm	None	None
Vinyl chloride	24-hour	0.01 ppm	None	None

Source: California Air Resources Board 2016b.

[a] National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

[b] The final 1-hour sulfur dioxide rule was signed June 2, 2010. The annual and 24-hour standards were revoked in that same rulemaking. However, these standards remain in effect until 1 year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

μg/m³ = micrograms per cubic meter; ppm = parts per million.

3.5.2.2 Local

BCAQMD has jurisdiction over local air quality in Butte County. Counties in the Sacramento area (i.e., Sacramento, Yolo, Placer, El Dorado, Solano, Sutter, and Butte Counties) have adopted the Northern Sacramento Valley Planning Area 2015 Triennial Air Quality Attainment Plan (2015 Plan). This plan outlines strategies to achieve the health-based O_3 standard. BCAQMD updated their *CEQA Air Quality Handbook* in 2014 (Butte County Air Quality Management District 2014), which specifies significance thresholds to determine air quality effects of projects located within district boundaries. These thresholds are shown in Table 3.5-5.

3.5.3 Environmental Effects

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

According to the State CEQA Guidelines, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make significance determinations for potential impacts on environmental resources. As discussed above, the BCAQMD is responsible for ensuring that state and federal ambient air quality standards are not violated within Butte County. Analysis requirements for construction- and operational-related pollutant emissions are contained in the BCAQMD's *CEQA Air Quality Handbook: Guidelines for Assessing Air Quality and Greenhouse Gas Impacts for Projects Subject to CEQA Review* (Butte County Air Quality Management District 2014). The *CEQA Air Quality Handbook* also contain thresholds of significance for construction-related and operational-related ROG, NO_X and PM10; these thresholds are presented in Table 3.5-5. Because the project would have a minor operational component, only the construction-related thresholds were considered in this analysis.

Table 3.5-5. BCAQMD Criteria Pollutant Emissions Thresholds

Pollutant	Construction-Related	Operational-Related
ROG	137 lbs./day, not to exceed 4.5 tons/year	25 lbs./day
NO_X	137 lbs./day, not to exceed 4.5 tons/year	25 lbs./day
PM < 10 microns (PM 10 or smaller)	80 lbs./day	80 lbs./day

Source: Butte County Air Quality Management District 2014.

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

Impact AQ-1: Conflict with Applicable Air Quality Plans (less than significant)

A project is deemed inconsistent with an air quality plan if it would result in population or employment growth that exceeds the growth estimates in the applicable air quality plan (i.e., generating emissions not accounted for in the applicable air quality plan emissions budget). Therefore, proposed projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rate included in the applicable air quality plan.

The applicable air quality plan is the 2015 Plan (Sacramento Valley Air Quality Engineering and Enforcement Professionals 2015). In adopting this plan, BCAQMD assumes that growth within their jurisdiction will be in accordance with city and county general plans that have analyzed air quality effects associated with build-out. Construction activities would result in temporary emissions of criteria pollutants (See Impact AQ-2 for the discussion of these emissions) but would not result in any population or employment growth, because it would be a temporary set of activities. The nature of the activities (e.g., mobilization, installation of cofferdam and components, removal of cofferdam and excavated materials) would have no appreciable effect on growth in the county. Therefore, the project would not conflict with, or obstruct, the implementation of the applicable air quality plan, and this impact would remain less than significant.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact AQ-2: Violation of an Air Quality Standard (less than significant)

Construction

Project construction has the potential to affect ambient air quality through the use of heavy-duty construction equipment, construction worker vehicle trips, and truck hauling trips. Criteria pollutant emissions generated by these sources were quantified using information provided by the project applicant and emission factors from CalEEMod (Version 2016.3.1). It was conservatively assumed that construction would occur over a 3-week period between October and November of 2017.

Table 3.5-6 summarizes estimated maximum daily emissions that would be generated by project construction. Summarizing emissions in pounds per day is necessary to evaluate project-level effects against BCAQMD thresholds, which are given in pounds. Please refer to Appendix F for modeling assumptions and calculations.

Table 3.5-6. Maximum Daily (pounds) Criteria Pollutant Emissions from Project Construction

Maximum Daily (pounds)[a]	ROG	NO_X	CO	PM10	PM 2.5
Construction	1.3	14.5	8.6	0.7	0.5
BCAQMD threshold (pounds)	137	137	NA	80	NA
Exceed threshold?	No	No	NA	No	NA

[a] Assumes all construction activities do not overlap. Refer to Appendix F for additional detail on the construction schedule.

ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; PM10 = particulate matter less than 10 microns in diameter; PM 2.5 = particular matter less than 5 microns in diameter; NA = not applicable

Please refer to Appendix F for modeling assumptions and calculations.

As shown in Table 3.5-6, construction of the proposed project would not generate criteria pollutant emissions in excess of the BCAQMD thresholds of significance. Accordingly, construction-related emissions would be less than significant, and no mitigation is required.

Operation

Operation of the project would require routine inspections and is anticipated to remain relatively the same. Two inspections would occur over a period of 2 days during the first year following installation, after which maintenance activities would require one vehicle trip per year. Operational emissions would thus be less than significant, and no mitigation is required.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

BCAQMD has identified project-level thresholds to evaluate criteria pollutant impacts (see Table 3.5-4). In developing these thresholds, BCAQMD considered levels at which project emissions would be cumulatively considerable. As noted in their CEQA Guidelines (Butte County Air Quality Management District 2014),

> Projects that do not exceed the Table ES-2 significance thresholds (shown in this analysis in Table 3.5-4) may be assumed to have a less than significant impact in regards to a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment.

The criteria pollutant thresholds presented in Table 3.5-4 therefore represent the maximum emissions the project may generate before contributing to a cumulative impact on regional air quality. Consequently, exceedances of the project-level thresholds would be cumulatively considerable. As discussed in Impact AQ-2, construction- and operational-related emissions associated with the project would not exceed BCAQMD's quantitative thresholds. Therefore, this impact is considered less than significant.

d. Expose sensitive receptors to substantial pollutant concentrations?

Impact AQ-3: Exposure of Sensitive Receptors (less than significant)

Diesel Particulate Matter

Diesel-fueled engines used during construction could expose nearby residential receptors to DPM, which is considered a carcinogen. However, DPM generated during construction is expected to be minor and would not exceed 0.6 pound per day for either exhaust PM10 emissions or exhaust PM2.5 emissions (Appendix F). These emissions would dissipate as a function of distance and would be lower at the nearest sensitive receptor (approximately 0.30 mile northeast of the project). Moreover, emissions would only occur over a 3-week period over 2 months, which is significantly lower than the 70-year exposure period typically associated with chronic cancer health risks. Similarly, while two vehicle trips would be required during operational inspections, emissions would only occur 2 days per year and would relatively be similar to existing conditions. Consequently, neither construction- nor operational-related DPM is expected to expose sensitive populations to substantial pollutant concentrations or exceed BCAQMD thresholds. This impact would be less than significant, and no mitigation is required.

Naturally Occurring Asbestos

As identified in the *Naturally Occurring Asbestos Hazard* map for Butte County, the proposed project is located within an area "least likely to contain NOA [naturally occurring asbestos]" (California Department of Conservation 2000). Although areas of eastern Butte County are designated as areas "more likely to contain NOA," the project site is in western Butte County. Accordingly, the project does not require an NOA mitigation plan. This impact would be less than significant, and no mitigation is required.

e. Create objectionable odors affecting a substantial number of people?

Impact AQ-4: Creation of Objectionable Odors (less than significant)

The proposed project would not result in any major sources of odor, nor would it involve operation of any of the common types of facilities that are known to produce odors (e.g., landfill, wastewater treatment facility). In addition, odors associated with diesel exhaust from the use of onsite construction equipment would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance.

Furthermore, as required by ARB regulation, no in-use, off-road diesel vehicles may idle for more than 5 consecutive minutes. This impact would be less than significant. No mitigation is required.

3.6 Greenhouse Gases

3.6.1 Existing Conditions

3.6.1.1 Principal Greenhouse Gas Emissions

The primary greenhouse gases (GHGs) that would be generated by the proposed project are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Each of these gases is discussed in detail below. Note that perfluorocarbons are not discussed because these gases are primarily generated by industrial and manufacturing processes that will not be undertaken for the proposed project.

To simplify reporting and analysis, emissions of GHGs are described in terms of a single gas: CO_2. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) methodology defined in the collective documents published by Intergovernmental Panel on Climate Change (IPCC). The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2 equivalent (CO_2e), which compares the gas in question to that of the same mass of CO_2 (CO_2 has a GWP of 1 by definition). The GWP values used in this report are based on the IPCC Fourth Assessment Report (AR4) and United Nations Framework Convention on Climate Change reporting guidelines and are defined in Table 3.6-1 (Intergovernmental Panel on Climate Change 2007a). The AR4 GWP values are used in the ARB California inventory and the Assembly Bill 32 (AB 32) Scoping Plan Update (California Air Resources Board 2014).

Table 3.6-1 lists the global warming potential of CO_2, CH_4, and N_2O; their lifetimes; and abundances in the atmosphere.

Table 3.6-1. Lifetimes and Global Warming Potentials of Several Greenhouse Gases

Greenhouse Gases	Global Warming Potential (100 years)	Lifetime (years)	2016 Atmospheric Abundance
CO_2 (ppm)	1	50–200	400
CH_4 (ppb)	25	9–15	1,834
N_2O (ppb)	298	121	328

Sources: IPCC 2007b; Blasing 2016.
ppm = parts per million by volume.
ppb = parts per billion by volume.

Carbon Dioxide

CO_2 is the most important anthropogenic GHG and accounts for more than 75% of all GHG emissions caused by humans. Atmospheric CO_2 has increased from a pre-industrial concentration of 280 parts per million (ppm) to 400 ppm in 2016 (Intergovernmental Panel on Climate Change 2007b; Blasing 2016). Its atmospheric lifetime of 50–200 years ensures that atmospheric concentrations of CO_2 will remain elevated for decades even after mitigation efforts to reduce GHG concentrations are promulgated (Intergovernmental Panel on Climate Change 2007b). The primary sources of anthropogenic CO_2 in the atmosphere include the burning of fossil fuels (including motor vehicles), gas flaring, cement production, and land use changes (e.g., deforestation, oxidation of elemental carbon). CO_2 can be removed from the atmosphere by photosynthetic organisms.

Methane

CH_4, the main component of natural gas, is the second most abundant GHG and has a GWP of 25 (Intergovernmental Panel on Climate Change 2007b). Atmospheric CH_4 has increased from a pre-industrial concentration of 715 parts per billion (ppb) to 1,834 ppb in 2016 (Intergovernmental Panel on Climate Change 2007b; Blasing 2016). Sources of anthropogenic emissions of CH_4 include rice fields, cattle, natural gas use, landfill outgassing, and coal mining (National Oceanic and Atmospheric Administration 2005). Certain land uses also function as both CH_4 sources and sinks. For example, wetlands are terrestrial sources of CH_4, and undisturbed, aerobic soils act as a CH_4 sink (i.e., they remove CH_4 from the atmosphere).

Nitrous Oxide

N_2O is a powerful GHG with a GWP of 298 (Intergovernmental Panel on Climate Change 2007b). N_2O concentrations in the atmosphere have increased 18% from pre-industrial levels of 270 ppb to 328 ppb in 2016 (Intergovernmental Panel on Climate Change 2007b; Blasing 2016). Anthropogenic sources of N_2O include agricultural processes (e.g., fertilizer application), nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions. N_2O is also used in rocket engines, racecars, and aerosol spray containers. Additionally, natural processes such as nitrification and denitrification can produce N_2O that diffuses into atmosphere. In the United States more than 70% of N_2O emissions are related to agricultural soil management practices, particularly fertilizer application.

3.6.2 Regulatory Setting

3.6.2.1 Federal

Although there is currently no federal overarching law or policy related to climate change or the regulation of GHGs, recent activity suggests that regulation may be forthcoming. Foremost among recent developments has been the U.S. Supreme Court’s decision in Massachusetts et al. v. EPA, the Endangerment Finding, and Cause or Contribute Finding. Despite these findings, the future of GHG regulations at the federal level is still uncertain. EPA regulation may be preempted by congressional action, should a cap-and-trade bill be passed prior to adoption of EPA regulation.

3.6.2.2 State

The State of California has adopted legislation, and regulatory agencies have enacted policies, addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation and policy activity is not directed at citizens or jurisdictions but rather establishes a broad framework for the state’s long-term GHG mitigation and climate change adaptation program.

Executive Order S-3-05 (2005)

EO S-3-05 asserts that California is vulnerable to the effects of climate change. To combat this concern, EO S-3-05 established the following GHG emissions reduction targets for state agencies.

- By 2010, reduce GHG emissions to 2000 levels.

- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

EOs are binding only on state agencies. Accordingly, EO S-03-05 guides state agencies' efforts to control and regulate GHG emissions but has no direct binding effect on local government or private actions. The secretary of the California Environmental Protection Agency is required to report to the governor and state legislature biannually on the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing GHG emissions to meet the targets established in this EO.

Assembly Bill 32, Global Warming Solutions Act (2006)

AB 32 codified the state's GHG emissions target by requiring that the state's GHG emissions be reduced to 1990 levels by 2020. Since AB 32 was adopted, ARB, California Energy Commission, California Public Utilities Commission, and Building Standards Commission have been developing regulations that will help meet the goals of AB 32 and EO S-03-05. The Scoping Plan for AB 32, developed by ARB as part of the requirements of AB 32, identifies specific measures and actions to reduce GHG emissions to 1990 levels by 2020 and requires ARB and other state agencies to develop and enforce regulations and other initiatives for reducing GHGs.

Climate Change Scoping Plan

On December 11, 2008, pursuant to AB 32, ARB adopted the Climate Change Scoping Plan. This plan outlines how emissions reductions from significant sources of GHGs will be achieved via regulations, market mechanisms, and other actions. Six key elements, outlined in the scoping plan, are identified to achieve emissions reduction targets.

1. Expanding and strengthening existing energy efficiency programs and building and appliance standards.
2. Achieving a statewide renewable energy mix of 33%.
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system.
4. Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets.
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard.
6. Creating targeted fees, including a public goods charge on water use, fees on high–GWP gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

The Climate Change Scoping Plan also described recommended measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the effects of the reductions are equitable and do not disproportionately affect low-income and minority communities. These measures put the state on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80% below 1990 levels.

The first update to the AB 32 Scoping Plan was released in February 2014 and includes revised GHG reduction estimates based on updated statewide GHG inventories. The update also discusses the need for continued GHG reduction progress post-2020. As discussed below under Senate Bill 32, ARB drafted the *2017 Climate Change Scoping Plan Update* on January 20, 2017, and it proposes continuing the major programs of the AB 32 Scoping Plan.

Executive Order B-30-15 (2015)

EO B-30-15 (2015) establishes a statewide GHG reduction target of 40% below 1990 levels by 2030. As of December 2016, California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, which was previously established in AB 32. The State's new emission reduction target will make it possible to reach the overall goal of reducing emissions 80% under 1990 levels by 2050. EO B-30-15 established a medium-term goal for 2030 of reducing GHG emissions by 40% below 1990 levels and requires the ARB to update its current AB 32 Scoping Plan to identify measures to meet the 2030 target. The EO supports EO S-3-05.

Senate Bill 32 (2016)

Senate Bill 32 (SB 32) (2016) requires ARB to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 level by 2030, consistent with the target set forth in EO B-30-15. ARB drafted the 2017 Climate Change Scoping Plan Update on January 20, 2017, to meet the GHG reduction requirement set forth in SB 32. It proposes continuing the major programs of the previous Scoping Plan, including Cap-and-Trade Regulation, Low Carbon Fuel Standard, more efficient cars, trucks, and freight movement, Renewable Portfolio Standard, and reducing CH_4 emissions from agricultural and other wastes. The Scoping Plan Update also addresses for the first time the GHG emissions from natural and working lands in California.

3.6.2.3 Local

Butte County Air Quality Management District

The local air quality district is BCAQMD. The BCAQMD does not regulate GHG emissions, nor has the BCAQMD established GHG thresholds to measure the significance of GHG emissions from land use conversion or construction projects.

Butte County Climate Action Plan

Although Butte County's CEQA guidance does not specify GHG thresholds, the County adopted its Climate Action Plan (CAP) on February 25, 2014 (County of Butte 2014). The plan, which has undergone subsequent updates, is an implementation mechanism of the County's General Plan that was adopted in 2010 and amended in 2012. The Butte County CAP provides goals, policies, and programs to reduce GHG emissions, address climate change adaptation, and improve quality of life in the county. The Butte County CAP also supports statewide GHG emissions-reduction goals identified in AB 32. Programs and actions in the Butte County CAP will help the County sustain its natural resources, grow efficiently, ensure long-term resiliency to a changing environmental and economic climate, and improve transportation. The Butte County CAP also serves as a Qualified GHG Reduction Strategy under CEQA, simplifying development review for new projects that are consistent with the CAP. Section 15183.5 of the State CEQA Guidelines establishes opportunities for CEQA tiering for qualified GHG reduction plans, in which the impacts of projects that that are consistent with the adopted GHG reduction plans can be considered less than significant and their contributions to cumulative emissions are not considered cumulatively considerable; however, the GHG reduction plan must meet Section 15183.5 criteria. The Butte County CAP is not appropriate for tiering the proposed project because it is a construction-only project; however, the CAP can be used for tiering other types of projects.

2014 BCAQMD CEQA Handbook

BCAQMD's 2008 *CEQA Air Quality Handbook* did not provide specific guidance for evaluating GHG impacts. The updated handbook was released in 2014 and was used to prepare this document (Butte County Air Quality Management District 2014). The 2014 handbook recommends that CEQA analyses addressing the potential impacts of project-generated GHG emissions include the following:

- An inventory of the project's construction and operational sources of GHGs and the time periods when emissions are expected, distinguishing BCAQMD-permitted stationary sources from mobile and other non-permitted sources.
- The current state of the science with respect to GHGs and climate change and the existing regulatory environment.
- The non-project GHG setting representing the baseline for determining the project's impact.
- Identification of the thresholds of significance applicable to the proposed project. The lead agency may consider thresholds of significance adopted or recommended by other lead agencies, or adopt its own thresholds, provided the decision is supported by substantial evidence. Alternatively the lead agency may consider thresholds based on the goals of AB 32.

3.6.3 Environmental Effects

3.6.3.1 Assessment Methods

This section describes the analysis of environmental consequences related to climate change and GHG for the proposed project. Quantitative estimates of GHG emissions for project implementation were forecast using construction activity data provided by the project applicant and modeled in CalEEMod (Version 2016.3.1). Detailed information on the emission calculation methods is provided in Appendix F. The following types of project-specific information were used.

- Duration of construction activity at the proposed project site.
- Type of each construction equipment, number of pieces of each type, and the duration of each type of construction activity. Appendix F provides a list of the equipment to be used at the proposed project site and a forecast of equipment usage. As previously mentioned, the proposed project site is within the jurisdiction of BCAQMD.
- Number of haul truck, employee, and vendor vehicle trips.
- Default horsepower and load factors for each type of construction equipment were set by CalEEMod.
- Default emission factors for fuel consumption and GHG emission rates (CO_2 and CH_4) for off-road construction equipment, on-road delivery trucks, and on-road commute vehicles were set by CalEEMod.

3.6.3.2 Sacramento Metropolitan Air Quality Management District GHG Thresholds of Significance

As previously mentioned, the BCAQMD has not established GHG thresholds to measure the significance of GHG emissions from land use or construction projects. Sacramento Metropolitan Air Quality Management District (SMAQMD) adopted GHG thresholds in October 2014 to evaluate and disclose the significance of GHG emissions from land use and construction projects in compliance with CEQA and the AB 32 Scoping Plan. SMAQMD's GHG thresholds, which have been designated *Sacramento Area Regional GHG Thresholds*, were established using guidance from the California Air Pollution Control Officers Association (CAPCOA) on how to develop the threshold concepts for evaluating project-level GHG emissions (Huss pers. comm.). The thresholds also incorporated input from a committee of regional air districts.

Although the Sacramento Area Regional GHG Thresholds were not formally adopted by the BCAQMD, the BCAQMD and other districts in the region (e.g., Yolo Solano Air Management District, Placer County Air Pollution Control District, El Dorado County Air Quality Management District) use them for GHG analyses. Therefore, these thresholds are used to determine the significance of GHG emissions from the proposed project, as these thresholds were developed with a regional perspective and are in compliance with expert advice from CAPCOA.

Although not formally adopted by BCAQMD, SMAQMD's Sacramento Area Regional GHG Thresholds were used to evaluate the forecast emissions for the project modifications for multiple reasons. The thresholds, which are based on AB 32's requirement to reduce statewide GHG emissions from both existing and new development to 1990 levels by 2020, rely upon a capture rate and a gap analysis, which is tied back to AB 32 reduction targets. The Sacramento Area Regional GHG Thresholds reflect regional land use conditions, including density and access to transit. Because these thresholds are specific to the project region, mirror CAPCOA's expert guidance, and are consistent with the objectives of AB 32, they were determined to be an effective benchmark for evaluating the significance of GHG emissions for the proposed project (see Citizens for Responsible Equitable Environmental Development versus City of Chula Vista [July 2011, 197 Cal.App. 4th 327]). Additionally, although Butte County adopted CAPs or similar program-level GHG reduction documents, the guidance provided in these documents is not appropriate for evaluating or tiering effects related to construction-only projects such as the proposed project. A CAP is intended to present a strategy to reduce long-term emissions most commonly associated with development projects or related actions that have a long-term operational component.

The Sacramento Area Regional GHG Thresholds include the following project categories and emission levels.

- **Stationary source projects**: 10,000 direct metric tons of CO_2e per year.
- **Operation of a land development project**: 1,100 metric tons CO_2e per year.
- **Construction of a project**: 1,100 metric tons CO_2e per year.

Because the proposed project is a construction project, the Sacramento Area Regional GHG Threshold for project construction of 1,100 metric tons CO_2e per year was used as the criterion to determine whether construction-source emissions would be significant under CEQA. Construction-related annual emissions below 1,100 metric tons of CO_2e per year would result in a less-than-significant impact on global climate change. Annual emission levels that exceed this threshold are considered significant and must be mitigated below 1,100 metric tons of CO_2e.

a. Generate a significant amount of GHG emissions, either directly or indirectly?

Impact GHG-1: Generation of Significant GHG Emissions (less than significant)

Construction

Project construction would generate emissions of CO_2, CH_4, and N_2O from mobile and stationary construction equipment exhaust and employee and haul truck vehicle exhaust. Emissions from equipment and vehicles were quantified using information provided by the project applicant and emission factors from CalEEMod (Version 2016.3.1).

Estimated construction emissions from the proposed project are summarized in Table 3.6-2. All emissions are conservatively assumed to occur in 2017. Please refer to Appendix F for modeling assumptions and calculations.

Table 3.6-2. Estimated Greenhouse Gas Emissions from Project Construction (metric tons)

Construction Year	CO_2	CH_4	N_2O	CO_2e[a]
2017	11	<0.01	<0.01	11
SMAQMD threshold	-	-	-	1,100

[a] Refers to carbon dioxide equivalent, which includes the relative warming capacity (i.e., GWP) of each GHG.

As shown in Table 3.6-2, project construction would generate 11 metric tons of CO_2e, which is equivalent to adding about three typical passenger vehicles to the road during the construction period (U.S. Environmental Protection Agency 2017). These emissions would not exceed SMAQMD's GHG threshold of 1,100 metric tons CO_2e per year. Accordingly, this impact would be less than significant and no mitigation is required.

Operations

Operation of the project would require routine inspections. Two inspections would occur over a period of 2 days during the first year following installation, after which maintenance activities would require one vehicle trip per year. Accordingly, operational emissions impacts would be less than significant and no mitigation is required.

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

Impact GHG-2: Conflict with an Applicable Plan, Policy, or Regulation (less than significant)

At the time of preparation of this document, no federal, state, or local agency with jurisdiction over the project area had adopted plans or regulations that set specific goals for emission limits or emission reductions applicable to the proposed project. As described under checklist item *a*, the estimated emissions from implementation of the proposed project were compared to presumptive significance thresholds derived from the Sacramento Area Regional GHG Thresholds which are conservatively low. The estimated emissions for the proposed project are below the presumptive significance thresholds. Therefore, implementation of the proposed project would not conflict with, or obstruct, the implementation of GHG emission reduction plans. This impact would be less than significant.

3.7 Noise

3.7.1 Terminology

The following are brief definitions of noise terminology used in this evaluation.

- **Sound.** A vibratory disturbance transmitted by pressure waves through a medium such as air and capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB)**. A measure of sound based on a logarithmic scale that indicates the squared ratio of actual sound pressure level to a reference sound pressure level (20 micropascals).
- **A-Weighted Decibel (dBA).** A measure of sound that is weighted to take into account the varying sensitivity of the human ear to different frequencies of sound. The dBA scale is the most widely used for environmental noise assessments. Typical A-weighted noise levels for various types of sound sources are summarized in Table 3.7-1.
- **Equivalent Sound Level (L_{eq})**. L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that would contain the same acoustical energy as the time-varying sound that actually occurs during the monitoring period. The 1-hour A-weighted equivalent sound level (L_{eq} 1h) is the energy average of A-weighted sound levels occurring during a 1-hour period.
- **Maximum Sound Levels (L_{max}).** The maximum (L_{max}) sound levels measured during a monitoring period.
- **Day-Night Level (L_{dn}).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m.
- **Percentile-Exceeded Sound Level (L_{xx}).** The sound level exceeded some percentage of the time during a monitoring period. For example, L_{50} is the sound level exceeded 50% of the time, and L_{10} is the sound level exceeded 10% of the time.
- **Community noise equivalent level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.

Table 3.7-1. Typical A-Weighted Sound Levels

Common Outdoor Activities	Sound Level (dBA)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 mph at 50 feet		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower at 100 feet	70	Vacuum cleaner at 3 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
		Large business office
Quiet urban area, daytime	50	Dishwasher in next room
Quiet urban area, nighttime	40	Theater, large conference room (background)
Quiet suburban area, nighttime		
	30	Library
Quiet rural area, nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
Rustling of leaves	10	
	0	

Source: California Department of Transportation 2013a

3.7.1.1 Noise Background

Noise is commonly defined as unwanted sound that annoys or disturbs people and potentially causes an adverse psychological or physiological effect on human health. Because noise is an environmental pollutant that can interfere with human activities, evaluation of noise is necessary when considering the environmental impacts of a project.

Sound is mechanical energy (vibration) transmitted by pressure waves over a medium such as air or water. It is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient (existing) sound level. Although the dB scale, which is logarithmic, is used to quantify sound intensity, it does not accurately describe how sound intensity is perceived by human hearing. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called "A-weighting," written as "dBA" and referred to as "A-weighted decibels."

In general, human sound perception is such that a change in sound level of 1 dB cannot typically be perceived by the human ear, a change of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (such as L_{10}, L_{20}), the day-night sound level (L_{dn}), and the community noise equivalent level (CNEL). Sensitivity to noise increases during the evening and at night because excessive noise interferes with the ability to sleep, and the L_{dn} and CNEL values take this into consideration, as they involve averaging cumulative noise exposure over a 24-hour period. L_{dn} and CNEL values differ by less than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered to be equivalent and are treated as such in this assessment.

For a point source such as a stationary compressor or construction equipment, sound attenuates based on geometry at a rate of 6 dB per doubling of distance. For a line source such as free-flowing traffic on a freeway, sound attenuates at a rate of 3 dB per doubling of distance (California Department of Transportation 2013a). Atmospheric conditions including wind, temperature gradients, and humidity can change how sound propagates over distance and can affect the level of sound received at a given location. The degree to which the ground surface absorbs acoustical energy also affects sound propagation. Sound that travels over an acoustically absorptive surface such as grass attenuates at a greater rate than sound that travels over a hard surface such as pavement. The increased attenuation is typically in the range of 1 to 2 dB per doubling of distance. Barriers such as buildings and topography that block the line of sight between a source and receiver also increase the attenuation of sound over distance.

Sound from multiple sources operating in the same area, such as multiple pieces of construction equipment, will result in a combined sound level that is greater than any individual source. The individual sound levels for different noise sources cannot be added directly to give the sound level for the combined noise sources. Rather, the combined noise level produced by multiple noise sources is calculated using logarithmic summation. For example, if one bulldozer produces a noise level of 80 dBA, then two bulldozers operating side by side would generate a combined noise level of 83 dBA (only 3 dBA louder than the single bulldozer).

3.7.1.2 Vibration Background

Operation of heavy construction equipment, particularly the types used for pile driving and pavement breaking, create seismic waves that radiate along the surface of the earth and downward into the earth. These surface waves can be felt as ground vibration. Vibration from operation of this equipment can result in effects ranging from the annoyance of people to damage of structures. Varying geology and distance will result in different vibration levels containing different frequencies and displacements. In all cases, vibration amplitudes will decrease with increasing distance.

Perceptible ground-borne vibration is generally limited to areas within a few hundred feet of construction or vibration-generating activities (e.g., mining). As seismic waves travel outward from a vibration source, they excite the particles of rock and soil through which they pass and cause them to oscillate. The actual distance that these particles move is usually only a few ten-thousandths to a few thousandths of an inch. The rate or velocity (in inches per second) at which these particles move is the commonly accepted descriptor of the vibration amplitude, referred to as the peak particle velocity (PPV). Table 3.7-2 summarizes typical vibration levels generated by construction equipment.

Table 3.7-2. Vibration Source Levels for Demolition and Construction Equipment

Equipment	PPV at 25 feet	PPV at 50 feet	PPV at 75 feet	PPV at 100 feet	PPV at 400 feet
Pile driver (impact)	1.518	0.5367	0.2921	0.1875	0.0237
Pile driver (sonic/vibratory)	0.734	0.2595	0.1413	0.0918	0.0115
Hoe ram	0.089	0.0315	0.0171	0.0111	0.0014
Large bulldozer	0.089	0.0315	0.0171	0.0111	0.0014
Loaded trucks	0.076	0.0269	0.0146	0.0095	0.0012
Jackhammer	0.035	0.0124	0.0067	0.0044	0.0005
Small bulldozer	0.003	0.0011	0.0006	0.0004	0.0033

Sources: California Department of Transportation 2013b and Federal Transit Administration 2006.
PPV = peak particle velocity

Vibration amplitude attenuates over distance and is a complex function of how energy is imparted into the ground and the soil conditions through which the vibration is traveling. The following equation can be used to estimate the vibration level at a given distance for typical soil conditions (Federal Transit Administration 2006). PPV_{ref} is the reference PPV from Table 3.7-2.

$$PPV = PPV_{ref} x\ (25/Distance)^{1.5}$$

Tables 3.7-3 and 3.7-4 summarize guidelines developed by California Department of Transportation (Caltrans) for damage and annoyance potential from transient and continuous vibration that is usually associated with construction activity. Equipment or activities typical of continuous vibration include excavation equipment, static-compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile-extraction equipment, and vibratory-compaction equipment. Equipment or activities typical of single-impact (transient) or low-rate repeated impact vibration include impact pile drivers, blasting, drop balls, “pogo stick” compactors, and crack-and-seat equipment.

Table 3.7-3. Guideline Vibration Damage Potential Threshold Criteria

	Maximum PPV (in/sec)	
Structure and Condition	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: California Department of Transportation 2013b.
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory-compaction equipment.

Table 3.7-4. Guideline Vibration Annoyance Potential Criteria

	Maximum PPV (in/sec)	
Structure and Condition	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: California Department of Transportation 2013b.
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory-compaction equipment.

3.7.2 Existing Conditions

The project site is northeast of SR 99, just southeast of the city of Chico, in Butte County. The project is on the west bank of Butte Creek, and the area is largely surrounded by industrial and agricultural land uses, as well as open space/recreation areas. The nearest residence is over 1,600 feet to the northeast along Skyway Road. Noise in the project area is governed primarily by traffic on nearby roadways and noise coming from industrial land uses.

3.7.3 Regulatory Setting

3.7.3.1 Federal

There are no federal noise regulations that are applicable to the proposed project.

3.7.3.2 State

There are no state noise regulations that are applicable to the proposed project.

3.7.3.3 Local

Butte County General Plan

According to the Butte County General Plan, noise is a concern throughout Butte County, particularly in rural areas and in the vicinity of noise-sensitive uses such as residences, schools and churches. Noise is discussed in the Health and Safety Chapter of the Butte County General Plan 2030. Tables HS-2 and HS-3 in the County General Plan (included as Tables 3.7-5 and 3.7-6 below) outline the maximum allowable noise level at residential outdoor activity areas generated by transportation and by non-transportation sources, respectively. (County of Butte 2012).

Table 3.7-5. Maximum Allowable Noise Exposure, Transportation Noise Sources

	Exterior Noise Level Standard for Outdoor Activity Areas[a]		Interior Noise Level Standard	
Land Use	L_{dn}/CNEL, dB	L_{eq}, dBA[b]	L_{dn}/CNEL, dB	L_{eq}, dBA[b]
Residential	60[c]	--	45	--
Transient Lodging	60[c]	--	45	--
Hospitals, nursing homes	60[c]	--	45	--
Theaters, auditoriums, music halls	--	--	--	35
Churches, meeting halls	60[c]	--	--	40
Office Buildings	--	--	--	45
Schools, libraries, museums	--	70	--	45
Playgrounds, neighborhood parks	--	70	--	--

Source: County of Butte 2012

Note: -- = not applicable.

[a] Where the location of outdoor activity areas is unknown, the exterior noise-level standard shall be applied to the property line of the receiving land use.

[b] As determined for a typical worst-case hour during periods of use.

[c] Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/CNEL may be allowed, provided that available exterior noise-level reduction measures have been implemented and interior noise levels are in compliance with this table.

Table 3.7-6. Maximum Allowable Noise Exposure, Non-Transportation Noise Sources

	Daytime 7 a.m.–7 p.m.		Evening 7 p.m.–10 p.m.		Night 10 p.m.–7 a.m.	
Noise Level Description	Urban	Non-Urban	Urban	Non-Urban	Urban	Non-Urban
Hourly L_{eq}, dB	55	50	50	45	45	40
Maximum Level, dB	70	60	60	55	55	50

Source: County of Butte 2012

Notes:

1. “Non-Urban designations” are Agriculture, Timber Mountain, Resource Conservation, Foothill Residential and Rural Residential. All other designations are considered “urban designations” for the purposes of regulating noise exposure.
2. Each of the noise levels specified above shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g. caretaker dwellings).
3. The County can impose noise level standards which are up to 5 dB less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.
4. In urban areas, the exterior noise level standard shall be applied to the property line of the receiving property. In rural areas, the exterior noise level standard shall be applied at a point 100 feet away from the residence. The above standards shall be measured only on property containing a noise sensitive land use. This measurement standard may be amended to provide for measurement at the boundary of a recorded noise easement between all affected property owners and approved by the County.

For residential uses, exterior noise levels of 60 dBA L_{dn}/CNEL are allowed for transportation noise sources. For non-transportation noise sources, noise levels of up to 55 dBA Leq are allowed at residential outdoor use areas in urban areas, and noise levels of up to 50 dBA Leq are allowed at residential outdoor use areas in non-urban areas during daytime hours (7:00 a.m. to 7:00 p.m. in the

County). Noise levels are further restricted during evening and nighttime hours, as shown in Table 3.7-6 above.

Butte County Noise Ordinance

Chapter 41A, *Noise Control*, of the Butte County Code of Ordinances applies to the regulation of noise in the project region. The purpose of the noise ordinance is to protect the public welfare by limiting unnecessary, excessive, and unreasonable noise. Section 41A-7 specifies the exterior noise limits that apply to land use zones within the county, which are provided in Table 3.7-7.

The Butte County Noise Ordinance provides the County with a means of assessing complaints of alleged noise violations and to address noise level violations from stationary sources. The ordinance includes a list of activities that are exempt from its provisions; however, noise-generating activities associated with the proposed project would not be considered to be exempt from the noise ordinance. Relevant information related to the exterior and interior noise limits set out by the Butte County Noise Ordinance are included below.

41A-7 - Exterior noise standards.

h. The following noise standards, unless otherwise specifically indicated in this chapter, shall apply to all noise sensitive exterior areas within Butte County.

Table 3.7-7. Butte County Exterior Noise Standards

	Daytime (7:00 a.m. to 7:00 p.m.)		Evening (7:00 p.m. to 10:00 p.m.)		Nighttime (10:00 p.m. to 7:00 a.m.)	
	Designation					
Noise Level Descriptor	Urban	Non-Urban	Urban	Non-Urban	Urban	Non-Urban
Hourly Average (L_{eq})	55	50	50	45	45	40
Maximum (L_{max})	70	60	60	55	55	50

i. It is unlawful for any person at any location within the County to create any noise which causes the noise levels on an affected property, when measured in the designated exterior location, to exceed the noise standards specified above.

j. Each of the noise limits specified in subdivision (a) of this section shall be reduced by five (5) dBA for recurring impulsive noise, simple or pure tone noise, or for noises consisting of speech or music.

k. Noise level standards, which are up to five (5) dBA less than those specified above, based upon determination of existing low ambient noise levels in the vicinity of the project site may be imposed.

l. In urban areas, the exterior noise level standard shall be applied to the property line of the receiving property. In non-urban areas, the exterior noise level standard shall be applied at a point one hundred (100) feet away from the residence or at the property line if the residence is closer than one hundred (100) feet. The above standards shall be measured only on property containing a noise sensitive land use.

41A-8 - Interior noise standards.

m. The following noise standards, unless otherwise specifically indicated in this chapter, shall apply to all noise sensitive interior areas within Butte County.

Table 3.7-8. Butte County Interior Noise Standards

Noise Level Descriptor	Daytime (7:00 a.m. to 7:00 p.m.)	Evening (7:00 p.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly Average (L_{eq})	45	40	35
Maximum (L_{max})	60	55	50

Section 41A-9 of the Butte County Code of Ordinances has a specific exemption for daytime construction, which clarifies that daytime construction is exempted from the provisions of the noise ordinance.

The following activities shall be exempted from the provisions of this chapter:

- Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property or public works project located within one thousand (1,000) feet of residential uses, provided said activities do not take place between the following hours:
  - Sunset to sunrise on weekdays and non-holidays;
  - Friday commencing at 6:00 p.m. through and including 8:00 a.m. on Saturday, as well as not before 8:00 a.m. on holidays;
  - Saturday commencing at 6:00 p.m. through and including 10:00 a.m. on Sunday; and,
  - Sunday after the hour of 6:00 p.m

Therefore, construction noise occurring during daytime hours described above would be considered exempt.

3.7.4 Environmental Effects

Potential impacts of the proposed project on noise are discussed in the context of State CEQA Guidelines Appendix G checklist items.

a. ***Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?***

Impact NOI-1: Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies (less than significant)

Construction

Construction activities for the proposed project would occur during daytime hours, which are considered to be exempt from the standards set forth in the Butte County Noise Ordinance. Section 41A-9 of the Butte County Code of Ordinances indicates that noise sources associated with construction, repair, remodeling, demolition, paving are exempt from the standards from:

- Sunset to sunrise on weekdays and non-holidays;

- Friday commencing at 6:00 p.m. through and including 8:00 a.m. on Saturday, as well as not before 8:00 a.m. on holidays;
- Saturday commencing at 6:00 p.m. through and including 10:00 a.m. on Sunday; and,
- Sunday after the hour of 6:00 p.m

Because project construction would be limited to these exempt hours, construction impacts related to an exceedance of local noise standards would be less than significant.

Operation

Operation of the proposed project is not expected to generate substantial noise. The screen unit would include a hydraulic motor insulated from the frame, a stainless-steel support frame, and an internal flow baffle. The only noise-generating piece of equipment used for the unit would be the motor used to rotate the screen both forward and in reverse during a cleaning cycle. The motor is proposed to be a 1–1.5 horsepower (HP) motor, which could generate a noise level of 51 dBA L_{eq} at a distance of 50 feet (Hoover & Keith 2000). The County's most stringent noise standard is 40 dBA for non-urban areas during nighttime hours (refer to Table 3.7-7). Noise from the motor would drop below 40 dBA at a distance of about 200 feet. No residential receptors are located within 200 feet of the project site. The nearest residence to the proposed project site is over 1,600 feet to the northeast along Skyway Road. At this distance, noise from the motor would be well below the 40 dBA noise standard. Accordingly, operational impacts related to an exceedance of local noise standards would be less than significant.

b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Impact NOI-2: Exposure of Persons to Vibration or Groundborne Noise (less than significant)

Construction equipment expected to be used for project construction includes excavators, concrete trucks, and concrete pumps. As shown in Table 3.7-4 above, vibration levels in excess of 0.04 PPV inch per second (in/sec) is considered to be distinctly perceptible. Large earth-moving equipment, such as a large bulldozer, can generate vibration levels of approximately 0.03 PPV in/sec at a distance of 50 feet (refer to Table 3.7-2 above). An excavator would be expected to generate even less vibration at this distance. Because no sensitive receptors are located within 50 feet of the proposed project area, project impacts related to the generation of excessive vibration would be less than significant.

c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact NOI-3: Substantial Permanent increase in Ambient Noise Levels (less than significant)

As discussed under Impact NOI-1, operation of the proposed project would generate very low noise levels from the 1–1.5 HP motor that would be well below the applicable County noise standard at the nearest noise-sensitive land uses (40 dBA during the nighttime in non-urban areas), and would not result in a substantial permanent increase in noise. Impacts related to a substantial permanent increase in ambient noise would be less than significant.

d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact NOI-4: Substantial Temporary Increase in Ambient Noise Levels (less than significant)

As discussed under Impact NOI-1, construction of the proposed project would generate some noise. However, project construction would be limited to hours that are exempt from noise ordinance limits and impacts related to an exceedance of local noise standards would be less than significant. The nearest residential receptor is located over 1,600 feet from the proposed project site. An excavator (which is the loudest piece of equipment proposed for use during project construction) generates a noise level of approximately 77 dBA L_{eq} at a distance of 50 feet. This equates to a noise level of approximately 47 dBA L_{eq} at a distance of 1,600 feet. Therefore, it is likely that the construction associated with the proposed project would not be substantially above the existing ambient noise levels at the nearest residential receptor (~1,600 feet to the northeast). Impacts related to a substantial temporary increase in ambient noise would be less than significant.

e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?

The closest public airport to the project area is Chico Municipal Airport, which is approximately 7 miles north of the proposed project. At this distance from the airport, no people residing or working in the project area would be exposed to excessive aircraft noise. Because the proposed project would not expose employees or construction workers to excessive noise levels related to aircraft overflight, there would be no impact.

f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?

The nearest active private airstrip is Ranchaero Airport-CL56, which is approximately 5 miles northwest of the proposed project. At this distance from the airstrip, no people residing or working in the project area would be exposed to excessive aircraft noise. Because the proposed project would not expose employees or construction workers to excessive noise levels related to aircraft overflight, there would be no impact.

3.8 Cultural Resources

3.8.1 Existing Conditions

This setting section for cultural resources provides an overview of the prehistory and history for the project area. A more comprehensive prehistoric, ethnographic, and historic context is provided in the technical study (ICF 2017) that informs this section.

3.8.1.1 Prehistory

The taxonomic framework of the Sacramento Valley has been described in the following sections in terms of archaeological patterns, following Fredrickson's (1973) system. A pattern is a general mode of life characterized archaeologically by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture. Fredrickson's (1973) periods are also employed in the discussion of Paleoindian (12,000–8000 B.P. [before present]), Lower Archaic (8000–5000 B.P.), Middle Archaic (5000–2500 B.P.), Upper Archaic (2500–950 B.P.), Lower Emergent (950–450 B.P.), and Upper Emergent (450–150 B.P.) (White et al. 2002: Figure 15). At the end of the Pleistocene (roughly the beginning of the Paleoindian Period), circa 13,500 B.P. to 10,500 B.P., parts of the Sierra Nevada adjacent to the Central Valley were covered with large glaciers (West et al. 2007:27), and the valley provided a major transportation route for animals and people. This transportation corridor, perhaps rivaled only by maritime coastal travel (Erlandson et al. 2007), was undoubtedly used heavily by early Californians. Evidence for human occupation during this period, however, is scarce, the hypothesized result of being buried by deep alluvial sediments that accumulated rapidly during the late Holocene (Westwood 2005:17).

The economy of the Central Valley residents during the late Pleistocene is thought to have been based on the hunting of large Pleistocene mammals. Although no direct evidence of this exists in the Central Valley, the similarity of the artifact assemblages with those of other locations in western North America lends some support the notion of a large-game economic focus. Much of the Pleistocene megafauna became extinct at the Pleistocene/Holocene transition. These extinctions were caused by warming temperatures, rising sea levels, and changing precipitation patterns. As the Central Valley gradually became both warmer and dryer, pine forests were replaced with vegetation similar to present day. The rising sea level filled San Francisco Bay and created the Sacramento-San Joaquin River Delta marshes. To survive without large game, people had to change their food procurement strategies to make use of a more diverse range of smaller plants and animals. Using a wider range of smaller resources meant that people had to have access to larger areas of land to hunt and collect the food and other resources they needed. Small groups of people probably moved through the valley, foothills, and Sierra Nevada to take advantage of seasonally available resources and resources limited to particular ecozones. This mobile foraging strategy was essential to their survival.

The reliance on a diverse number of smaller plants and animals had several consequences. People had to move around from one area to another to take advantage of the seasonal availability of particular resources. Large areas of land were needed to ensure that enough resources were available during all times of the year. More specialized tools were necessary to procure and process the wider range of plants and animals that were being used. This generalized subsistence strategy worked well for the inhabitants of the Central Valley for many millennia.

During the Lower Archaic Period, beginning approximately 6000 B.P., a shift to a more specialized subsistence strategy began to take place. The more specialized strategy focused on ways of increasing the amount of food that could be produced from smaller areas of land. This change can be partially explained by the increasing numbers of people living in the Central Valley. An increased population is indicated by a much more abundant archaeological record and by dietary stress, as indicated by dental pathologies (Morrato 1984:203–204). As the population slowly increased, it became more difficult for people to obtain seasonally available resources across large areas of land.

A restricted land base, coupled with a more specialized resource base, meant that people had to develop economic relationships with other groups of people having different specialized resources inhabiting other areas. Although resources and commodities were being exchanged throughout the region before the Lower Archaic Period, more extensive and more frequently used economic networks developed during this time. Transported resources likely included foods (trans-Sierra acorn movement is known from later periods [d'Azevedo 1986]) and commodities more visible in the archaeological record, such as shell and lithic materials (Rosenthal et al. 2007:155). The trends toward specialization, exchange, and spatial circumscription that characterized prior periods continued in the Late Horizon. Population continued to increase, and group territories continued to become smaller and more defined. The Delta region of the Central Valley reached population density figures higher than almost any other area of North America (Chartkoff and Chartkoff 1984). Patterns in the activities, social relationships, belief systems, and material culture continued to develop during this period and took forms similar to those described by the first Europeans that entered the area.

Konkow Maidu

Ethnographically, the Konkow Maidu occupied the area northwest of their Nisenan neighbors, in the foothills east of Chico and Oroville, as well as a portion of the Sacramento Valley (Riddell 1978). Konkow is one of three languages composing the Maiduan language family of the Penutian linguistic stock. Several dialects of Konkow were spoken from the lower extent of the Feather River Canyon to the surrounding hills and in the adjacent parts of the Sacramento Valley (Shipley 1978).

The Konkow lived in communities of three to five villages, in round semi-subterranean houses covered with earth. It is estimated that a typical village consisted of about 35 people during ethnographic times. Family units usually were made up of two to five people. A major village with a large assembly and subterranean ceremonial lodge served as the central ceremonial and political focus for affiliated villages in the vicinity. The political leader (chief) lived in the ceremonial lodge. The chief's primary roles were advisor and spokesman. The individual villages were self-sufficient, not under the control of a headman (Riddell 1978).

In winter, the Konkow settled in widely dispersed patterns along river canyons, usually on ridges high above rivers and generally on small flats on the crest of the ridge, or halfway down the canyon side. A village owned and defended a known territory, which served as a communal hunting and fishing ground. Some villages were strategically located atop isolated knolls in consideration of attack and defense. The Konkow followed an annual gathering cycle that made it necessary for them to leave their winter settlements on the river ridges. In the summer, they traveled into the mountains to hunt. In the spring, they ventured into the valley areas to collect grass seeds (Riddell 1978).

The Konkow economy was a mixture of hunting, fishing, and gathering. The Feather River provided a wealth of fish resources, mainly in the seasonal salmon runs. Lamprey eel also were abundant and favored by the Konkow in ethnographic times. Hunting was also an important source of food for the Konkow. Deer were the main game animal, but others included elk, rabbits, squirrels, and birds such as quail, pigeons, and ducks (Riddell 1978).

Because the Konkow had no complex political organization, the shaman was an important figure in their society. With his mysterious powers and spiritual communication, he provided a sense of unity in the village community. He functioned in ceremonies and festivals and served as a medical doctor. The office of shaman was an inherited one, falling to a son after the shaman's death (Riddell 1978).

Konkow life was little affected by European contact until the California Gold Rush in 1849, which was particularly devastating for them. The abundant gold in the Feather River and surrounding foothills lured hordes of miners to the area, bringing disease and encroaching on traditional Konkow territory.

In 1863 the Konkow again were rounded up by the militia and driven in what is now remembered as the Death March across the Coast Range to the Round Valley Reservation in northern Mendocino County. Many of these families remain in Round Valley today. Around the turn of the twentieth century, several small rancherias were created, finally establishing a legal land base for them and formalizing their tribal status with the federal government (Riddell 1978).

3.8.1.2 History

Literature review and archival research conducted for this project revealed two key themes that frame the historical context for which potentially affected built-environment resources of this undertaking are best understood: regional development, and agriculture and water management. A discussion of these themes follows.

3.8.1.3 Regional Exploration and Development

Early European and Euro-American exploration of the project area and of the wider region comprising present-day Butte County began with Spaniard Gabriel Moraga's 1808 expedition into the northern Sacramento River Valley. Moraga encountered the Feather River during this expedition and mistakenly took it to be, in the words of historian Douglas E. Kyle, "the principal stream of the great northern valley" (Kyle 2002:522). Dispatched by colonial authorities in 1817, Luis Arguello and Father Naciso Duran led a second Spanish expedition into the area, traveling on the Sacramento River as far as its confluence with the Feather River. Between 1828 and the early 1840s, fur trappers were active in the area. Notable among them were Jedidiah Strong Smith and Michael La Frombois, the latter a representative of the Hudson Bay Company (Kyle 2002:522–523). In 1843, John Bidwell led an impromptu exploration of eastern parts of present-day Butte County while attempting to track down horses stolen from him while he was on route to Sutter's Fort (Mansfield 1918: 36–37). In 1846, John C. Fremont ventured into parts of present-day Butte County, including a section of John A. Sutter's Mexican land grant (Kyle 2002:523).

The earliest non-indigenous permanent settlements of present-day Butte County were established by ethnically European recipients of Mexican land grants. In 1844, Rancho Esquón was granted to John A. Sutter and Samuel Neal. Neal came to California with John C. Frémont in 1844 and received permission to remain and work as a blacksmith at Sutter's Fort. At his ranch, Neal raised cattle for the hide and tallow trade. After striking gold at Bidwell's Bar along the Feather River in 1848, John

Bidwell purchased the Chico Rancho from Grantees William Dickey and Edward Farwell in 1949. Bidwell would later establish the town of Chico there (Kyle 2002:37-38).

With the discovery of gold the nature of life in Butte County changed. Gold Rush immigrants formed new smaller, informal settlements. By one count, 214 mining camps were established in southeastern Butte County and many of these were likely situated along the Feather River (Talbitzer 1987:29). However, as many would-be miners failed to find wealth in the goldfields, they turned to farming, building on the fledgling agricultural industry established by the region's earliest Euro-American settlers.

3.8.1.4 Agriculture

Agriculture first developed in Butte County in two centers: in the town of Hamilton, where approximately 2,000 acres of wheat, barley, and other vegetables were planted as early as 1854; and on John Bidwell's property, where Judge Joseph Lewis planted the Mother Orange Tree and introduced the citrus industry to Butte County in 1856. By 1900, there were 3,300 acres of oranges in Butte County (Mansfield 1919: 20-23; Connell n.d.).

Early farmers in the region were often men disillusioned with the travails of northern California mining camps. With the gradual introduction of plowing and threshing equipment produced in the eastern United States, a burgeoning wheat industry in Butte County arose by 1858 and supplanted opportunistic hay harvests as the largest agricultural pursuit in the region (Mansfield 1918:168). In the 1860s, as the regional wheat industry continued its ascent, Butte County farmers increasingly diversified. Agriculture temporarily surpassed mining as the area's primary economic enterprise (Mansfield 1919:26).

Intensive farming began in the region in the late 1870s. The advent of improved rail service, mechanized farm equipment, cooperative marketing, and agricultural commodification helped to spur this trend statewide (Rice et al. 2002:281–283). Regional agricultural expansion coincided with an influx of Euro-American immigrants. (Mansfield 1918:220). With the end of hydraulic mining in the 1880s, Butte County resumed its transition to an economy dominated by agriculture. Wheat production began to decline in Butte County during the winter of 1889–1890, partly as a result of increased global competition (Mansfield 1918:35; Rice et al. 2002:282). Meanwhile, the region's growing horticultural sector supplanted wheat as the dominant agricultural force and led to the establishment of agricultural industries in rural communities. Despite the growth of a native canning industry, the close of hydraulic mining operations appears to have initiated two decades of population decline in Butte County between 1880 and 1900 (Mansfield 1918:34).

Large-scale irrigation spread in Butte County in the early twentieth century. In 1905 the Butte County Canal (later renamed the Sutter-Butte Canal) opened, supplying Feather River water to parts of the county along the west bank of the river (McGie 1980:12). In addition to supporting already-thriving horticultural and viticultural sectors, the canal systems allowed the introduction of rice growing. The earliest such endeavors in the area occurred on experimental farms supported by the United States Department of Agriculture in 1908 (Mansfield 1919:356). By 1911, approximately 1,000 acres in Butte County were planted with rice; 7 years later, the acreage devoted to the grain had increased to 30,000 acres.

Throughout the twentieth century, Butte County boasted a thriving and diverse agricultural sector that included a variety of grain, fruit and citrus orchards, and truck crops. Through this period, and to the present, rice has been the major regional crop (Butte County 1952; Butte County Agricultural

Commissioner 1973; Butte County Historical Society 2010). The citrus industry, on the other hand, has steadily declined since the 1960s due largely to severe freezes in 1972, 1990, and 1998. The acreage of oranges in Butte County dropped from 2,200 in 1947 to 376 in 1967 and was at 162 acres in 2007 (Connell n.d.). Today, the predominant crop in Butte County is almonds, which was valued at $241,035,750 in 2014, followed by walnuts at $232,016,400, and rice at $150,963,120. Other regional horticulture such as prunes, peaches, nursery stock, and cattle has contributed substantially to the Butte County agricultural industry (Butte County Agricultural Commissioner 2014).

3.8.1.5 Transportation

Before the advent of the railroads, the primary means of communication and travel was by steamboats on the Feather and Sacramento Rivers. Beginning in the 1860s, railroad transportation became increasingly important to trade and travel in Butte County.

Rail Transport

Beginning in the late nineteenth century, railroad construction in Butte County facilitated the marketing of local agricultural produce and stimulated the growth of communities. Within these communities, warehouses, packing facilities, canneries, and other agricultural and industrial facilities often sprang up adjacent to the rail lines. Butte County's first railroad, the California Northern Railroad from Marysville to Oroville (later the Southern Pacific Railroad, Northern California Line), was completed in 1864 under a $200,000 bond measure. (Mansfield 1919:27; Palermo Community.net 2015). Remnants of a railroad bridge that crossed over Butte Creek are within the APE. The former bridge and associated railroad alignment were developed as part of the Butte County Railroad. Built in 1902 by for the Diamond Match Company, the railroad provided for timber and timber products to be shipped along Magalia Ridge from Sterling City to Chico. By 1907, the Southern Pacific Railroad had taken over the Butte County Railroad (U.S. Geological Survey 1912; Mansfield 1918: 341).

Electric railroad service came to Butte County after 1900. The Northern Electric Railway (NER) was incorporated as early as 1905, capitalized at a value of $3 million. An electric, interurban rail line, the NER linked Chico and Sacramento by 1907, filling in service gaps between steam-powered lines and local streetcars. Financial troubles led to the NER's failure in 1917 and its subsequent sale to the Sacramento Northern Railway. Western Pacific Railroad acquired the Sacramento Northern Railway in 1921 (Burg 2006:75; Mansfield 1918:194, 345; Robertson 1998:195).

3.8.1.6 Chico

John Bidwell founded the town of Chico on his Rancho Chico land in 1860. According to local historian George C. Mansfield, "Bidwell's offer to give a lot to anyone who would build on the Chico town site immediately started a little building boom, and soon houses were springing up on every side." By 1864 Chico had 500 residents. Bidwell donated land for the town's early churches and schools, including land that would become the site of the Northern Branch State Normal School. Established in 1887, the Normal School would eventually become California State University Chico. Bidwell also donated land for the city plaza bordered by Broadway, Main, 3rd, and 4th Streets. The oldest public building, the Masonic Hall on West 1st Street, was constructed in 1872, the year before Chico was incorporated as a city. Chico was also home to multiple lumber mills and other timber processing businesses, including the Diamond Match Company plant. Chico grew as productive agriculture flourished around it and generated a need for agricultural processing facilities such as canneries. By 1910 Chico had 3,750 residents. (Kyle 2002:37–38; Mansfield 1918: 292; Mansfield 1919:27 quoted, 31).

3.8.1.7 Durham and the State Colony at Durham

Durham took shape south of Chico, on the west side of Butte Creek. Sam Neal willed 320 acres there to Robert W. Durham, who subsequently acquired the remainder of Neal's ranch from heirs who resided in Pennsylvania. A railroad station was opened in Durham in 1870 along the main line between Sacramento and Oregon. Durham became known for its almonds during the late nineteenth century. Judge Oroville Pratt planted the first of Durham's almond trees in 1987, and in 1895 Durham and E. A. Epperson planted the first commercial orchard. The Durham Almond Growers Association was established in 1909. In 1918 it became part of the California Almond Growers Association. By 1913, Butte County's almond production accounted for 13 percent of California's total almond output (Mansfield 1918:292, 356).

Along with the Delhi Land Colony in Merced County, Durham became home to one of two agricultural colonies sponsored by the State of California as an alternative to private agricultural colonies. Modeled on public agricultural colonies in Australia and instituted by the Land Settlement Board, these two colonies were the brainchildren of University of California, Berkeley professor, Elwood Mead, an irrigation expert who also chaired the university's Rural Institutions Division. The goal of the farm colony program was to create efficient rural communities of small-scale family farms devoted to scientific agricultural practices. Mead and others also promoted the colony idea as a means of providing returning World War I veterans and working-class city dwellers with opportunities other than industrial labor, and as a means of checking the advances of Japanese immigrant Japanese farmers. At that time, many influential Californians viewed the productivity of Japanese farmers in highly prejudicial terms and considered them a threat to social order and to the economic prospects of native born European-Americans. Mead headed the state's rural colony program for 6 years. The Durham Land Colony was created on 6,239 acres in 1918. The 110 settler families who quickly purchased Durham lots arrived with a $789.00 average net worth. Despite initial success, neither the Durham nor the subsequently established Dehli colony could flourish within the depressed agricultural economy of the 1920s. Public support evaporated for additional state funding to provide credit to keep the two colonies afloat financially. Many settlers lost the savings they had initially invested. In 1930 officials reached an agreement with settlers to end the State of California's support of the Durham and Dehli Land Colonies (Hayden-Smith 2015; Mansfield 1918:357–358; Kruger 1970:105–133).

The BC 55 Structure was originally constructed to help provision the Durham Land Colony and the lands of Robert W. Durham with irrigation water. A judicial opinion from a 1942 case heard in the Third District Court provides a short history of interactions between the State of California and Robert W. Durham regarding water rights to Butte Creek and the diversion structure's construction (although the quoted opinion dates the structure to 1919, a date stamp on the structure reads "1918"):

> The record discloses that plaintiffs' predecessor in interest, one Robert W. Durham, was the owner of certain lands known as the "Durham Ranch," together with appurtenant riparian water rights, situated near the town of Durham in Butte County, west of and adjacent to Butte Creek; that the State Land Settlement Board, predecessor in interest of the defendant herein, which was created by an act of the California Legislature (Statutes of 1917, page

> 1566) for the purpose of acquiring land for rural farms, purchased a considerable acreage including riparian [50 Cal. App. 2d 339] rights on Butte Creek, which project became known as "Durham Land Colony," and included an area on both sides of Butte Creek. These lands were sold in small parcels with the appurtenant water rights to individual farmers, the board agreeing to deliver the water to the respective parcels at cost. By a decree rendered in the Superior Court of Sutter County in 1920, the plaintiffs' predecessor, Robert W. Durham, was adjudged to be the owner of two cfs (80 miner's inches) of the waters of Butte Creek, and the State Land Settlement Board to be the owner of 40 second feet or 1600 miner's inches. In 1919, the board desired to deliver water to certain parcels of land west of Butte Creek and south of the Robert W. Durham lands, and in preparation therefore it became necessary to obtain rights of way for a high line ditch to transport such water. The plan of supply was by gravity flow, and a diversion dam was built on Butte Creek some four or five miles upstream, and the water then taken by means of a ditch on the easterly side of Butte Creek down to the Colony lands. At a point approximately a mile northerly on the Robert W. Durham lands a portion of such waters was diverted west across Butte Creek by means of a siphon to supply Durham's land and those above referred to lying south of Durham's land . . . . In addition Durham paid to the board the sum of $125 toward the construction of the permanent diversion dam on Butte Creek, which circumstance lends support to the suggestion of permanence of the plan or agreement in question. The Durham lands, [50 Cal. App. 2d 340] prior to this agreement, had its own system of ditches which had supplied water to the lands for many years (Steel 1942).

In 1929, five Durham Land Colony settlers established the Durham Mutual Water Company to assume control over the colony water allotment diverted and delivered by the subject diversion structure and the associated ditch that conveyed water south to Durham. The ditch is identified as Durham Mutual Ditch on a USGS topographic map that was produced on the basis of surveys conducted in 1947 (Cleary 1929:798; U.S. Geological Survey 1948).

3.8.2 Regulatory Setting

3.8.2.1 State

California Environment Quality Act

Two categories of cultural resources are specifically called out in the California Environmental Quality Act (CEQA) Guidelines. The categories are *historical resources* (including buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance) (CEQA Guidelines Section 15064.5[b]) and *unique archaeological resources* (CEQA Guidelines 15064.5[c]; California Public Resources Code [PRC] Section 21083.2). Different legal rules apply to the two different categories of cultural resources. However, the two categories sometimes overlap where an archaeological historical resource also qualifies as a unique archaeological resource. In such an instance, the more stringent rules for unique archaeological resources apply, as explained below. In most situations, resources that meet the definition of a unique archaeological resource also meet the definition of a historical resource. As a result, it is current professional practice to evaluate cultural resources for significance based on their eligibility for listing in the California Register of Historical Resources (CRHR).

Historical resources are those meeting the following requirements.

- Resources listed in or determined eligible for listing in the CRHR (CEQA Guidelines Section 15064.5[a][1]).
- Resources included in a local register as defined in PRC Section 5020.1(k), "unless the preponderance of evidence demonstrates" that the resource "is not historically or culturally significant" (CEQA Guidelines Section 15064.5[a][2]).
- Resources that are identified as significant in surveys that meet the standards provided in PRC Section 5024.1(g) (CEQA Guidelines Section 15064.5[a][3]).
- Resources that the lead agency determines are significant, based on substantial evidence (CEQA Guidelines Section 15064.5[a][3]).

Unique archaeological resources are defined in PRC Section 21083.2 as a resource that meets at least one of the following criteria.

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person. (PRC Section 21083.2[g])

The process for identifying historical resources is typically accomplished by applying the criteria for listing in the CRHR (14 CCR Section 4852). This section states that a historical resource must be significant at the local, state, or national level under one or more of the following four criteria.

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. It is associated with the lives of persons important in our past.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.
4. It has yielded, or may be likely to yield, information important in prehistory or history.

To be considered a historical resource for the purpose of CEQA, the resource must also have *integrity*. Integrity is the authenticity of a resource's physical identity, evidenced by the survival of characteristics that existed during the resource's period of significance.

Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling and association. It must also be judged with reference to the particular criteria under which a resource is eligible for listing in the CRHR (14 CCR 14 Section 4852[c]). Integrity assessments made for CEQA purposes typically follow the National Park Service guidance used for integrity assessments for National Register of Historic Places (NRHP) purposes.

Even if a resource is not listed or eligible for listing in the CRHR, in a local register of historical resources, or identified in an historical resource survey, a lead agency may still determine that the resource is an historical resource as defined in PRC Section 5020.1j or 5024.1 (CEQA Guidelines Section 15064.5[a][4]).

Resources that meet the significance criteria and integrity considerations must be considered in the impacts analysis under CEQA. Notably, a project that causes a substantial adverse change in the significance of an historical resource is a project that may have significant impact under CEQA (CEQA Guidelines Section 15064.5[b]). A substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired. The significance of an historical resource is materially impaired if the project demolishes or materially alters any qualities as follows.

- Qualities that justify the inclusion or eligibility for inclusion of a resource on the CRHR (CEQA Guidelines Section 15064.5[b][2][A],[C]).
- Qualities that justify the inclusion of the resource on a local register (CEQA Guidelines Section 15064.5[b][2][B]).

State Law Governing Human Remains

California law sets forth special rules that apply where human remains are encountered during project construction. As set forth in CEQA Guidelines Section 15064.5[e], in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, no further excavation or disturbance of the site or any nearby area suspected of overlying adjacent human remains should take place until the following measures are implemented.

1. The coroner of the county in which the remains are discovered is contacted to determine that no investigation of the cause of death is required (as required under California Health and Safety Code [CHSC] Section 7050.5).
2. If the coroner determines the remains to be Native American:
    a. The coroner will contact the Native American Heritage Commission (NAHC) within 24 hours.
    b. The NAHC will identify the person or persons it believes to be the most likely descended from the deceased Native American.
    c. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods (as provided in PRC Section 5097.98).
    d. Where the following conditions occur, the landowner or his authorized representative will rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.
        1) The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission.
        2) The descendant identified fails to make a recommendation.
        3) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the NAHC.

3.8.2.2 Local

A review of regional general plans indicated there are no local-level cultural resources regulations in place that would be applicable to potentially identified resources within the project area.

3.8.3 Methods

3.8.3.1 Records Search

A California Historical Resources Information System records search was conducted at the Northeast Information Center (NEIC), California State University, Chico, on July 11. 2017. The records search compiled bibliographic references, previous survey reports, historic maps, and cultural resource site records pertinent to the proposed project in order to identify prior cultural resource studies and known cultural resources within ¼ mile of the project area.

Results of the records search indicated that there has been no previous survey conducted covering the project APE. The records search identified no previously recorded resources within the project APE.

3.8.3.2 Additional Background Research

In an effort to identify important historic people, events, and architectural trends that may have been associated with built-environment resources within the project APE, an ICF architectural historian vetted results of previous cultural resource studies relevant to the project area on file in the ICF corporate library. This initial literature review was augmented with additional primary and secondary source research, including review of the Office of Historic Preservation's Historic Resources Inventory, an assessment of historical aerials and imagery, and county and USGS maps on file at the California Room and the Government Publications Section of the California State Library in Sacramento, California. Additionally, in an effort to obtain relevant historical information and construction history pertaining to the BC 55 diversion structure, ICF communicated directly with board members of the Durham Mutual Water Company.

3.8.3.3 Field Survey

ICF archaeologist Erik Allen conducted a field survey of the project area on July 26, 2017. Visibility was generally poor, approximately 0–30%, across the majority of the APE due to thick vegetation. Mr. Allen paid special attention to areas denuded of vegetation, such as footpaths. No archaeological resources were noted within the APE during survey. A map of survey coverage is included in the attachments to this report.

ICF architectural historian David Lemon conducted a pedestrian survey of the entirety of the APE on July 26, 2017. As part of the field process, Mr. Lemon inspected, photographed, and documented buildings and structures 50 years old or older. The results of this investigation are described below.

3.8.3.4 Consultation with Native Americans and Other Interested Parties

Consultation with Native American groups and interested parties will be conducted by the Family Water Alliance.

3.8.4 Findings for Cultural Resources

ICF has prepared a detailed cultural resources technical report that can be made available upon request (ICF 2017). Below is a summary of findings for cultural resources located in the project area.

3.8.4.1 Archaeological Resources in the Project Area

There are no known archaeological resources within the project APE. No previously unidentified resources were noted during the field survey.

3.8.4.2 Architectural Resources in the Project Area

A review of the proposed project, previous studies, background research, and field survey identified a single historic-era, built-environment resource exceeding the 50-year threshold in the project area: the Butte Creek Diversion 55 Structure. ICF identified no additional built-environment resources in the APE exceeding the 50 year threshold.

Butte Creek Diversion 55 Structure

The BC 55 structure is composed of a concrete weir, an abutment incorporating a fish ladder system at the creek's east bank, and an abutment at the creek's west bank exhibiting evidence of repeated modification. Angled to descend downstream to the south, the weir is approximately 145 feet long at the crest and approximately 35 feet wide at center. Steel posts rising from a bolted steel base across the crest exhibit the remains of a weir plate. Built in the late 1990s and incorporating a 35-foot-long fish screen, the concrete fish-ladder structure at the east bank is 90 feet long, 16 feet wide, and 9 feet deep. The northern end of the fish ladder is connected to the east concrete abutment of a former railroad crossing. The west abutment and submerged concrete piers of the former railroad crossing are also present north of the weir. Between the weir and the fish ladder is an area of concrete and shotcrete-anchored rubble reinforcement. Immediately east of the fish ladder is a control room building with concrete block walls and a wood roof pitched slightly on each side of the central ridge. The concrete west abutment incorporates the remains of a former fish ladder topped with bolted sheets of steel and reinforced with rubble, including a rectangular block of rubble encased in a steel frame. A sink hole signals deterioration at the west abutment, where a concrete stamp dates the diversion structure's construction to 1918. Access to the structure is secured by a steel fence and gate immediately west of the west abutment, which, along with other elements of the resource, is covered with graffiti.

BC 55 diversion structure, view to west from east end at fish ladder. July 27, 2017.

Evaluation

The BC 55 structure does not appear to meet any of the criteria necessary for listing in the NRHP or the CRHR.

Water diversion structures are a common property type throughout Butte County and the state of California. Water management infrastructure is usually considered significant under NRHP Criterion A and CRHR Criterion 1 when associated with trends and events that have made a significant contribution to the broad patterns of our history, particularly events that have had a lasting influence on the community and/or economic history of a locale or region. While the subject water diversion structure was associated with agricultural development locally, this is far too common an association to merit a blanket conclusion of historical significance under Criteria A/1. Constructed by the State of California in 1918, with partial funding by private landowner Robert W. Durham, the resource was created to divert water for use by the state's Durham Land Colony several miles to the south. While Durham Land Colony and its counterpart in Merced County, the Delhi Land Colony, represented a unique experiment in agricultural community development, both were relatively short-lived and failed by the end of the 1920s. They did not lead to the creation of other state-sponsored agricultural colonies in California. Consequently the subject diversion structure's association with the Durham Land Colony does not appear to reach the threshold of historical significance appropriate for NRHP or CRHR listing under Criteria A/1. The structure is not associated with any other event or events that qualify as extraordinary or that would distinguish the structure from the vast array of water diversion structures in Butte County and across the Sacramento Valley. Even if the resource did have significance under Criteria A/1, it would no longer convey such significance because, as detailed below, it does not retain sufficient historical integrity due to repeated and cumulatively substantial alteration.

According the National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation, Criterion B "is generally restricted to those properties that illustrate a person's important achievements" (U.S. Department of the Interior 1997:14). Examples of property types that have a proven association with significant individuals under this criterion include "the homes of an important merchant or labor leader, the studio of a significant artist, and the business headquarters of an important industrialist" (U.S. Department of the Interior 1997:14). To be found eligible under Criteria B/2, a property has to be directly tied to the important person and be the place where the individual conducted or produced the work for which he or she is known. The subject diversion structure is not associated with Robert W. Durham's early agricultural pursuits; although Mr. Durham appears to have been Durham's earliest settler, the diversion structure was built over 20 years after R. W. Durham and E.A. Epperson began to cultivate Durham's first commercial almond orchards. Although the diversion structure is loosely associated with Elwood Mead, the influential University of California, Berkeley professor who initially led the colony program under which the Durham Colony was created, the structure was not a primary place where Mead conducted his work. For these reasons the diversion structure does not have any direct association with individuals whose work was singularly important to local, state, or national history. It does not, therefore, appear to be eligible for listing under NRHP Criterion B or CRHR Criterion 2.

The diversion structure does not appear to have significance under NRHP Criterion C or CRHR Criterion 3. Structures that would be eligible for listing under these criteria would represent distinctive or pioneering engineering features in the field of water management, and this distinction does not appear to be the case for the BC 55 structure. Essentially a concrete weir, the resource is a typical example of a water diversion structure. Similar water diversion structures are found in great numbers throughout northern California. The subject structure was not the first to divert water from a major source for purposes of crop irrigation, nor was it the first example of its type. The subject resource exhibits no physical evidence that it is notable for its engineering, and research revealed no documentary evidence suggesting that it has engineering significance. For these reasons, the BC 55 structure does appear to meet Criteria C/3.

In rare instances, engineering structures themselves can serve as sources of important information about historic construction materials or technologies, and thereby have significance under NRHP Criterion D and CRHR Criterion 4. However, the BC 55 structure does not appear to be a source of important information in this regard.

The BC 55 structure has poor historical integrity overall. It retains integrity of location and association (it continues to divert water). Its integrity of feeling has been diminished somewhat by alterations that have substantially diminished its integrity of design, materials, and workmanship. A fish ladder at the west end of the structure was severely damaged in 1997. The ladder has been filled and reinforced with a variety of materials. Since 1997, a much more substantial concrete fish ladder and associated screen have been added to the east end of the structure. Immediately west of that new fish ladder, the structure has been reinforced with concrete and shotcrete-anchored rubble. A non-historic control building added to the site at the north end of the fish ladder and a non-historic fence that secures the site at the west end of the structure also alter the setting.

In conclusion, the BC 55 structure does not appear eligible for listing in the NRHP or the CRHR. The structure was evaluated in accordance with Section 15064.5 (a)(2)-(3) of CEQA Guidelines and using the criteria outlined in Section 5024.1 of the California PRC, and does not appear to be a historical resource for the purposes of CEQA.

3.8.5 Environmental Effects

Potential impacts of the proposed project on cultural resources are discussed in the context of State CEQA Guidelines Appendix G checklist items.

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

The proposed project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 because there are no historical resources present within the project area. There would be no impact.

b. ***Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?***

Impact CUL-1: Change in the Significance of a Unique Archaeological Resource (less than significant with mitigation)

The proposed project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 because there are no historical resources present within the project area. There would be no impact.

The possibility exists that buried archaeological resources that may meet the definition of historical resource or unique archaeological resource are present in the project area. If any buried resources are encountered and damaged during construction, the destruction of the archaeological resources would be a potentially significant impact. Implementation of Mitigation Measure CUL-MM-1a will reduce this impact to a less-than-significant level.

Mitigation Measure CUL-MM-1a: Implement Measures to Protect Previously Unidentified Cultural Resources

Construction will stop if potential cultural resources are encountered. It is possible that previous activities have obscured surface evidence of cultural resources. If signs of an archeological site, such as any unusual amounts of stone, bone, or shell, are uncovered during grading or other construction activities, work will be halted within 100 feet of the find and Butte County Department of Development Services will be notified. A qualified archeologist will be consulted for an onsite evaluation. If the site is or appears to be eligible for listing the CRHR or NRHP, additional mitigation, such as further testing for evaluation or data recovery, may be necessary.

In the event resources are discovered, Butte County Department of Development Services will retain a qualified archaeologist to assess the find and to determine whether the resource requires further study. Any previously undiscovered resources found during construction will be recorded on appropriate California Department of Parks and Recreation 523 forms and evaluated for significance under all applicable regulatory criteria.

All work will stop within 100 feet of the find. If the find is determined to be eligible for listing on the CRHR or NRHP, Butte County Department of Development Services will make available contingency funding and a time allotment sufficient to allow recovery of an archaeological sample or to implement an avoidance measure. Construction work can continue on other parts of the project while archaeological mitigation takes place.

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

Impact CUL-2: Disturbance of Human Remains (less than significant with mitigation)

There is a possibility that ground-disturbing activities during construction may uncover previously unknown buried human remains, which would be a potentially significant impact. Implementation of Mitigation Measure CUL-MM-2 in combination with CUL-MM-1a will reduce this impact to a less-than-significant level.

Mitigation Measure CUL-MM-2: Implement Measures if Construction Activities Inadvertently Discover or Disturb Human Remains

If human remains are discovered during any phase of construction, including disarticulated or cremated remains, the construction contractor will immediately cease all ground-disturbing activities within 100 feet of the remains and notify Butte County Department of Development Services.

In accordance with CHSC Section 7050.5, no further disturbance will occur until the following steps have been completed.

i. The Butte County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98.

ii. If the remains are determined by the County Coroner to be Native American, the Coroner will notify the NAHC within 24 hours. The NAHC will assign the Most Likely Descendant (MLD) for the remains at the site. The MLD will have 48 hours to provide recommendations for treatment of the remains.

A professional archaeologist with Native American burial experience will conduct a field investigation of the specific site and consult with the MLD, if any, identified by NAHC. As necessary and appropriate, a professional archaeologist may provide technical assistance to the MLD, including the excavation and removal of the human remains.

3.9 Hazards and Hazardous Materials

According to the California Health and Safety Code (CHSC), hazardous materials and wastes are those substances that, because of their physical, chemical, or other characteristics, may pose a risk of endangering human health or safety or of endangering the environment (CHSC Section 25260). Types of hazardous materials include petroleum hydrocarbons, pesticides, and volatile organic compounds. Hazardous materials that would be used during construction activities for the project include diesel fuel and other liquids used for the operation and maintenance of construction equipment.

3.9.1 Existing Conditions

3.9.1.1 Hazardous Materials

The proposed project is in a riparian corridor in Butte County that is flanked by industrial and agricultural land uses. No hazardous materials sites were found during database searches for known sites in the project vicinity (California Department of Toxic Substances Control 2017; State Water Resources Control Board 2017).

3.9.1.2 Wildland Fires

The proposed project site and surrounding lands are in a moderate fire hazard area (California Department of Forestry and Fire Protection 2007).

3.9.1.3 Emergency Response and Evacuation

The Butte County Sheriff's Department provides law enforcement in the project region. Fire protection and emergency medical services in unincorporated Butte County are provided by the Butte County Fire Department and the California Department of Forestry and Fire Protection (CAL FIRE) (County of Butte 2012a:12-1–12-10).

3.9.1.4 Schools

There are no schools within a 0.25-mile radius of the proposed project.

3.9.1.5 Airports

There are no airports within 2 miles of the proposed project, and the project is not in an airport land use plan area (Butte County Airport Land Use Commission 2000).

3.9.2 Regulatory Setting

3.9.2.1 Federal

The EPA is the principal federal regulatory agency responsible for the safe use and handling of hazardous materials. Two key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in CFR Titles 29, 40, and 49.

The following federal policies related to public health and environmental hazards may apply to the implementation of the project.

Resource Conservation and Recovery Act

The Federal Resource Conservation and Recovery Act enables EPA to administer a regulatory process that extends from the manufacture of hazardous materials to their disposal, thus regulating the generation, transportation, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (also known as Superfund) was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, the act was amended by the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws). Title III states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup, even if the material was dumped illegally when the property was under different ownership.

3.9.2.2 State

California regulations are equal to, or more stringent than, federal regulations. EPA has granted the State of California primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human and environmental health. Several key state laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused material that is part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the state hazardous waste management program, which is similar to, but more stringent than, the Federal Resource Conservation and Recovery Act program. The act is implemented by regulations contained in CCR Title 26, which describes the following elements required for the proper management of hazardous waste.

- Identification and classification.
- Generation and transportation.
- Design and permitting of recycling, treatment, storage, and disposal facilities.
- Treatment standards.
- Operation of facilities and staff training.

- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and CCR Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the California Department of Toxic Substances Control.

3.9.2.3 Local

Butte County General Plan

The Health and Safety Element of the Butte County General Plan 2030 contains goals, policies, and actions aimed at reducing the risks associated with natural and human-made hazards within the county (County of Butte 2012b).

B. Goals, Policies and Actions

Goal HS-11 Reduce risks from wildland and urban fire.

Policies

Fire hazards shall be considered in all land use and zoning decisions, environmental review, subdivisions review and the provision of public services.

Create communities that are resistant to wildfire by supporting the implementation of community wildfire protection plans and wildfire fuel load reduction measures in coordination with the appropriate government, community group, or non-profit organization and CAL FIRE.

The County supports the Wildfire Mitigation Action Plan, the Butte County Local Hazard Mitigation Plan, and the Butte Unit Community Wildfire Protection Plan prepared by CAL FIRE and will cooperate with the Butte County Fire Department and the Butte County Fire Safe Council in implementing these plans.

New development projects shall meet current fire safe ordinance standards for adequate emergency water flow, emergency vehicle access, signage, evacuation routes, fuel management, defensible space, fire safe building construction and wildfire preparedness.

Actions

In consultation with the Butte County Fire Department, seek funding to identify and complete roadside fuel reduction projects and maintain necessary clearance zones on critical roads to reduce wildfire risk, increase visibility and maintain safe evacuation routes.

3.9.3 Environmental Effects

Potential impacts of the proposed project on hazards and hazardous materials are discussed in the context of State CEQA Guidelines Appendix G checklist items.

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

Impact HAZ-1: Incidental Release of Hazardous Materials during Construction (less than significant with mitigation)

Project implementation would require the use of hazardous materials such as fuels and lubricants to operate construction equipment and vehicles such as a crane, front-end loader, and backhoe. Construction contractors would be required to use, store, and transport hazardous materials in compliance with federal, state, and local regulations during project construction. However, fuels and lubricants could be accidentally released into the environment at the construction site and along haul routes, causing environmental or human exposure to these hazards, which would be a significant impact. Implementation of Mitigation Measure WQ-MM-1a, described in Section 3.3, *Hydrology and Water Quality*, would ensure that the risk of accidental spills and releases into the environment would be minimized and that this impact would be reduced to a less-than-significant level.

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?

Refer to the discussion above for checklist item *a*).

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

There are no schools within 0.25 mile of the project site. Therefore, there would be no impact.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The project area is not on a site that is included on any list of hazardous materials sites. Therefore, there would be no impact.

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

The project area is not located within an airport land use plan area or within 2 miles of a public airport or public use airport. Therefore, there would be no impact.

f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?

The project area is not in the vicinity of a private airstrip. Therefore, there would be no impact.

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

Construction-related activities would not involve temporary or permanent obstruction of any major roadways within a city and would not otherwise interfere with emergency operations or evacuations. Therefore, there would be no impact.

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

It is unlikely that the project would involve open flames or other open sources of combustion because all components of the fish screen would be built offsite and then assembled onsite using bolted connections. However, if it is necessary to use a torch onsite to trim a component, the following safety measures would be followed: work would occur in an area free of flammable vegetation, a fire extinguisher would be readily accessible, and personnel would be required to wear protective gear (e.g., gloves, face shield or goggles, boots, and pants or safety apron). This impact would be less than significant.

3.10 Mandatory Findings of Significance

State CEQA Guidelines Section 15065 requires that a lead agency prepare an EIR if substantial evidence exists to support a determination that any of the following conditions may result from construction or implementation of a proposed project.

1. The project has 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.
2. The project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
3. The project has possible environmental effects that are individually limited but cumulatively considerable.
4. The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

Implementation of the proposed project would not result in any mandatory findings of significance. With the mitigation measures described in Chapter 3, *Environmental Setting and Impacts*, all environmental impacts would be reduced to a less-than-significant level. Please refer to individual resource sections in Chapter 3 for a complete discussion of the environmental impacts and associated mitigation.

Chapter 4
Cumulative Impacts

4.1 Cumulative Projects

The State CEQA Guidelines define cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (Section 15355). Pursuant to Section 15130(b)(1)(A), the following projects have been identified as those past, present, and probable future projects producing related or cumulative impacts, including those projects outside the control of the lead agency. These projects (cumulative projects) include flood management projects affecting the Sacramento River, restoration and other water-related projects in and near Butte Creek that could affect fish or vegetation on the waterside of levees, and other nearby infrastructure projects that could result in impacts and benefits similar to those of the proposed project.

- **Sacramento River Bank Protection Project**. USACE is responsible for implementation of the Sacramento River Bank Protection Project (SRBPP) in conjunction with its non-federal partner, CVFPB. The SRBPP is a continuing construction project authorized by Section 203 of the Flood Control Act of 1960. The purpose of the project is to provide protection from erosion to the existing levee and flood management facilities of the SRFCP. To date, project work has been carried out in two phases, and a total of approximately 840,000 feet of riverbank has been stabilized. Phase I consisted of 435,000 feet, and Phase II's original authorization was for 405,000 feet. An additional 80,000 feet (a supplement to Phase II) has been authorized under the Water Resources Development Act of 2007 and is being supported by a Post Authorization Change Report, Engineering Documentation Report, and Environmental Impact Statement/EIR (under development). The authorization would be applied by USACE to the Sacramento River and other sites within the SRFCP that are identified as critical levee erosion sites. There are no projects under the SRBPP that are presently under construction immediately adjacent to, and upstream of, the proposed project (U.S. Army Corps of Engineers 2015, 2017).
- **Small Erosion Repair Program**. California Department of Water Resources is responsible for implementation of the Small Erosion Repair Program (SERP). SERP is a program designed to streamline the regulatory review and authorization process that would facilitate implementation of repairs at small erosion sites on levees within the SRFCP area. Erosion repair activities would include placing fill or riprap, grading, mechanized land clear, and dredging. The Final EIR for the SERP was certified in February 2014. The proposed project is located on a SRFCP levee that is included in Region 2 of the SERP program area; however, it is not known if there are any sites proposed for repair that are immediately adjacent to or within the vicinity of the proposed project (California Department of Water Resources 2013).

4.2 Cumulative Impacts by Resource

The following analysis focuses on considering the potential for impacts identified in Chapter 3 to make a considerable contribution to significant cumulative impacts. The proposed project would not cause long-term significant impacts on the resources discussed in Chapter 3, *Environmental Setting* *and Impacts*. However, some of the resources have the potential to incur temporary, short-term impacts during the construction period. An initial assessment of potential cumulative impacts indicated that impacts on hydrology and water quality, biological resources, air quality, and GHGs have the potential to contribute to cumulative impacts. The potential cumulatively considerable impacts on these resources, in combination with potential impacts from the local projects described above, are discussed below.

4.2.1 Hydrology and Water Quality

Implementation of the proposed project would not alter the course or capacity of Butte Creek or downstream waterways. Proposed project construction could affect water quality in the vicinity of the project area through increases in turbidity and potential spills; however, implementation of Mitigation Measures WQ-MM-1a and WQ-MM-1b would prevent construction activities from contributing to cumulative impacts when considered in conjunction with other projects in the area. Proposed project operation would be similar to existing conditions and would not result in additional impacts. Therefore, the proposed project would not contribute to any cumulative impacts related to hydrology.

4.2.2 Biological Resources

Regionally, any losses of riparian habitat and perennial drainages as a result of project construction are cumulatively significant because of the current scarcity of these habitats in comparison with their historical extent, the importance of these habitats to wildlife, the potential habitats they provide for special-status plants and animals, and their roles in maintaining water quality.

Proposed project construction would have negligible impacts on riparian habitat and on the bank of Butte Creek, a perennial drainage, as the post-project conditions would be similar to existing conditions. The riparian canopy would likely recover quickly from any tree trimming, and the loss of waters of the United States from installing the concrete pad would be small (0.001 acre). USACE would consider the placement of the concrete pad to be fill; therefore, a CWA Section 404 Nationwide Permit would likely be required. General Condition 23 (Mitigation) for Nationwide Permits states that losses of streams “may require compensatory mitigation” to ensure that impacts are minimal. Because the extent of fill is only .001 acre, compensatory mitigation might not be required, but this would be determined during the permitting process. Construction would also require CWA Section 401 water quality certification from the CVRWQCB, and CDFW could impose additional requirements as part of the Lake or Streambed Alteration Agreement under Section 1602 of the CFGC. The proposed project would therefore not have any incremental impact on riparian habitat and perennial drainages and their functions, and there would be no cumulatively considerable impact. In addition, other projects in the area would be required to implement mitigation and compensation measures that would result in no net loss of riparian habitat and perennial drainages.

Construction of the proposed project could have construction-related impacts on special-status wildlife species. However, with implementation of the proposed mitigation measures, which would result in no net loss of the sensitive species or their habitats, the incremental contribution of the proposed project to a significant impact on special-status wildlife would not be cumulatively considerable.

The proposed project would result in construction-related temporary affects to aquatic habitat and the potential for construction-related degradation of fish habitat as a result of sedimentation and turbidity, accidental release of contaminants, or other disturbances. However, the project's contribution to these cumulative effects is temporary and minimized by implementation of proposed mitigation measures. Construction activities would not result in cumulatively considerable contribution to significant impacts on special-status fish species. However, operation of the new facility would result in an incrementally beneficial impact on special-status fish species, as it would prevent entrainment at the diversion.

4.2.3 Air Quality

Proposed project construction is not expected to have any long-term impacts on air quality because the operational activities are expected to be similar to existing conditions. However, construction would result in short-term, construction-related impacts on air quality that are related mainly to the use of combustion emissions and dust emissions. Implementation of mitigation measures during construction will reduce these emissions to the extent feasible. The proposed project would not require a change in the existing land use designations, and therefore long-term projected emissions of criteria pollutants would be the same with or without the project. The proposed project would also not result in a significant impact on air quality; however, all air quality impacts are cumulative, and the thresholds used by BCAQMD assume cumulative existing ongoing and future development. The minor increase in criteria pollutant emissions associated with project construction (Table 3.5-5 in Section 3.5, *Air Quality*) and operation would not exceed air district thresholds. BCAQMD's thresholds were established to assist the SVAB reach regional attainment with federal and state ambient air quality standards. Accordingly, neither project construction nor project operation would result in a cumulatively considerable contribution to a cumulative air quality impact.

4.2.4 Greenhouse Gases

It is unlikely that a single project would have a significant impact on the environment with respect to GHGs. However, the cumulative impact of human activities has been clearly linked to quantifiable changes in the composition of the atmosphere, which in turn has been shown to be the primary cause of global climate change (Intergovernmental Panel on Climate Change 2007). Although the emissions of a single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact on global climate change.

CO_2 is tracked as a contributor to GHG emissions. The CalEEMod (Version 2016.3.1) emission model calculates air emissions based on construction phase and duration, types of equipment and machinery, project area, and other input criteria. GHG impacts are inherently cumulative and are analyzed in Section 3.6, *Greenhouse Gases*; as impacts related to GHG emissions were determined to be less-than-significant, the project would not contribute considerably to a significant impact with respect to GHG emission.

Chapter 5
References

5.1 Chapter 1, Introduction

None.

5.2 Chapter 2, Project Description

None.

5.3 Chapter 3, Environmental Setting and Impacts

5.3.1 Section 3.1, Introduction

None.

5.3.2 Section 3.2, Resources Not Likely to be Affected

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None.

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Chapter 6
List of Preparers

This chapter lists the individuals who contributed to the preparation of the initial study. This list is consistent with the requirements set forth in CEQA (Public Resources Code §15129).

6.1 Butte County

Name, Title	Education/Experience	Project Role
Rowland Hickel, Senior Planner	B.A., Geography-Land Use Planning; 15 years' experience	Project Applicant

6.2 ICF

Name	Education/Experience	Project Role
Monique Briard	B.A., History; 21 years' experience	Project Director
Ellen Unsworth	M.S., Interdiscipinary Studies; 18 years' experience	Project Manager
Lisa Webber	M.S., Botany, B.A., Biology; 25 years' experience	Biological Resources
Renee Richardson	B.S., Botany; 9 years' experience	Biological Resources
Rachel Gardiner	M.S., Wildlife Ecology, B.S., Biology; 14 years' experience	Biological Resources
Pat Crain	B.S., Wildlife, Fish and Conservation Biology; 22 years' experience	Biological Resources
Darrin Trageser	M.S., Atmospheric Sciences, B.S., Atmospheric Sciences; 1 year experience	Air Quality, Greenhouse Gas Emissions
Sandy Lin	M.C.P., City and Regional Planning; B.A. Economics; B.A. Urban Studies and Planning; 7 years' experience	Air Quality, Greenhouse Gas Emissions
Elizabeth Scott	M.A., Environmental Studies, B.A., Environmental Studies; 6 years' experience	Noise
Erik Allen	B.A., Anthropology; 4 years' experience	Cultural Resources
David Lemon	Ph.D. Candidate, Public History, M.A., Public History, B.A., U.S. History; 13 years' experience	Cultural Resources
Jessica Hughes	M.S., Botany and Plant Pathology, B.S., Biology; 12 years' experience	Editor
Christine McCrory	Ph.D. Candidate, Germanic Languages and Literatures, M.Phil., European Literature, B.A., Anthropology and German; 13 years' experience	Publications Specialist
Alex Angier	A.A., Computer-Aided Drafting and Design; 9 years' experience	GIS Technician
Dave Buehler	B.S., Civil Engineering; 33 years' experience	Noise
Shannon Hatcher	B.S., Environmental Science, B.S., Environmental Health and Safety; 14 years' experience	Air Quality and Greenhouse Gas Emissions

Appendix A

Environmental Checklist

Appendix A
Environmental Checklist

1. **Project Title:** Butte Creek Diversion 55 Fish Screen Project
2. **Lead Agency Name and Address:** Butte County Department of Development Services
3. **Contact Person and Phone Number:** Charles Thistlethwaite (530/538-7601)
4. **Project Location:** Butte County, CA
5. **Project Sponsor's Name and Address:** Partnership of Brown, Sandbach, Fowler, Scott, Gustafson, and Gustafson
6. **General Plan Designation:** Resource Conservation
7. **Zoning:** Resource Conservation
8. **Description of Project:** The Butte Creek Diversion 55 (BC 55) Fish Screen Project would install a fish screen system on the existing gate on BC 55. The fish screen system would include the fish screen unit, control panel, and related components. The conical, brush-cleaned fish screen system would be installed to avoid potential entrainment of special-status fish species. The existing agricultural diversion is unscreened, and installation of the fish screen system would prevent the entrainment of special-status fish and would help meet the objectives of the Anadromous Fish Screen Program (AFSP).
9. **Surrounding Land Uses and Setting:** BC 55 is in the CDFW Butte Creek Canyon Ecological Reserve, which is a 93-acre site along the middle section of Butte Creek. The diversion is located on the right (west) bank of Butte Creek. The lands adjacent to the project area are classified as industrial.
10. **Other Public Agencies Whose Approval is Required:**

    U.S. Army Corps of Engineers

    U.S. Fish and Wildlife Service

    National Marine Fisheries Service

    Central Valley Regional Water Quality Control Board

    California Department of Fish and Wildlife

    Central Valley Flood Protection Board

    California State Historic Preservation Officer

    California State Lands Commission

A.1 Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

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

A.2 Aesthetics

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

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.3 Agricultural and Forestry Resources

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

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.4 Air Quality

III. Air Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.5 Biological Resources

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.6 Cultural Resources

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

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.7 Geology and Soils

VI. Geology and Soils	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
2. Strong seismic ground shaking?	☐	☐	☐	☒
3. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
4. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.8 Greenhouse Gas Emissions

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

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.9 Hazards and Hazardous Materials

VIII. Hazards and Hazardous Materials	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site that 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?	☐	☐	☐	☒
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.10 Hydrology and Water Quality

IX. Hydrology and Water Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	☐	☐	☐	☒
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	☐	☐	☐	☒
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f. Otherwise substantially degrade water quality?	☐	☐	☐	☒
g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	☐	☐	☐	☒
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j. Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.11 Land Use and Planning

X. Land Use and Planning	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.12 Mineral Resources

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

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.13 Noise

XII. Noise	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.14 Population and Housing

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

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.15 Public Services

XIV. Public Services	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a 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 following public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.16 Recreation

XV. Recreation	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.17 Transportation/Traffic

XVI. Transportation/Traffic	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e. Result in inadequate emergency access?	☐	☐	☐	☒
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.18 Utilities and Service Systems

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	☐	☐	☐	☒
e. Result in a determination by the wastewater treatment provider that 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?	☐	☐	☐	☒
f. Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?	☐	☐	☐	☒
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

A.19 Mandatory Findings

XVIII. Mandatory Findings of Significance	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?	☐	☐	☐	☒
b. Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☐	☒
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Please refer to Chapter 3 for a complete discussion of the environmental impacts.

Appendix B
Plant Species Observed in the Study Area

Appendix B Plant Species Observed in the Study Area

Scientific Name	Common Name
Acmispon americanus	Spanish clover
Aira caryophyllea	silver hair grass
Avena barbata	slender wild oat
Brassica nigra	black mustard
Bromus diandrus	ripgut brome
Bromus madritensis	compact brome
Conium maculatum	poison hemlock
Carduus pycnocephalus	Italian thistle
Centaurea solstitialis	yellow star thistle
Dichelostemma sp.	blue dicks
Heterotheca grandiflora	telegraph weed
Lactuca serriola	prickly lettuce
Ligustrum lucidum	Chinese privet
Microsteris gracilis	slender phlox
Quercus wislizeni	interior live oak
Rosa californica	California rose
Rubus armeniacus	Himalayan blackberry
Sambucus nigra	blue elderberry
Trifolium sp.	clover
Vitis californica	California wild grape

Appendix C
California Native Plant Society List

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 27 items - Thu, Nov. 2, 2017, 14:38 ET b

Reformat list as: Standard List - with Plant Press controls ▼

ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
Astragalus tener var. ferrisiae	Fabaceae	annual herb	Apr-May	•Meadows and seeps (Medws) (vernally mesic) •Valley and foothill grassland (VFGrs) (subalkaline flats)	2 - 75 meters	List 1B.1
Balsamorhiza macrolepis	Asteraceae	perennial herb	Mar-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/sometimes serpentinite	90 - 1555 meters	List 1B.2
Brasenia schreberi	Cabombaceae	perennial rhizomatous herb aquatic	Jun-Sep	•Marshes and swamps (MshSw) (freshwater)	30 - 2200 meters	List 2B.3
California macrophylla	Geraniaceae	annual herb	Mar-May	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/clay	15 - 1200 meters	List 1B.2
Campylopodiella stenocarpa	Dicranaceae	moss	•Cismontane woodland (CmWld)	100 - 500 meters	List 2B.2	
Cardamine pachystigma var. dissectifolia	Brassicaceae	perennial rhizomatous herb	Feb-May	•Chaparral (Chprl) •Lower montane coniferous forest (LCFrs)/usually serpentinite, rocky	255 - 2100 meters	List 1B.2
Castilleja rubicundula var. rubicundula	Orobanchaceae	annual herb hemiparasitic	Apr-Jun	•Chaparral (Chprl)(openings) •Cismontane woodland (CmWld) •Meadows and seeps (Medws) •Valley and foothill grassland (VFGrs)/serpentinite	20 - 910 meters	List 1B.2
Clarkia gracilis ssp. albicaulis	Onagraceae	annual herb	May-Jul	•Chaparral (Chprl) •Cismontane woodland (CmWld)/sometimes serpentinite	245 - 1085 meters	List 1B.2
Cryptantha crinita	Boraginaceae	annual herb	Apr-May	•Cismontane woodland (CmWld) •Lower montane coniferous forest (LCFrs) •Riparian forest (RpFrs) •Riparian woodland (RpWld) •Valley and foothill grassland (VFGrs)/gravelly streambeds	61 - 1215 meters	List 1B.2
Delphinium recurvatum	Ranunculaceae	perennial herb	Mar-Jun	•Chenopod scrub (ChScr) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/alkaline	3 - 790 meters	List 1B.2

Euphorbia hooveri	Euphorbiaceae	annual herb	Jul-Sep(Oct), Months in parentheses are uncommon.	•Vernal pools (VnPls)	25 - 250 meters	List 1B.2
Fritillaria eastwoodiae	Liliaceae	perennial bulbiferous herb	Mar-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Lower montane coniferous forest (LCFrs)(openings)/sometimes serpentinite	50 - 1500 meters	List 3.2
Fritillaria pluriflora	Liliaceae	perennial bulbiferous herb	Feb-Apr	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/often adobe	60 - 705 meters	List 1B.2
Hibiscus lasiocarpos var. occidentalis	Malvaceae	perennial rhizomatous herb emergent	Jun-Sep	•Marshes and swamps (MshSw) (freshwater)/Often in riprap on sides of levees.	0 - 120 meters	List 1B.2
Imperata brevifolia	Poaceae	perennial rhizomatous herb	Sep-May	•Chaparral (Chprl) •Coastal scrub (CoScr) •Mojavean desert scrub (MDScr) •Meadows and seeps (Medws)(often alkali) •Riparian scrub (RpScr)/mesic	0 - 1215 meters	List 2B.1
Juncus leiospermus var. leiospermus	Juncaceae	annual herb	Mar-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Meadows and seeps (Medws) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)/vernally mesic	35 - 1250 meters	List 1B.1
Limnanthes floccosa ssp. californica	Limnanthaceae	annual herb	Mar-May	•Valley and foothill grassland (VFGrs) (mesic) •Vernal pools (VnPls)	46 - 930 meters	List 1B.1
Monardella venosa	Lamiaceae	annual herb	May-Jul	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/heavy clay	60 - 410 meters	List 1B.1
Orcuttia pilosa	Poaceae	annual herb	May-Sep	•Vernal pools (VnPls)	46 - 200 meters	List 1B.1
Paronychia ahartii	Caryophyllaceae	annual herb	Feb-Jun	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)	30 - 510 meters	List 1B.1
Rhynchospora californica	Cyperaceae	perennial rhizomatous herb	May-Jul	•Bogs and fens (BgFns) •Lower montane coniferous forest (LCFrs) •Meadows and seeps (Medws) (seeps) •Marshes and swamps (MshSw) (freshwater)	45 - 1010 meters	List 1B.1
Rhynchospora capitellata	Cyperaceae	perennial herb	Jul-Aug	•Lower montane coniferous forest (LCFrs) •Meadows and seeps (Medws)	45 - 2000 meters	List 2B.2

				•Marshes and swamps (MshSw) •Upper montane coniferous forest (UCFrs)/mesic		
Sidalcea robusta	Malvaceae	perennial rhizomatous herb	Apr-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld)	90 - 1600 meters	List 1B.2
Stuckenia filiformis ssp. alpina	Potamogetonaceae	perennial rhizomatous herb aquatic	May-Jul	•Marshes and swamps (MshSw) (assorted shallow freshwater)	300 - 2150 meters	List 2B.2
Trifolium jokerstii	Fabaceae	annual herb	Mar-May	•Valley and foothill grassland (VFGrs) (mesic) •Vernal pools (VnPls)	50 - 480 meters	List 1B.2
Tuctoria greenei	Poaceae	annual herb	May-Jul(Sep), Months in parentheses are uncommon.	•Vernal pools (VnPls)	30 - 1070 meters	List 1B.1
Wolffia brasiliensis	Araceae	perennial herb aquatic	Apr-Dec	•Marshes and swamps (MshSw) (assorted shallow freshwater)	20 - 100 meters	List 2B.3

Appendix D
California Natural Diversity Database Results

Query Criteria: Quad IS (Chico (3912167) OR Richardson Springs (3912177) OR Nord (3912178) OR Ord Ferry (3912168) OR Hamlin Canyon (3912166) OR Paradise West (3912176) OR Nelson (3912157) OR Shippee (3912156) OR Llano Seco (3912158))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
Anthicus antiochensis Antioch Dunes anthicid beetle	IICOL49020	None	None	G1	S1	
Anthicus sacramento Sacramento anthicid beetle	IICOL49010	None	None	G1	S1	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Brasenia schreberi watershield	PDCAB01010	None	None	G5	S3	2B.3
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
California macrophylla round-leaved filaree	PDGER01070	None	None	G4	S4	1B.2
Calystegia atriplicifolia ssp. buttensis Butte County morning-glory	PDCON04012	None	None	G5T3	S3	4.2
Campylopodiella stenocarpa flagella-like atractylocarpus	NBMUS84010	None	None	G5	S1?	2B.2
Cardamine pachystigma var. dissectifolia dissected-leaved toothwort	PDBRA0K1B1	None	None	G3G5T2Q	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Castilleja rubicundula var. rubicundula pink creamsacs	PDSCR0D482	None	None	G5T2	S2	1B.2
Clarkia gracilis ssp. albicaulis white-stemmed clarkia	PDONA050J1	None	None	G5T2T3	S2S3	1B.2
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Cryptantha crinita silky cryptantha	PDBOR0A0Q0	None	None	G2	S2	1B.2
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G2?	S2?	1B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Eriogonum umbellatum var. ahartii Ahart's buckwheat	PDPGN086UY	None	None	G5T3	S3	1B.2
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Euphorbia hooveri Hoover's spurge	PDEUP0D150	Threatened	None	G1	S1	1B.2
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fritillaria eastwoodiae Butte County fritillary	PMLIL0V060	None	None	G3Q	S3	3.2
Fritillaria pluriflora adobe-lily	PMLIL0V0F0	None	None	G2G3	S2S3	1B.2
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	G1	S1.1	
Great Valley Willow Scrub Great Valley Willow Scrub	CTT63410CA	None	None	G3	S3.2	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Imperata brevifolia California satintail	PMPOA3D020	None	None	G4	S3	2B.1
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	PMJUN011L2	None	None	G2T2	S2	1B.1
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Limnanthes floccosa ssp. californica Butte County meadowfoam	PDLIM02042	Endangered	Endangered	G4T1	S1	1B.1
Limnanthes floccosa ssp. floccosa woolly meadowfoam	PDLIM02043	None	None	G4T4	S3	4.2
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Monardella venosa veiny monardella	PDLAM18082	None	None	G1	S1	1B.1
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Northern Basalt Flow Vernal Pool Northern Basalt Flow Vernal Pool	CTT44131CA	None	None	G3	S2.2	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S1	
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Paronychia ahartii Ahart's paronychia	PDCAR0L0V0	None	None	G3	S3	1B.1
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Rana boylii foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
Rhynchospora californica California beaked-rush	PMCYP0N060	None	None	G1	S1	1B.1
Rhynchospora capitellata brownish beaked-rush	PMCYP0N080	None	None	G5	S1	2B.2
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Sidalcea robusta Butte County checkerbloom	PDMAL110P0	None	None	G2	S2	1B.2
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Stuckenia filiformis ssp. alpina slender-leaved pondweed	PMPOT03091	None	None	G5T5	S3	2B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Trifolium jokerstii Butte County golden clover	PDFAB40310	None	None	G2	S2	1B.2
Tuctoria greenei Greene's tuctoria	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
Wolffia brasiliensis Brazilian watermeal	PMLEM03020	None	None	G5	S1	2B.3

Record Count: 74

Appendix E

U.S. Fish and Wildlife Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Consultation Code: 08ESMF00-2017-SLI-2877
Event Code: 08ESMF00-2017-E-07897
Project Name: Butte Creek 55

August 09, 2017

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2017-SLI-2877

Event Code: 08ESMF00-2017-E-07897

Project Name: Butte Creek 55

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: BC 55 is a privately-owned gravity diversion that diverts 7.33 cubic-feet-per second (cfs) year-round and irrigates 150 acres of pomegranates, olives and other seasonal crops. BC 55 holds an Adjudication Permit No. 18917 (5.0 cfs) and Appropriative App. No. 22564 (2.3 cfs). For purposes of assessing impacts on fisheries resources (e.g., elevated turbidity and noise), the study area consists of the Butte Creek water column, substrate, shoreline, and bank within the footprint of the proposed fish screen and pump upgrade project up to the ordinary high water mark (OHWM) and surrounding aquatic habitat.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/39.70246418800005N121.7765566086976W

Counties: Butte, CA

Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Steelhead *Oncorhynchus (=Salmo) mykiss* Population: Northern California DPS There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1007	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Butte County Meadowfoam *Limnanthes floccosa ssp. californica* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4223	Endangered

Critical habitats

There are no critical habitats within your project area under this office's jurisdiction.

Appendix F
Modeling Assumptions and Calculations

	Provided by Project Applicant
	Assumption

Land Use

Land Use Type	Land Use Type	Unit Amount	Size Metric	Lot Acreage	Square Feet	Population	Notes
Industrial	User Defined	1	-	-			

Construction - Construction Phase (Schedule)

Phase Name	Phase Type	Start Date	End Date	Number of Working Days/Week	Number of Days	Notes
Phase I - Mobilization	Site preparation	10/7/2017	10/9/2017	7	3	Start October 7th
Phase 2 - Installation of Cofferdam and Components	Grading	10/10/2017	10/19/2017	7	10	Immediately after Phase I
Phase 3 - Removal of Cofferdam and Excavated Materials	Grading	11/1/2017	11/3/2017	7	3	End of October or Early November
Phase 4 - Installation of Power, Conduit, and Fish Screen Control Panels	Trenching	11/4/2017	11/6/2017	7	3	Early November
Phase 5 - Demobilization	Grading	11/13/2017	11/13/2017	7	1	1 week after Phase 4

Construction - Offroad Equipment

Phase	Offroad Equipment Type	Amount	Hours/Day	CaleeMod	Notes
Phase I - Mobilization	-	-	-	-	-
Phase 2 - Installation of Cofferdam and Components	Excavator	1	6	Excavator	Default HP and LF used
	Concrete Truck	1	4	Off-Highway Truck	Default HP and LF used
	Concrete Pump	1	4	Pump	Default HP and LF used
Phase 3 - Removal of Cofferdam and Excavated Materials	Excavator	1	8	Excavator	Default HP and LF used
	Bobtail Truck	1	8	Off-Highway Truck	Default HP and LF used
Phase 4 - Installation of Power, Conduit, and Fish Screen Control Panels	Excavator	1	4	Excavator	Default HP and LF used
Phase 5 - Demobilization	-	-	-		Default HP and LF used

Construction - Dust from Material Movement

Phase	Material Imported (CY)	Material Exported (CY)	Total Acres Disturbed	Notes
Phase I - Mobilization	-	-	Default	
Phase 2 - Installation of Cofferdam and Components	-	-		
Phase 3 - Removal of Cofferdam and Excavated Materials	25	5		
Phase 4 - Installation of Power, Conduit, and Fish Screen Control Panels				
Phase 5 - Demobilization	-	-		

Construction - Trips and VMT

Phase	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Notes
Phase I - Mobilization	4	1	1	20	90	90	Flatbed Truck (Deliver excavator); pickup truck with trailer (deliver other materials)
Phase 2 - Installation of Cofferdam and Components	6	0	0	20	0	0	
Phase 3 - Removal of Cofferdam and Excavated Materials	6	0	8	20	0	10	
Phase 4 - Installation of Power, Conduit, and Fish Screen Control Panels	4	0	0	20	0	0	
Phase 5 - Demobilization	4	1	1	20	90	90	Flatbed Truck (Return excavator); pickup truck with trailer (retun materials)

Workers

PHASE	Workers/Day
Phase I - Mobilization	2 workers
Phase 2 - Installation of Cofferdam and Components	3 workers
Phase 3 - Removal of Cofferdam and Excavated Materials	2 workers
Phase 4 - Installation of Power, Conduit, and Fish Screen Control Panels	2 workers
Phase 5 - Demobilization	2 workers

Butte Creek Diversion 55 Screen Project

Butte County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	71
Climate Zone	3			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project is a fish screen project; equipment type, equipment usage, workers, etc. provided by project applicant

Construction Phase - Start date and durations provided by project applicant

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Per project applicant, no off-road equipment utilized

Off-road Equipment - Equipment type and usage provided by project applicant; concrete truck assumed to be off highway truck; concrete pump assumed to be pump

Off-road Equipment - Equipment type and usage provided by project applicant; bobtail truck assumed to be off highway truck

Off-road Equipment - Equipment type and usage provided by project applicant

Off-road Equipment - Per project applicant, no off road equipment utilized

Grading - Material imported and exported provided by project applicant; total acres graded default utilized

Trips and VMT - Total number of workers, vendor trips, hauling trips, trip distances provided by project applicant

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00

Butte Creek Diversion 55 Screen Project - Butte County, Winter

tblGrading	AcresOfGrading	0.00	1.50
tblGrading	MaterialExported	0.00	5.00
tblGrading	MaterialImported	0.00	25.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

Butte Creek Diversion 55 Screen Project - Butte County, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	4.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripLength	10.52	90.00
tblTripsAndVMT	VendorTripLength	10.52	90.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	8.00	6.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	3.00	4.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	1.3061	14.4942	8.6126	0.0203	0.6575	0.5642	0.6773	0.0929	0.5192	0.5409	0.0000	2,071.0970	2,071.0970	0.5991	0.0000	2,086.0741
Maximum	**1.3061**	**14.4942**	**8.6126**	**0.0203**	**0.6575**	**0.5642**	**0.6773**	**0.0929**	**0.5192**	**0.5409**	**0.0000**	**2,071.0970**	**2,071.0970**	**0.5991**	**0.0000**	**2,086.0741**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	1.3061	14.4942	8.6126	0.0203	0.6575	0.5642	0.6773	0.0929	0.5192	0.5409	0.0000	2,071.0970	2,071.0970	0.5991	0.0000	2,086.0741
Maximum	**1.3061**	**14.4942**	**8.6126**	**0.0203**	**0.6575**	**0.5642**	**0.6773**	**0.0929**	**0.5192**	**0.5409**	**0.0000**	**2,071.0970**	**2,071.0970**	**0.5991**	**0.0000**	**2,086.0741**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	10/7/2017	10/6/2017	5	0	
2	Building Construction	Building Construction	10/7/2017	10/6/2017	5	0	
3	Demolition	Demolition	10/7/2017	10/6/2017	5	0	
4	Grading	Grading	10/7/2017	10/6/2017	5	0	
5	Paving	Paving	10/7/2017	10/6/2017	5	0	
6	Site Preparation	Site Preparation	10/7/2017	10/6/2017	5	0	
7	1. Mobilization	Site Preparation	10/7/2017	10/9/2017	7	3	
8	2. Installation of Cofferdam and Components	Grading	10/10/2017	10/19/2017	7	10	
9	3. Removal of Cofferdam and Excavated Materials	Grading	11/1/2017	11/3/2017	7	3	
10	4. Installation of Power, Conduit, and Fish Screen Control Panels	Trenching	11/4/2017	11/6/2017	7	3	
11	5. Demobilization	Grading	11/13/2017	11/13/2017	7	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Butte Creek Diversion 55 Screen Project - Butte County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	0.00	78	0.48
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	0	8.00	187	0.41
Paving	Pavers	0	7.00	130	0.42
Paving	Rollers	0	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
5. Demobilization	Concrete/Industrial Saws	0	8.00	81	0.73
2. Installation of Cofferdam and Components	Concrete/Industrial Saws	0	8.00	81	0.73
3. Removal of Cofferdam and Excavated Materials	Concrete/Industrial Saws	0	8.00	81	0.73
1. Mobilization	Graders	0	8.00	187	0.41
5. Demobilization	Rubber Tired Dozers	0	1.00	247	0.40
2. Installation of Cofferdam and Components	Rubber Tired Dozers	0	1.00	247	0.40
3. Removal of Cofferdam and Excavated Materials	Rubber Tired Dozers	0	1.00	247	0.40
5. Demobilization	Tractors/Loaders/Backhoes	0	6.00	97	0.37
2. Installation of Cofferdam and Components	Tractors/Loaders/Backhoes	0	6.00	97	0.37

3. Removal of Cofferdam and Excavated Materials	Tractors/Loaders/Backhoes	0	6.00	97	0.37
1. Mobilization	Tractors/Loaders/Backhoes	0	8.00	97	0.37
2. Installation of Cofferdam and Components	Excavators	1	6.00	158	0.38
2. Installation of Cofferdam and Components	Off-Highway Trucks	1	4.00	402	0.38
2. Installation of Cofferdam and Components	Pumps	1	4.00	84	0.74
3. Removal of Cofferdam and Excavated Materials	Excavators	1	8.00	158	0.38
3. Removal of Cofferdam and Excavated Materials	Off-Highway Trucks	1	8.00	402	0.38
4. Installation of Power, Conduit, and Fish Screen Control Panels	Excavators	1	8.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
5. Demobilization	0	4.00	1.00	1.00	12.54	90.00	20.00	LD_Mix	HDT_Mix	HHDT
2. Installation of Cofferdam and Comp	3	6.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
3. Removal of Cofferdam and Excav	2	6.00	0.00	8.00	12.54	10.52	10.00	LD_Mix	HDT_Mix	HHDT
1. Mobilization	0	4.00	1.00	1.00	12.54	90.00	20.00	LD_Mix	HDT_Mix	HHDT
4. Installation of Power, Conduit, and F	1	4.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Butte Creek Diversion 55 Screen Project - Butte County, Winter

3.5 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 1. Mobilization - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5303**	**0.0000**	**0.5303**	**0.0573**	**0.0000**	**0.0573**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.0400e-003	0.1208	0.0187	2.8000e-004	5.8400e-003	9.0000e-004	6.7400e-003	1.6000e-003	8.6000e-004	2.4600e-003		28.9488	28.9488	2.4800e-003		29.0107
Vendor	0.0598	1.1064	0.2706	2.8100e-003	0.0833	0.0186	0.1018	0.0239	0.0178	0.0417		293.9758	293.9758	7.0800e-003		294.1529
Worker	0.0372	0.0363	0.3122	3.9000e-004	0.0382	3.8000e-004	0.0385	0.0101	3.5000e-004	0.0105		38.8678	38.8678	2.7800e-003		38.9372
Total	**0.1010**	**1.2635**	**0.6014**	**3.4800e-003**	**0.1273**	**0.0198**	**0.1471**	**0.0357**	**0.0190**	**0.0546**		**361.7924**	**361.7924**	**0.0123**		**362.1008**

3.8 1. Mobilization - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5303**	**0.0000**	**0.5303**	**0.0573**	**0.0000**	**0.0573**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.0400e-003	0.1208	0.0187	2.8000e-004	5.8400e-003	9.0000e-004	6.7400e-003	1.6000e-003	8.6000e-004	2.4600e-003		28.9488	28.9488	2.4800e-003		29.0107
Vendor	0.0598	1.1064	0.2706	2.8100e-003	0.0833	0.0186	0.1018	0.0239	0.0178	0.0417		293.9758	293.9758	7.0800e-003		294.1529
Worker	0.0372	0.0363	0.3122	3.9000e-004	0.0382	3.8000e-004	0.0385	0.0101	3.5000e-004	0.0105		38.8678	38.8678	2.7800e-003		38.9372
Total	**0.1010**	**1.2635**	**0.6014**	**3.4800e-003**	**0.1273**	**0.0198**	**0.1471**	**0.0357**	**0.0190**	**0.0546**		**361.7924**	**361.7924**	**0.0123**		**362.1008**

3.9 2. Installation of Cofferdam and Components - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.0059	10.1855	6.7969	0.0138		0.4870	0.4870		0.4606	0.4606		1,388.289 2	1,388.289 2	0.3568		1,397.208 7
Total	**1.0059**	**10.1855**	**6.7969**	**0.0138**	**0.0000**	**0.4870**	**0.4870**	**0.0000**	**0.4606**	**0.4606**		**1,388.289 2**	**1,388.289 2**	**0.3568**		**1,397.208 7**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0544	0.4683	5.9000e-004	0.0572	5.6000e-004	0.0578	0.0152	5.2000e-004	0.0157		58.3017	58.3017	4.1700e-003		58.4059
Total	**0.0557**	**0.0544**	**0.4683**	**5.9000e-004**	**0.0572**	**5.6000e-004**	**0.0578**	**0.0152**	**5.2000e-004**	**0.0157**		**58.3017**	**58.3017**	**4.1700e-003**		**58.4059**

3.9 2. Installation of Cofferdam and Components - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.0059	10.1855	6.7969	0.0138		0.4870	0.4870		0.4606	0.4606	0.0000	1,388.289 2	1,388.289 2	0.3568		1,397.208 7
Total	**1.0059**	**10.1855**	**6.7969**	**0.0138**	**0.0000**	**0.4870**	**0.4870**	**0.0000**	**0.4606**	**0.4606**	**0.0000**	**1,388.289 2**	**1,388.289 2**	**0.3568**		**1,397.208 7**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0544	0.4683	5.9000e-004	0.0572	5.6000e-004	0.0578	0.0152	5.2000e-004	0.0157		58.3017	58.3017	4.1700e-003		58.4059
Total	**0.0557**	**0.0544**	**0.4683**	**5.9000e-004**	**0.0572**	**5.6000e-004**	**0.0578**	**0.0152**	**5.2000e-004**	**0.0157**		**58.3017**	**58.3017**	**4.1700e-003**		**58.4059**

3.10 3. Removal of Cofferdam and Excavated Materials - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1300e-003	0.0000	1.1300e-003	1.7000e-004	0.0000	1.7000e-004			0.0000			0.0000
Off-Road	1.2296	13.8012	8.0454	0.0184		0.5597	0.5597		0.5149	0.5149		1,878.881 1	1,878.881 1	0.5757		1,893.273 2
Total	**1.2296**	**13.8012**	**8.0454**	**0.0184**	**1.1300e-003**	**0.5597**	**0.5608**	**1.7000e-004**	**0.5149**	**0.5151**		**1,878.881 1**	**1,878.881 1**	**0.5757**		**1,893.273 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0208	0.6386	0.0989	1.2800e-003	0.0234	3.9400e-003	0.0273	6.4200e-003	3.7700e-003	0.0102		133.9143	133.9143	0.0192		134.3950
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0544	0.4683	5.9000e-004	0.0572	5.6000e-004	0.0578	0.0152	5.2000e-004	0.0157		58.3017	58.3017	4.1700e-003		58.4059
Total	**0.0765**	**0.6930**	**0.5672**	**1.8700e-003**	**0.0806**	**4.5000e-003**	**0.0851**	**0.0216**	**4.2900e-003**	**0.0259**		**192.2160**	**192.2160**	**0.0234**		**192.8009**

3.10 3. Removal of Cofferdam and Excavated Materials - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1300e-003	0.0000	1.1300e-003	1.7000e-004	0.0000	1.7000e-004			0.0000			0.0000
Off-Road	1.2296	13.8012	8.0454	0.0184		0.5597	0.5597		0.5149	0.5149	0.0000	1,878.8810	1,878.8810	0.5757		1,893.2732
Total	**1.2296**	**13.8012**	**8.0454**	**0.0184**	**1.1300e-003**	**0.5597**	**0.5608**	**1.7000e-004**	**0.5149**	**0.5151**	**0.0000**	**1,878.8810**	**1,878.8810**	**0.5757**		**1,893.2732**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0208	0.6386	0.0989	1.2800e-003	0.0234	3.9400e-003	0.0273	6.4200e-003	3.7700e-003	0.0102		133.9143	133.9143	0.0192		134.3950
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0544	0.4683	5.9000e-004	0.0572	5.6000e-004	0.0578	0.0152	5.2000e-004	0.0157		58.3017	58.3017	4.1700e-003		58.4059
Total	**0.0765**	**0.6930**	**0.5672**	**1.8700e-003**	**0.0806**	**4.5000e-003**	**0.0851**	**0.0216**	**4.2900e-003**	**0.0259**		**192.2160**	**192.2160**	**0.0234**		**192.8009**

3.11 4. Installation of Power, Conduit, and Fish Screen Control Panels - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3533	3.9177	3.3366	5.1600e-003		0.1928	0.1928		0.1773	0.1773		527.8973	527.8973	0.1618		531.9410
Total	**0.3533**	**3.9177**	**3.3366**	**5.1600e-003**		**0.1928**	**0.1928**		**0.1773**	**0.1773**		**527.8973**	**527.8973**	**0.1618**		**531.9410**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0372	0.0363	0.3122	3.9000e-004	0.0382	3.8000e-004	0.0385	0.0101	3.5000e-004	0.0105		38.8678	38.8678	2.7800e-003		38.9372
Total	**0.0372**	**0.0363**	**0.3122**	**3.9000e-004**	**0.0382**	**3.8000e-004**	**0.0385**	**0.0101**	**3.5000e-004**	**0.0105**		**38.8678**	**38.8678**	**2.7800e-003**		**38.9372**

3.11 4. Installation of Power, Conduit, and Fish Screen Control Panels - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3533	3.9177	3.3366	5.1600e-003		0.1928	0.1928		0.1773	0.1773	0.0000	527.8973	527.8973	0.1618		531.9410
Total	**0.3533**	**3.9177**	**3.3366**	**5.1600e-003**		**0.1928**	**0.1928**		**0.1773**	**0.1773**	**0.0000**	**527.8973**	**527.8973**	**0.1618**		**531.9410**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0372	0.0363	0.3122	3.9000e-004	0.0382	3.8000e-004	0.0385	0.0101	3.5000e-004	0.0105		38.8678	38.8678	2.7800e-003		38.9372
Total	**0.0372**	**0.0363**	**0.3122**	**3.9000e-004**	**0.0382**	**3.8000e-004**	**0.0385**	**0.0101**	**3.5000e-004**	**0.0105**		**38.8678**	**38.8678**	**2.7800e-003**		**38.9372**

3.12 5. Demobilization - 2017

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0121	0.3625	0.0560	8.3000e-004	0.0175	2.6900e-003	0.0202	4.8000e-003	2.5700e-003	7.3800e-003		86.8465	86.8465	7.4300e-003		87.0322
Vendor	0.0598	1.1064	0.2706	2.8100e-003	0.0833	0.0186	0.1018	0.0239	0.0178	0.0417		293.9758	293.9758	7.0800e-003		294.1529
Worker	0.0372	0.0363	0.3122	3.9000e-004	0.0382	3.8000e-004	0.0385	0.0101	3.5000e-004	0.0105		38.8678	38.8678	2.7800e-003		38.9372
Total	**0.1090**	**1.5052**	**0.6387**	**4.0300e-003**	**0.1389**	**0.0216**	**0.1606**	**0.0389**	**0.0207**	**0.0596**		**419.6900**	**419.6900**	**0.0173**		**420.1222**

3.12 5. Demobilization - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0121	0.3625	0.0560	8.3000e-004	0.0175	2.6900e-003	0.0202	4.8000e-003	2.5700e-003	7.3800e-003		86.8465	86.8465	7.4300e-003		87.0322
Vendor	0.0598	1.1064	0.2706	2.8100e-003	0.0833	0.0186	0.1018	0.0239	0.0178	0.0417		293.9758	293.9758	7.0800e-003		294.1529
Worker	0.0372	0.0363	0.3122	3.9000e-004	0.0382	3.8000e-004	0.0385	0.0101	3.5000e-004	0.0105		38.8678	38.8678	2.7800e-003		38.9372
Total	**0.1090**	**1.5052**	**0.6387**	**4.0300e-003**	**0.1389**	**0.0216**	**0.1606**	**0.0389**	**0.0207**	**0.0596**		**419.6900**	**419.6900**	**0.0173**		**420.1222**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	10.52	10.52	10.52	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.488379	0.037237	0.184894	0.132358	0.042014	0.007577	0.018418	0.076572	0.001721	0.001591	0.006262	0.001327	0.001651

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Butte Creek Diversion 55 Screen Project

Butte County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	71
Climate Zone	3			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project is a fish screen project; equipment type, equipment usage, workers, etc. provided by project applicant

Construction Phase - Start date and durations provided by project applicant

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Not a project phase

Off-road Equipment - Per project applicant, no off-road equipment utilized

Off-road Equipment - Equipment type and usage provided by project applicant; concrete truck assumed to be off highway truck; concrete pump assumed to be pump

Off-road Equipment - Equipment type and usage provided by project applicant; bobtail truck assumed to be off highway truck

Off-road Equipment - Equipment type and usage provided by project applicant

Off-road Equipment - Per project applicant, no off road equipment utilized

Grading - Material imported and exported provided by project applicant; total acres graded default utilized

Trips and VMT - Total number of workers, vendor trips, hauling trips, trip distances provided by project applicant

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00

Butte Creek Diversion 55 Screen Project - Butte County, Annual

tblGrading	AcresOfGrading	0.00	1.50
tblGrading	MaterialExported	0.00	5.00
tblGrading	MaterialImported	0.00	25.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

Butte Creek Diversion 55 Screen Project - Butte County, Annual

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	4.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripLength	10.52	90.00
tblTripsAndVMT	VendorTripLength	10.52	90.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	8.00	6.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	3.00	4.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	8.0300e-003	0.0814	0.0558	1.2000e-004	1.4900e-003	3.6100e-003	5.1100e-003	2.8000e-004	3.3900e-003	3.6600e-003	0.0000	10.8554	10.8554	2.7000e-003	0.0000	10.9228
Maximum	**8.0300e-003**	**0.0814**	**0.0558**	**1.2000e-004**	**1.4900e-003**	**3.6100e-003**	**5.1100e-003**	**2.8000e-004**	**3.3900e-003**	**3.6600e-003**	**0.0000**	**10.8554**	**10.8554**	**2.7000e-003**	**0.0000**	**10.9228**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	8.0300e-003	0.0814	0.0558	1.2000e-004	1.4900e-003	3.6100e-003	5.1100e-003	2.8000e-004	3.3900e-003	3.6600e-003	0.0000	10.8554	10.8554	2.7000e-003	0.0000	10.9228
Maximum	**8.0300e-003**	**0.0814**	**0.0558**	**1.2000e-004**	**1.4900e-003**	**3.6100e-003**	**5.1100e-003**	**2.8000e-004**	**3.3900e-003**	**3.6600e-003**	**0.0000**	**10.8554**	**10.8554**	**2.7000e-003**	**0.0000**	**10.9228**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	10/7/2017	10/6/2017	5	0	
2	Building Construction	Building Construction	10/7/2017	10/6/2017	5	0	
3	Demolition	Demolition	10/7/2017	10/6/2017	5	0	
4	Grading	Grading	10/7/2017	10/6/2017	5	0	
5	Paving	Paving	10/7/2017	10/6/2017	5	0	
6	Site Preparation	Site Preparation	10/7/2017	10/6/2017	5	0	
7	1. Mobilization	Site Preparation	10/7/2017	10/9/2017	7	3	
8	2. Installation of Cofferdam and Components	Grading	10/10/2017	10/19/2017	7	10	
9	3. Removal of Cofferdam and Excavated Materials	Grading	11/1/2017	11/3/2017	7	3	
10	4. Installation of Power, Conduit, and Fish Screen Control Panels	Trenching	11/4/2017	11/6/2017	7	3	
11	5. Demobilization	Grading	11/13/2017	11/13/2017	7	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	0.00	78	0.48
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	0	4.00	231	0.29

Building Construction	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	0	8.00	187	0.41
Paving	Pavers	0	7.00	130	0.42
Paving	Rollers	0	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
5. Demobilization	Concrete/Industrial Saws	0	8.00	81	0.73
2. Installation of Cofferdam and Components	Concrete/Industrial Saws	0	8.00	81	0.73
3. Removal of Cofferdam and Excavated Materials	Concrete/Industrial Saws	0	8.00	81	0.73
1. Mobilization	Graders	0	8.00	187	0.41
5. Demobilization	Rubber Tired Dozers	0	1.00	247	0.40
2. Installation of Cofferdam and Components	Rubber Tired Dozers	0	1.00	247	0.40
3. Removal of Cofferdam and Excavated Materials	Rubber Tired Dozers	0	1.00	247	0.40
5. Demobilization	Tractors/Loaders/Backhoes	0	6.00	97	0.37
2. Installation of Cofferdam and Components	Tractors/Loaders/Backhoes	0	6.00	97	0.37
3. Removal of Cofferdam and Excavated Materials	Tractors/Loaders/Backhoes	0	6.00	97	0.37
1. Mobilization	Tractors/Loaders/Backhoes	0	8.00	97	0.37
2. Installation of Cofferdam and Components	Excavators	1	6.00	158	0.38
2. Installation of Cofferdam and Components	Off-Highway Trucks	1	4.00	402	0.38
2. Installation of Cofferdam and Components	Pumps	1	4.00	84	0.74

3. Removal of Cofferdam and Excavated Materials	Excavators		1	8.00	158	0.38
3. Removal of Cofferdam and Excavated Materials	Off-Highway Trucks		1	8.00	402	0.38
4. Installation of Power, Conduit, and Fish Screen Control Panels	Excavators		1	8.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
5. Demobilization	0	4.00	1.00	1.00	12.54	90.00	20.00	LD_Mix	HDT_Mix	HHDT
2. Installation of Cofferdam and Comp	3	6.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT
3. Removal of Cofferdam and Excav	2	6.00	0.00	8.00	12.54	10.52	10.00	LD_Mix	HDT_Mix	HHDT
1. Mobilization	0	4.00	1.00	1.00	12.54	90.00	20.00	LD_Mix	HDT_Mix	HHDT
4. Installation of Power, Conduit, and F	1	4.00	0.00	0.00	12.54	10.52	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Demolition - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Grading - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Site Preparation - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 1. Mobilization - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-004	0.0000	8.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**8.0000e-004**	**0.0000**	**8.0000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	1.8000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0399	0.0399	0.0000	0.0000	0.0400
Vendor	9.0000e-005	1.6300e-003	4.0000e-004	0.0000	1.2000e-004	3.0000e-005	1.5000e-004	3.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.4008	0.4008	1.0000e-005	0.0000	0.4011
Worker	5.0000e-005	5.0000e-005	4.6000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0546	0.0546	0.0000	0.0000	0.0547
Total	**1.5000e-004**	**1.8600e-003**	**8.9000e-004**	**0.0000**	**1.8000e-004**	**3.0000e-005**	**2.2000e-004**	**4.0000e-005**	**3.0000e-005**	**8.0000e-005**	**0.0000**	**0.4954**	**0.4954**	**1.0000e-005**	**0.0000**	**0.4958**

3.8 1. Mobilization - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-004	0.0000	8.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**8.0000e-004**	**0.0000**	**8.0000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	1.8000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0399	0.0399	0.0000	0.0000	0.0400
Vendor	9.0000e-005	1.6300e-003	4.0000e-004	0.0000	1.2000e-004	3.0000e-005	1.5000e-004	3.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.4008	0.4008	1.0000e-005	0.0000	0.4011
Worker	5.0000e-005	5.0000e-005	4.6000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0546	0.0546	0.0000	0.0000	0.0547
Total	**1.5000e-004**	**1.8600e-003**	**8.9000e-004**	**0.0000**	**1.8000e-004**	**3.0000e-005**	**2.2000e-004**	**4.0000e-005**	**3.0000e-005**	**8.0000e-005**	**0.0000**	**0.4954**	**0.4954**	**1.0000e-005**	**0.0000**	**0.4958**

3.9 2. Installation of Cofferdam and Components - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0300e-003	0.0509	0.0340	7.0000e-005		2.4300e-003	2.4300e-003		2.3000e-003	2.3000e-003	0.0000	6.2972	6.2972	1.6200e-003	0.0000	6.3376
Total	**5.0300e-003**	**0.0509**	**0.0340**	**7.0000e-005**	**0.0000**	**2.4300e-003**	**2.4300e-003**	**0.0000**	**2.3000e-003**	**2.3000e-003**	**0.0000**	**6.2972**	**6.2972**	**1.6200e-003**	**0.0000**	**6.3376**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	2.4000e-004	2.2900e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2732	0.2732	2.0000e-005	0.0000	0.2736
Total	**2.6000e-004**	**2.4000e-004**	**2.2900e-003**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2732**	**0.2732**	**2.0000e-005**	**0.0000**	**0.2736**

3.9 2. Installation of Cofferdam and Components - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0300e-003	0.0509	0.0340	7.0000e-005		2.4300e-003	2.4300e-003		2.3000e-003	2.3000e-003	0.0000	6.2972	6.2972	1.6200e-003	0.0000	6.3376
Total	**5.0300e-003**	**0.0509**	**0.0340**	**7.0000e-005**	**0.0000**	**2.4300e-003**	**2.4300e-003**	**0.0000**	**2.3000e-003**	**2.3000e-003**	**0.0000**	**6.2972**	**6.2972**	**1.6200e-003**	**0.0000**	**6.3376**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	2.4000e-004	2.2900e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2732	0.2732	2.0000e-005	0.0000	0.2736
Total	**2.6000e-004**	**2.4000e-004**	**2.2900e-003**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2732**	**0.2732**	**2.0000e-005**	**0.0000**	**0.2736**

3.10 3. Removal of Cofferdam and Excavated Materials - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8400e-003	0.0207	0.0121	3.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	2.5567	2.5567	7.8000e-004	0.0000	2.5763
Total	**1.8400e-003**	**0.0207**	**0.0121**	**3.0000e-005**	**0.0000**	**8.4000e-004**	**8.4000e-004**	**0.0000**	**7.7000e-004**	**7.7000e-004**	**0.0000**	**2.5567**	**2.5567**	**7.8000e-004**	**0.0000**	**2.5763**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	9.6000e-004	1.3000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	0.0000	0.1863	0.1863	2.0000e-005	0.0000	0.1869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	7.0000e-005	6.9000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0819	0.0819	1.0000e-005	0.0000	0.0821
Total	**1.1000e-004**	**1.0300e-003**	**8.2000e-004**	**0.0000**	**1.1000e-004**	**1.0000e-005**	**1.2000e-004**	**3.0000e-005**	**1.0000e-005**	**3.0000e-005**	**0.0000**	**0.2683**	**0.2683**	**3.0000e-005**	**0.0000**	**0.2690**

3.10 3. Removal of Cofferdam and Excavated Materials - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8400e-003	0.0207	0.0121	3.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	2.5567	2.5567	7.8000e-004	0.0000	2.5763
Total	**1.8400e-003**	**0.0207**	**0.0121**	**3.0000e-005**	**0.0000**	**8.4000e-004**	**8.4000e-004**	**0.0000**	**7.7000e-004**	**7.7000e-004**	**0.0000**	**2.5567**	**2.5567**	**7.8000e-004**	**0.0000**	**2.5763**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	9.6000e-004	1.3000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	1.0000e-005	0.0000	0.1863	0.1863	2.0000e-005	0.0000	0.1869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	7.0000e-005	6.9000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0819	0.0819	1.0000e-005	0.0000	0.0821
Total	**1.1000e-004**	**1.0300e-003**	**8.2000e-004**	**0.0000**	**1.1000e-004**	**1.0000e-005**	**1.2000e-004**	**3.0000e-005**	**1.0000e-005**	**3.0000e-005**	**0.0000**	**0.2683**	**0.2683**	**3.0000e-005**	**0.0000**	**0.2690**

3.11 4. Installation of Power, Conduit, and Fish Screen Control Panels - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3000e-004	5.8800e-003	5.0000e-003	1.0000e-005		2.9000e-004	2.9000e-004		2.7000e-004	2.7000e-004	0.0000	0.7184	0.7184	2.2000e-004	0.0000	0.7239
Total	**5.3000e-004**	**5.8800e-003**	**5.0000e-003**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.7000e-004**	**2.7000e-004**	**0.0000**	**0.7184**	**0.7184**	**2.2000e-004**	**0.0000**	**0.7239**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	5.0000e-005	4.6000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0546	0.0546	0.0000	0.0000	0.0547
Total	**5.0000e-005**	**5.0000e-005**	**4.6000e-004**	**0.0000**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0546**	**0.0546**	**0.0000**	**0.0000**	**0.0547**

3.11 4. Installation of Power, Conduit, and Fish Screen Control Panels - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3000e-004	5.8800e-003	5.0000e-003	1.0000e-005		2.9000e-004	2.9000e-004		2.7000e-004	2.7000e-004	0.0000	0.7184	0.7184	2.2000e-004	0.0000	0.7239
Total	**5.3000e-004**	**5.8800e-003**	**5.0000e-003**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.7000e-004**	**2.7000e-004**	**0.0000**	**0.7184**	**0.7184**	**2.2000e-004**	**0.0000**	**0.7239**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	5.0000e-005	4.6000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0546	0.0546	0.0000	0.0000	0.0547
Total	**5.0000e-005**	**5.0000e-005**	**4.6000e-004**	**0.0000**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0546**	**0.0546**	**0.0000**	**0.0000**	**0.0547**

3.12 5. Demobilization - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	1.8000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0399	0.0399	0.0000	0.0000	0.0400
Vendor	3.0000e-005	5.4000e-004	1.3000e-004	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1336	0.1336	0.0000	0.0000	0.1337
Worker	2.0000e-005	2.0000e-005	1.5000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0182	0.0182	0.0000	0.0000	0.0182
Total	**6.0000e-005**	**7.4000e-004**	**3.1000e-004**	**0.0000**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**1.0000e-005**	**1.0000e-005**	**3.0000e-005**	**0.0000**	**0.1917**	**0.1917**	**0.0000**	**0.0000**	**0.1919**

3.12 5. Demobilization - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	1.8000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0399	0.0399	0.0000	0.0000	0.0400
Vendor	3.0000e-005	5.4000e-004	1.3000e-004	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1336	0.1336	0.0000	0.0000	0.1337
Worker	2.0000e-005	2.0000e-005	1.5000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0182	0.0182	0.0000	0.0000	0.0182
Total	**6.0000e-005**	**7.4000e-004**	**3.1000e-004**	**0.0000**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**1.0000e-005**	**1.0000e-005**	**3.0000e-005**	**0.0000**	**0.1917**	**0.1917**	**0.0000**	**0.0000**	**0.1919**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	10.52	10.52	10.52	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.488379	0.037237	0.184894	0.132358	0.042014	0.007577	0.018418	0.076572	0.001721	0.001591	0.006262	0.001327	0.001651

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation