Big Chico Creek Erosion Repair Project

Biological Assessment

Butte County, California

July 2025

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Prepared By: _____ Date: _____

Jeff Harris
Environmental Planner/ Biologist
Dokken Engineering
110 Blue Ravine Rd, #200
Folsom, CA 95630
(916) 858-0642

Prepared By: _____ Date: _____

Tracy Bettencourt
Regulatory and Grants Manager
City of Chico
411 Main Street
Chico, CA 95928

Approved By: _____ Date: _____

Hillary Regnart
Senior Project Manager
CA North Section
United States Army Corps of Engineers,
Sacramento District
310 Hemsted Drive, Suite 310
Redding, CA 96002

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Acronym List

BA – Biological Assessment
BCCER – Big Chico Creek Ecological Reserve
Cal-IPC - California Invasive Plant Council
CCV Steelhead – California Central Valley Steelhead
CDFW – California Department of Fish and Wildlife
CEQA – California Environmental Quality Act
CESA – California Endangered Species Act
CFR – Code of Federal Regulations
City – City of Chico Department of Public Works
CNDDB – California Natural Diversity Database
CNPS – California Native Plant Society
CVSR Chinook Salmon – Central Valley Spring Run Chinook Salmon
CWA – Clean Water Act
DPS – Distinct Population Segment

EFH – Essential Fish Habitat
EO – Executive Order
EPA – U.S. Environmental Protection Agency
ESA – Environmentally Sensitive Area
ESU – Evolutionarily Significant Unit
°F – Degrees Fahrenheit
FESA – Federal Endangered Species Act
FHWA – Federal Highway Administration
FMP – Fishery Management Plan
F&GC – Fish and Game Code
HAPC – Habitat Areas of Particular Concern
HCP – Habitat Conservation Plan
IPaC – Information for Planning and Consultation
MBTA – Migratory Bird Treaty Act
MSFCMA – Magnuson-Stevens Fishery Conservation and Management Act
NEPA – National Environmental Policy Act
NOAA Fisheries – National Oceanic and Atmospheric Administration National Marine Fisheries Service Branch
NPDES – National Pollutant Discharge Elimination System
PFMC – Pacific Fisheries Management Council
PBFs – Physical and Biological Features
PCN – Pre-Construction Notification
Project – Big Chico Creek Erosion Repair Project
RSP – Rock Slope Protection
RWQCB – Regional Water Quality Control Board
SWRCB - State Water Resources Control Board
TMDL– Total Maximum Daily Loads
U.S. – United States
USACE – United States Army Corps of Engineers
USC – United States Code
USFWS – United States Fish and Wildlife Service
USGS – United States Geological Survey
VELB – Valley Elderberry Longhorn Beetle
WOTUS – Waters of the United States

Executive Summary

The purpose of this biological assessment (BA) is to provide technical information and to review the proposed project in sufficient detail to determine to what extent the proposed project potentially may affect threatened, endangered, or proposed species. The BA is prepared in accordance with 50 Code of Federal Regulations (CFR) 402, legal requirements found in section 7 (a)(2) of the Federal Endangered Species Act (FESA; 16 United States Code [USC] 1536(c)) and with federal regulations, policy and guidance. The document presents technical information upon which later decisions regarding project effects are developed.

The City of Chico Department of Public Works (City) proposes to address erosion at two bridge crossings and along an eroding bank of Big Chico Creek, located throughout the City of Chico, in Butte County, California. Severe winter storms in 2023 and 2024 brought heavy rains, strong winds, and thunderstorms that caused flooding, landslides, and mudslides throughout much of California, including Butte County. The heavy rains caused high creek flows that resulted in erosion at multiple sites along Big Chico Creek in the City of Chico. The erosion along the creek banks and scour in the creek bed threatens the structural integrity of the two bridges and a pedestrian trail.

The Big Chico Creek Erosion Repair Project (Project) will repair structural deficiencies and address bank erosion and scour at the Rose Avenue Bridge, Warner Street Bridge, and along an eroding creek bank adjacent to the intersection of Manzanita Avenue and Vallombrosa Avenue. The Rose Avenue bridge over Big Chico Creek is south of the Rose Avenue and Bidwell Avenue intersection approximately 0.5 miles west of State Route 32. The Warner Street Bridge over Big Chico Creek is on the Chico State University's campus between Legion Avenue and West 1st Street. The bank erosion adjacent to the pedestrian trail is 270 feet southwest of the intersection of Manzanita Avenue and Vallombrosa Avenue.

The Action Area has been assessed for the potential for federally listed plant and wildlife species to occur. Literature research, habitat assessments, and biological surveys determined that three federally threatened species. The valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*), California Central Valley steelhead (CCV steelhead; *Oncorhynchus mykiss irideus pop. 11*), and Central Valley Spring-run Chinook Salmon (CVSR Chinook salmon; *Oncorhynchus tshawytscha pop.* 11) have the potential to occur within the Action Area.

Conservation of VELB falls under the purview of the United States (U.S.) Fish and Wildlife Service (USFWS). The Project will require removal of potentially occupied elderberry shrubs and thus *May Affect and is Likely to Adversely Affect* VELB. Formal Section 7 Consultation with USFWS is required.

Listed salmonid species fall under the regulatory purview of the National Oceanic and Atmospheric Administration National Marine Fisheries Service branch (NOAA Fisheries). The Project *May Affect and is not Likely to Adversely Affect* CCV steelhead, and *May Affect and is not Likely to Adversely Modify* its associated Critical Habitat.

The Project *May Affect and is not Likely to Adversely Affect* CVSR Chinook salmon and *May Affect and is not Likely to Adversely Modify* its associated Critical Habitat. Additionally, the Project *Will Not Adversely Affect* Essential Fish Habitat (EFH) for CVSR Chinook salmon.

The Project will have a *No Effect* on all other federally listed species or Critical Habitat from the USFWS Information for Planning and Consultation (IPaC) and NOAA Fisheries species lists generated for the Project.

Chapter 1. Introduction

1.1. Purpose and Need of the Proposed Action

The purpose of the Project is to repair structural deficiencies and address bank erosion and scour at three locations along Big Chico Creek in the City of Chico. Without the repairs, the structural integrity of the two bridges (Rose Avenue Bridge and Warner Street Bridge) and the pedestrian path associated with the Manzanita Avenue and Vallombrosa Avenue site may be threatened and lead to the closure of the bridges and the pedestrian trail.

1.2. Species and Critical Habitats Assessed

A species list was obtained by the USFWS and NOAA Fisheries on July 11, 2024, for the Action Area of this Project (Appendix A. Database Search Results) and updated lists were obtained on June 9, 2025, to capture the proposed listing status of the monarch butterfly (*Danaus plexippus*). The following listed and proposed species and/or designated or proposed Critical Habitats were identified on the updated federal species list and are considered during this analysis:

Federally Threatened and Endangered Species

Butte County Meadowfoam (*Limnanthes floccose ssp. californica*) E

CCV steelhead (*Oncorhynchus mykiss irideus pop. 11*) T

Conservancy fairy shrimp (*Branchinecta conservatio*) E

CVSR Chinook salmon (*Oncorhynchus tshawytscha pop. 11*) T

Foothill yellow-legged frog – Feather River DPS (*Rana boylii pop.2*) T

Sacramento River Winter-run Chinook salmon ESU (SRWR Chinook salmon; *Oncorhynchus tshawytscha pop. 7)* E

Slender Orcutt grass (*Orcuttia tenuis*) T

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) T

Vernal pool fairy shrimp (*Branchinecta lynchi*) T

Vernal pool tadpole shrimp (*Lepidurus packardi*) E

Critical Habitat

The proposed action addressed within this document falls within designated Critical Habitat for CCV steelhead and CVSR Chinook salmon. The Project may affect but is not likely to adversely modify these critical habitats.

Proposed Species

Monarch butterfly (*Danaus Plexippus*) PT

Northwestern pond turtle (*Actinemys marmorata*) PT

Western spadefoot (*Spea hammondii*) PT

Proposed Critical Habitat

The proposed action addressed within this document does not fall within proposed critical habitat.

Table 1. Federal Threatened, Endangered and Proposed Species and Designated and Proposed Critical Habitat and Effect Determinations

Threatened, Endangered, Proposed Species, or Designated Critical Habitat	Scientific Name	Listing Status	Presence of Species in Action Area (Yes/No)	Presence of Critical Habitat in Action Area (Yes/No)	Effect Determination
Butte County meadowfoam	*Limnanthes floccose ssp. californica*	E	No	No	**No Effect:** The Action Area[1] lacks mesic soils in vernal pools and grassland communities. Therefore, the species is presumed absent from the Action Area due to a lack of necessary habitat features.
Central Valley spring-run Chinook salmon ESU-Critical Habitat	--	--	--	Yes	**May Affect, not Likely to Adversely Modify:** Big Chico Creek within the Action Area is final designated Critical Habitat for Central Valley-spring run Chinook salmon for rearing and migration.

Threatened, Endangered, Proposed Species, or Designated Critical Habitat	Scientific Name	Listing Status	Presence of Species in Action Area (Yes/No)	Presence of Critical Habitat in Action Area (Yes/No)	Effect Determination
					Impacts to the habitat are anticipated to minor and would not change the overall quality of the habitat.
Central Valley steelhead - Distinct Population Segment (DPS)	*Oncorhynchus mykiss irideus pop. 11*	T	Yes	Yes	**May Affect, Not Likely to Adversely Affect:** NOAA Fisheries has designated Big Chico Creek as Critical Habitat for this species for rearing and migration. Additionally, Big Chico Creek is a tributary of the Sacramento River, where the species is known to spawn. Therefore, there is a moderate potential for the species to occur within the Action Area due to the use of Big Chico Creek for rearing and migration and the proximity of the Sacramento River.
Central Valley steelhead DPS-Critical Habitat	--	--	--	Yes	**May Affect, not Likely to Adversely Modify:** Big Chico Creek within the Action Area is final designated Critical Habitat for CCV steelhead for rearing and migration. Impacts to the habitat are anticipated to minor and would not

Threatened, Endangered, Proposed Species, or Designated Critical Habitat	Scientific Name	Listing Status	Presence of Species in Action Area (Yes/No)	Presence of Critical Habitat in Action Area (Yes/No)	Effect Determination
					change the overall quality of the habitat.
Chinook salmon Central Valley spring-run ESU	*Oncorhynchus tshawytscha pop. 11*	T	No	Yes	**May Effect, Not Likely to Adversely Affect:** NOAA Fisheries has designated Big Chico Creek as Critical Habitat for this species for rearing and migration. Additionally, Big Chico Creek is a tributary of the Sacramento River, where the species is known to spawn. Therefore, there is a moderate potential for the species to occur within the Action Area due to the use of Big Chico Creek for rearing and migration and the proximity of the Sacramento River.
Conservancy fairy shrimp	*Branchinecta conservatio*	E	No	No	**No Effect:** The Action Area lacks vernal pool or swale habitat that is necessary to support populations of this species.
Foothill yellow-legged frog – Feather River DPS	*Rana boylii pop.2*	T	No	No	**No Effect:** Erosion repair sites along Big Chico Creek are significantly disturbed by dense residential development and/or lack necessary habitat features, such as shallow water,

Threatened, Endangered, Proposed Species, or Designated Critical Habitat	Scientific Name	Listing Status	Presence of Species in Action Area (Yes/No)	Presence of Critical Habitat in Action Area (Yes/No)	Effect Determination
					rocky substrates and open sunny banks. There are multiple occurrences of the species upstream of the Action Area at the base of the Sierra Nevada Foothills, but the topography and hydrology at these locations are much different than the segments of Big Chico Creek within the Action Area. In the foothills, Big Chico Creek maintains a more natural, undisturbed habitat. The stream channels here are narrower and rockier, with natural pools, riffles, and gravel beds that provide essential microhabitats for the foothill yellow-legged frog.
Monarch butterfly	*Danaus plexippus*	PT	No	No	**No Effect:** The Action Area does not encompass suitable fields, meadows, or weedy areas that could support this species. Milkweed (*Asclepias sp.*) was not observed during the biological surveys conducted on July 30th, 2024, and October 30th, 2024, and February 26th, 2025.

Threatened, Endangered, Proposed Species, or Designated Critical Habitat	Scientific Name	Listing Status	Presence of Species in Action Area (Yes/No)	Presence of Critical Habitat in Action Area (Yes/No)	Effect Determination
Northwestern pond turtle	*Actinemys marmorata*	PT	No	No	**No Effect:** The Action Area contains potentially suitable habitat for the species. However, all occurrences of the species in Big Chico Creek are found at high elevations in the foothills approximately 7 miles upstream of the Vallombrosa Avenue erosion site. The species is presumed absent from the Action Area due to a lack of local occurrences.
Sacramento River Winter-run Chinook salmon ESU	*Oncorhynchus tshawytscha pop. 7*	E	No	No	**No Effect:** This species is currently restricted within the Sacramento River below Keswick dam. Additionally, this species does not spawn in tributaries. The species is presumed absent, due to the Action Area being outside of the known range of the species.
Slender Orcutt grass	*Orcuttia tenuis*	T	No	No	**No Effect:** The Action Area lacks vernal pools within gravelly soil. Therefore, the species is presumed absent from the Action Area due to a lack of necessary habitat features.

Threatened, Endangered, Proposed Species, or Designated Critical Habitat	Scientific Name	Listing Status	Presence of Species in Action Area (Yes/No)	Presence of Critical Habitat in Action Area (Yes/No)	Effect Determination
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	Yes (Low Potential)	No	**May Affect, Likely to Adversely Affect:** Big Chico Creek has an associated riparian corridor that is known to support populations of elderberry shrubs, the host plant for this species. During the biological survey conducted in July 2024, 13 elderberry shrubs were identified within the Action Area.
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	No	No	**No Effect:** The Action Area lacks vernal pool or swale habitat that is necessary to support this species.
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	No	No	**No Effect:** The Action Area lacks vernal pool or swale habitat that is necessary to support this species.
Western spadefoot	*Spea hammondii*	PT	No	No	**No Effect:** The Action Area does not encompass any habitat community typically occupied by this species. In addition, there are no vernal pools in the vicinity of the Action Area that could be used as breeding habitat for this species.

[1]The Action Area was defined as the area of direct/indirect effects from construction activities including potential staging and access areas with an approximate 50-meter buffer to account for direct and indirect impacts to VELB.

State Threatened and Endangered Species

A species list was obtained by the California Department Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) on July 11, 2024, for the Action Area of this Project (Appendix A. Database Search Results). Updated lists were obtained on June 9, 2025. The following listed and proposed species were identified on the updated CDFW CNDDB and CNPS species lists and are considered during this analysis:

Bald eagle (*Haliaeetus leucocephalus*) SE

Bank swallow (*Riparia riparia*) ST

Burrowing owl (*Athene cunicularia*) SCE

California black rail (*Laterallus jamaicensis coturniculus*) ST

Crotch's bumble bee (*Bombus crotchii*) SC

Foothill yellow-legged frog – north coast DPS (*Rana boylii pop. 1*) SSC

Giant gartersnake (*Thamnophis gigas*) ST

Greene's tuctoria (*Tuctoria greenei*) SR

Least Bell's vireo (*Vireo bellii pusillus*) SE

Swainson's hawk (*Buteo swainsoni*) ST

Tricolored blackbird (*Agelaius tricolor*) ST

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) SE

Table 2. State Threatened, Endangered and Proposed Species and Designated and Proposed Critical Habitat and Effect Determinations

Threatened, Endangered, Proposed Species	Scientific Name	State Listing Status	Presence of Species in Action Area (Yes/No)	Potential for Occurrence and Rationale
Bald eagle	*Haliaeetus leucocephalus*	SE	No	**Presumed Absent:** The Action Area encompass a few portions of Big Chico Creek; however, these portions of the creek are surrounded by dense residential

Threatened, Endangered, Proposed Species	Scientific Name	State Listing Status	Presence of Species in Action Area (Yes/No)	Potential for Occurrence and Rationale
				development and are highly disturbed. The species does not tend to nest near evident human disturbance. The species is presumed absent from the Action Area due to presence of human disturbance, and a lack of trees that are suitable for nesting.
Bank swallow	*Riparia riparia*	ST	No	**Presumed Absent:** The Action Area lacks vertical banks or cliffs with fine textured/sandy soils required for nesting. The species is presumed absent due to a lack of necessary habitat features.
Burrowing owl	*Athene cunicularia*	CE	No	**Presumed Absent:** The Action Area lacks arid, open areas with sparse vegetation cover such as deserts, abandoned agricultural areas, grasslands, and disturbed open habitats.
California black rail	*Laterallus jamaicensis coturniculus*	ST	No	**Presumed Absent:** The Action Area lacks brackish or freshwater emergent wetlands. The species is presumed absent due to a lack of necessary habitat features.
Crotch's bumble bee	*Bombus crotchii*	SC	No	**Presumed Absent:** The species require grassland, shrubland, and chaparral habitats to nest. The Action Area lacks all suitable habitat communities for the species. The species is presumed absent due to a lack of necessary habitat features.
Foothill yellow-legged frog – Northwest/ North Coast Clade	*Rana boylii pop. 1*	CDFW Northwest/ North Coast	No	**Presumed Absent:** The Big Chico Creek repair sites are located within the Northwest/ North Coast CDFW Clade

Threatened, Endangered, Proposed Species	Scientific Name	State Listing Status	Presence of Species in Action Area (Yes/No)	Potential for Occurrence and Rationale
		Clade Boundary		boundary for FYLF. This clade of FYLF is not state or federally listed. Adjacent populations of state and federally listed FYLF are found within the USFWS North Feather River Watershed DPS and CDFW NF Feather and Upper Feather River Watershed clade. The erosion repair sites along Big Chico Creek are outside of the known range of this state and federally listed clade and DPS. Erosion repair sites along Big Chico Creek are significantly disturbed by dense residential development and/or lack necessary habitat features, such as shallow water, rocky substrates and open sunny banks. There are multiple occurrences of the species upstream of the Action Area at the base of the Sierra Nevada Foothills, but the topography and hydrology at these locations are much different than the segments of Big Chico Creek within the Action Area. In the foothills, Big Chico Creek maintains a more natural, undisturbed habitat. The stream channels here are narrower and rockier, with natural pools, riffles, and gravel beds that provide essential microhabitats for the foothill yellow-legged frog. The species is presumed absent from the Action Area due to a lack of necessary habitat features, resulting from the

Threatened, Endangered, Proposed Species	Scientific Name	State Listing Status	Presence of Species in Action Area (Yes/No)	Potential for Occurrence and Rationale
				urbanization Big Chico Creek encounters as is runs through the city of Chico.
Giant garter snake	*Thamnophis gigas*	ST	No	**Presumed Absent:** This species is not on the USFWS IPaC list of federally listed species. It is included in the State table because it was listed on the California Natural Diversity Database (CNDDB) query that encompassed multiple United States Geological Survey (USGS) 7.5-minute quadrangles. The Action Area lacks suitable aquatic habitat for this species. The Action Area is outside of the known range of this species.
Greene's tuctoria	*Tuctoria greenei*	SR	No	**Presumed Absent:** The Action Area lacks vernal pools and grassland communities. Therefore, the species is presumed absent due to a lack of necessary habitat features.
Least Bell's vireo	*Vireo bellii pusillus*	SE	No	**Presumed Absent:** This species is not on the USFWS IPaC list of federally listed species. It is included in the State table because it was listed on the CNDDB query that encompassed multiple USGS 7.5-minute quadrangles. The Action Area is outside of the current range of the species. Additionally, there are no recent occurrences of the species within a 10-mile radius of the Action Area. The species is presumed absent due to its pattern of

Threatened, Endangered, Proposed Species	Scientific Name	State Listing Status	Presence of Species in Action Area (Yes/No)	Potential for Occurrence and Rationale
				occurrence and a lack of recent observations.
Swainson's hawk	*Buteo swainsoni*	ST	No	**Presumed Absent:** The Action Area lacks suitable foraging habitat for the species. The species is presumed absent.
Tricolored blackbird	*Agelaius tricolor*	ST	No	**Presumed Absent:** The Action Area lacks freshwater marsh, swamp, wetland, and agricultural habitat that can support large colonies of the species. The species is presumed absent due to a lack of necessary habitat features for nesting and foraging.
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	SE	No	**Presumed Absent:** This species is not on the USFWS IPaC list of federally listed species. It is included in the State table because it was listed on the CNDDB query that encompassed multiple USGS 7.5-minute quadrangles. The Action Area contains Big Chico Creek which is not considered a large river system with a broad floodplain. All CNDDB occurrences of the species within a 10-mile radius of the Action Area are contained within the Sacramento River, which is considered a large river system with a broad, lower flood bottom. The species is presumed absent due to a lack of suitable habitat features, and occurrences within Big Chico Creek.

1.3. Authorities and Discretion

The City is the California Environmental Quality Act (CEQA) lead agency. The City had started an annexation process of unincorporated pockets that were substantially surrounded by incorporated City parcels. Butte County applied for FEMA disaster relief for these storm damages sites prior to the City completing the annexations. It is unknown if the repair work will receive FEMA funds. As the repair work needs authorization under the Clean Water Act (CWA), it is assumed that the United States Army Corps of Engineers (USACE) will serve as the federal National Environmental Policy Act (NEPA) lead.

Federal Regulations

National Environmental Policy Act

NEPA provides an interdisciplinary framework for environmental planning by federal agencies and contains action-forcing procedures to ensure that federal agency decisions take environmental factors into account. NEPA is applicable when a federal agency proposes an action, grants a permit, or agrees to fund or otherwise authorize any other entity to undertake an action that could possibly affect environmental resources.

Federal Endangered Species Act

The FESA of 1973 (16 USC section 1531 et seq.) provides for the conservation of endangered and threatened species listed pursuant to Section 4 of the Act (16 USC section 1533) and the ecosystems upon which they depend. These species and resources have been identified by USFWS and NOAA Fisheries.

Clean Water Act

The CWA was enacted as an amendment to the Federal Water Pollutant Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to Waters of the United States (WOTUS). The CWA is the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The CWA empowers the U.S. Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations and includes programs addressing point-source and non-point-source pollution for all WOTUS.

On May 25, 2023, the U.S. Supreme Court issued its ruling on the Sackett v. EPA case redefining WOTUS. The Court's decision holds that "only those relatively permanent, standing or continuously flowing bodies of water forming geographic features that are described in ordinary parlance as streams, oceans, river, and lakes" are considered WOTUS. The ruling limits the scope of WOTUS to those "wetlands with a continuous surface connection to bodies that are WOTUS in their own right."

As Big Chico Creek is a relatively permanent standing or continuously flowing body of water and qualifies as a traditional navigable water based on its connection to the

Sacramento River, it meets the current definition of WOTUS and is thus regulated by the CWA.

Section 401

The Regional Water Quality Control Board (RWQCB) has jurisdiction under Section 401 of the CWA and regulates any activity which may result in a discharge to surface waters. Typically, the areas subject to jurisdiction of the RWQCB coincide with WOTUS, including any wetlands. The RWQCB also asserts authority over “waters of the State” under waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act. The proposed Project is located within the jurisdiction of the Central Valley RWQCB and will require a CWA Water Quality Certification from the Central Valley RWQCB.

Section 402

The State Water Resources Control Board (SWRCB) regulates construction projects that involve ground disturbance of one acre or greater. These projects must obtain coverage under the SWRCB General Permit for Storm Water Discharges Associated with Construction Activity. Operators of regulated construction sites are required to develop a Stormwater Pollution Prevention Plan; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the General Construction Permit.

Section 404

The USACE regulates discharges of dredged or fill material into WOTUS. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. The USACE regulatory jurisdiction pursuant to Section 404 of the CWA is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or may be indirect (through a nexus identified in USACE regulations).

Nationwide Permits are a set of streamlined permits issued by the U.S. Army Corps of Engineers under Section 404 of the CWA, designed to authorize specific activities that have minimal environmental impact on WOTUS. These permits cover a range of activities, such as construction, dredging, and filling, and are subject to general conditions to ensure they do not significantly degrade aquatic resources.

This Project will require a Nationwide Permit 13 at each erosion repair location, under Section 404 of the CWA. This Nationwide Permit specifically authorizes activities related to bank stabilization. It allows for the placement of structures and materials (such as riprap, geotextiles, or vegetation) in WOTUS to protect shorelines, prevent erosion, and stabilize riverbanks, streams, and other water bodies. Depending on the Project's scope, a Pre-Construction Notification (PCN) may be required for Corps review to

ensure compliance with permit conditions. This Project will require a PCN, as it involves discharges into a special aquatic site, salmonid critical habitat.

Executive Order 13112: Prevention and Control of Invasive Species

Executive Order (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 and directives from the Federal Highway Administration (FHWA) require consideration of invasive species in NEPA analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them.

Executive Order 13186: Migratory Bird Treaty Act

EO 13186 (signed January 10, 2001) directs each federal agency taking actions that could adversely affect migratory bird populations to work with USFWS to develop a Memorandum of Understanding that will promote the conservation of migratory bird populations. Protocols developed under the Memorandum of Understanding will include the following agency responsibilities:

- avoid and minimize, to the maximum extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- restore and enhance habitat of migratory birds, as practicable; and
- prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The EO is designed to assist federal agencies in their efforts to comply with the Migratory Bird Treaty Act (MBTA; 50 CFR 10 and 21) and does not constitute any legal authorization to take migratory birds. Take is defined under the MBTA as “the action of or attempt to pursue, hunt, shoot, capture, collect, or kill” (50 CFR 10.12) and includes intentional take (i.e., take that is the purpose of the activity in question) and unintentional take (i.e., take those results from, but is not the purpose of, the activity in question).

Magnuson-Stevens Fishery Conservation and Management Act of 1976

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1976 was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the U.S., by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

State Regulations

California Environmental Quality Act

The CEQA was created to inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities and to work to reduce these negative environmental impacts. The City is the CEQA lead agency for the Project.

California Endangered Species Act

The California Fish and Game Code (F&GC) Section 2050, henceforth referred to as the California Endangered Species Act (CESA), requires the CDFW to establish a list of endangered and threatened species (Section 2070) and to prohibit the incidental taking of any such listed species except as allowed by the Act (Sections 2080-2089). In addition, CESA prohibits take of candidate species (under consideration for listing).

CESA also requires CDFW to comply with CEQA (Pub. Resources Code Section 21000 et seq.) when evaluating incidental take permit applications (F&GC Section 2081(b) and California Code Regulations, Title 14, section 783.0 et seq.), and the potential impacts the Project or activity for which the application was submitted may have on the environment. CDFW's CEQA obligations include consultation with other public agencies which have jurisdiction over the Project or activity (California Code Regulations, Title 14, Section 783.5(d)(3)). CDFW cannot issue an incidental take permit if issuance would jeopardize the continued existence of the species (F&GC Section 2081(c); California Code Regulations, Title 14, Section 783.4(b)).

Section 1602: Streambed Alteration Agreement

Under California F&GC Section 1602, public agencies are required to notify CDFW before undertaking any project that will divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occurs during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resources. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications, and bid documents for the project.

Section 3503 and 3503.5: Bird and Raptors

California F&GC Section 3503 prohibits the destruction of bird nests and Section 3503.5 prohibits the killing of raptor species and destruction of raptor nests. Trees and shrubs are present in and adjacent to the Action Area and could contain nesting sites.

Section 3513: Migratory Birds

California F&GC Section 3513 prohibits the take or possession of any migratory non-game bird as designated in the MBTA or any part of such migratory non-game bird

except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Porter Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. The act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just WOTUS, such as groundwater and surface waters not considered WOTUS. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant". Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the CWA.

The RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in an Action Area are contained in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired, and the standards cannot be met through point source or non-source point controls (National Pollutant Discharge Elimination System [NPDES] permits or Waste Discharge Requirements), the CWA requires the establishment of total maximum daily loads (TMDLs) which specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

Regional Water Quality Control Boards

The SWRCB adjudicates water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

Local Regulations

The City of Chico General Plan contains a number of policies that are implemented to protect the city's biological resources. The Project will remain in compliance with the goals outlined in the Conservation and Open Space Element of the city's General Plan.

The Habitat Conservation Plan (HCP), which is in process, has not been adopted (Butte County 2024).

1.4. Consultation History

No formal or informal consultation with USFWS or NOAA Fisheries has occurred to date.

United States Fish and Wildlife Service

On July 11, 2024, an official species list was obtained from USFWS of federally listed species that could occur in the vicinity of the Project. On June 9, 2025, an updated species list was obtained. (Appendix A. Database Search Results).

National Marine Fisheries Service

On July 11, 2024, a list of federally listed fish species with the potential to occur in the Chico USGS 7.5-minute quadrangle within the Project vicinity was obtained from the NOAA Fisheries West Coast Region Species List (Appendix A. Database Search Results).

Other Sources

Database searches were conducted with CDFW's CNDDB and the CNPS Inventory or Rare and Endangered Plants of California.

1.5. Resource Agency Coordination and Professional Contacts

CDFW Communications

Dokken Engineering biologists Jeffery Little and Jeff Harris consulted with CDFW Region 2 biologists, who have extensive experience with listed salmonids in the area. During a call on November 19, 2024, with Senior Environmental Scientists Melissa Stanfield and Ian MacLeod, they confirmed that CCV steelhead, along with other listed salmonids like CVSR Chinook salmon, would not persist in Big Chico Creek between July 15 and September 30 due to lethal water temperatures and a lack of year-round flow.

1.6. Study Methods

Prior to fieldwork, literature research was conducted and lists of special status species that could occur within the Project vicinity were obtained from USFWS, NOAA Fisheries, the CDFW CNDDB, and the CNPS Inventory of Rare and Endangered Plants. Data compiled from these database search results, along with the results of biological field surveys were used to determine which special status species have the potential to occur within the Action Area.

The Action Area was defined as the area of direct and indirect effects from construction activities, including potential staging/access areas with an approximate 50-meter buffer to account for impacts to VELB, CVSR Chinook salmon, and CCV steelhead. Habitat assessments and analysis of historic occurrences were conducted to determine the potential for special-status species to occur within the Action Area.

1.6.1. Personnel and Survey Dates

General biological surveys and jurisdictional delineations were conducted by Dokken Engineering personnel on three occasions: by biologists Scott Salembier and Jeff Harris on July 30, 2024; by biologist Jeff Harris, senior environmental planner Jeffery Little, and engineer Daniel Lierly on October 30, 2024; and by biologists Jeff Harris and Lea Braen on February 26, 2025. The surveys consisted of a general assessment of biological conditions of the Project site, with special attention given to sensitive plant and wildlife species that were determined by the literature assessment to have a potential of occurring within the Action Area. Methodology involved walking meandering transects throughout the Action Area and recording observed vegetation and wildlife species as well as categorizing existing habitat communities. In addition, the existing bridge structures were inspected to determine suitability to support colonies of nesting birds (e.g. swallows) as well as bat maternity roosts. Water temperature and creek depth data were collected in order to assess creek conditions.

1.6.2. Limitations and Assumptions that may Influence Results

Sensitive wildlife species with the potential to occur in the Action Area may be cryptic (difficult to detect) or transient, migratory species. The population size and locations of sensitive species may fluctuate through time. Because of this, the data collected for this biological resource technical report represents a “snapshot” in time and may not reflect actual future conditions. The collection of biological field data is normally subject to environmental factors that cannot be controlled or reliably predicted. Consequently, the interpretation of field data must be conservative and consider the uncertainties and limitations imposed by the environment. Due to the experience and qualifications of the consulting biologists involved in the surveys, this limitation is not expected to severely influence the results or substantially alter the findings.

No additional limitations were present that could influence the results of this document. All surveys were conducted during appropriate weather and temperature conditions.

Chapter 2. Proposed Agency Action

2.1. Proposed Action Location

The Action Area will address storm related bank erosion and scour damage located at two bridge crossings over Big Chico Creek and along a pedestrian trail within Butte County, California (Figure 1. Project Vicinity; Figure 2. Project Location). The Rose Avenue bridge over Big Chico Creek is south of the Rose Avenue and Bidwell Avenue intersection, approximately 0.5 miles west of State Route 32. The Warner Street Bridge over Big Chico Creek is on the Chico State University's campus between Legion Avenue and West 1st Street. The erosion site along the pedestrian trail is located directly adjacent to the intersection of Vallombrosa Avenue and Covell Park Avenue The Action Areas for the two bridge locations are within Section 27 and 28,Township 22 N and Range 1 East of the Chico USGS 7.5-minute quadrangle. The Action Area for the pedestrian trail erosion site is within Section 18, Township 22 North, and Range 2 East of the Richardson Springs USGS 7.5-minute quadrangle. The Action Area ranges between 185 to 275 feet above sea level. The Action Area is situated within a region that has largely been altered for residential and commercial use.

2.2. Description of Proposed Action

The existing conditions and the proposed permanent repair design for each bridge and the pedestrian trail are discussed in this section.

Rose Avenue Bridge: Existing Conditions

The Rose Avenue Bridge experienced damage during two federally declared disasters in January and February 2023. The damage in January (4683DR) occurred when torrential rainfall in the Big Chico Watershed raised creek levels and washed out the roots of trees on the north and south sides of the creek. The trees fell into the creek on the upstream (or east) side of the Bridge, directing the high, fast-moving water towards both banks scouring the banks from the bridge abutments to 35 feet upstream. The scouring caused the loss of approximately 466 cubic yards of soil from both banks. The dimensions of the areas affected by the January 2024 event are 35 feet long, 20 feet wide, and 18 feet deep. Then, storms from January 21 to February 9, 2024, in the watershed caused additional damage and resulted in a second federal disaster declaration (4769DR). Heavy rainfall and stormwater overtopped the road and swelled the waterway under the bridge. As a result, the embankment at the northeast bridge abutment was scoured and slope armoring failed.

The bridge was constructed in 1925. It is a three-span reinforced concrete T-girder bridge on reinforced concrete pier walls and open reinforced concrete diaphragm/wall abutments at are all founded on spread foundations. Approximate 10-feet upstream of the bridge, there is a 21-inch gravity sewer pipe in the bed of the creek. The pipe, constructed in 1929, is encased in concrete. The pipe functions as a check dam or weir where, upstream, creek bed is full of cobbles to the height of the concrete encasement.

The Caltrans Bridge Inspection Report from October 2022 notes that there “is a rock pocket on the upstream nose of Pier 3. The pocket is approximately 4-feet long by 6-inches tall by 2-inches deep… Approximately 6-feet of the Pier 2 footing is exposed up to 4-inches vertically on the Span 2 side of Pier 2.” The concrete encased sewer line “is undermined up to 12 inches vertically along a 10-foot section adjacent to Span 2 but appears to be functioning as intended.”

Caltrans inspects the bridge every other year, typically in October. A review of eleven inspection reports covering a two-decade period revealed that the creek was dry during four of the inspections. Water was observed flowing under Span 2, the middle span between Piers 2 and 3 during seven of the inspections although water was not present under Span 3 (the north side of the creek) during four of the seven inspections.

Rose Avenue Bridge: Permanent Repair

The City proposes to repair the erosion on both banks and the scour around the piers, north abutment footing, and the sewer pipe using Rock Slope Protection (RSP) and RSP will reinforce the existing creek banks, the northeast abutment footing and wingwall, and a concrete-encased sewer pipe. The RSP on the creek banks will be based on the Caltrans’ Mounded Toe RSP design as shown in Highway Design Manual Figure 873.3D with a 1.5:1 slope. The RSP will be underlain with a gravel filter (Appendix C. Construction Plan Sheets).

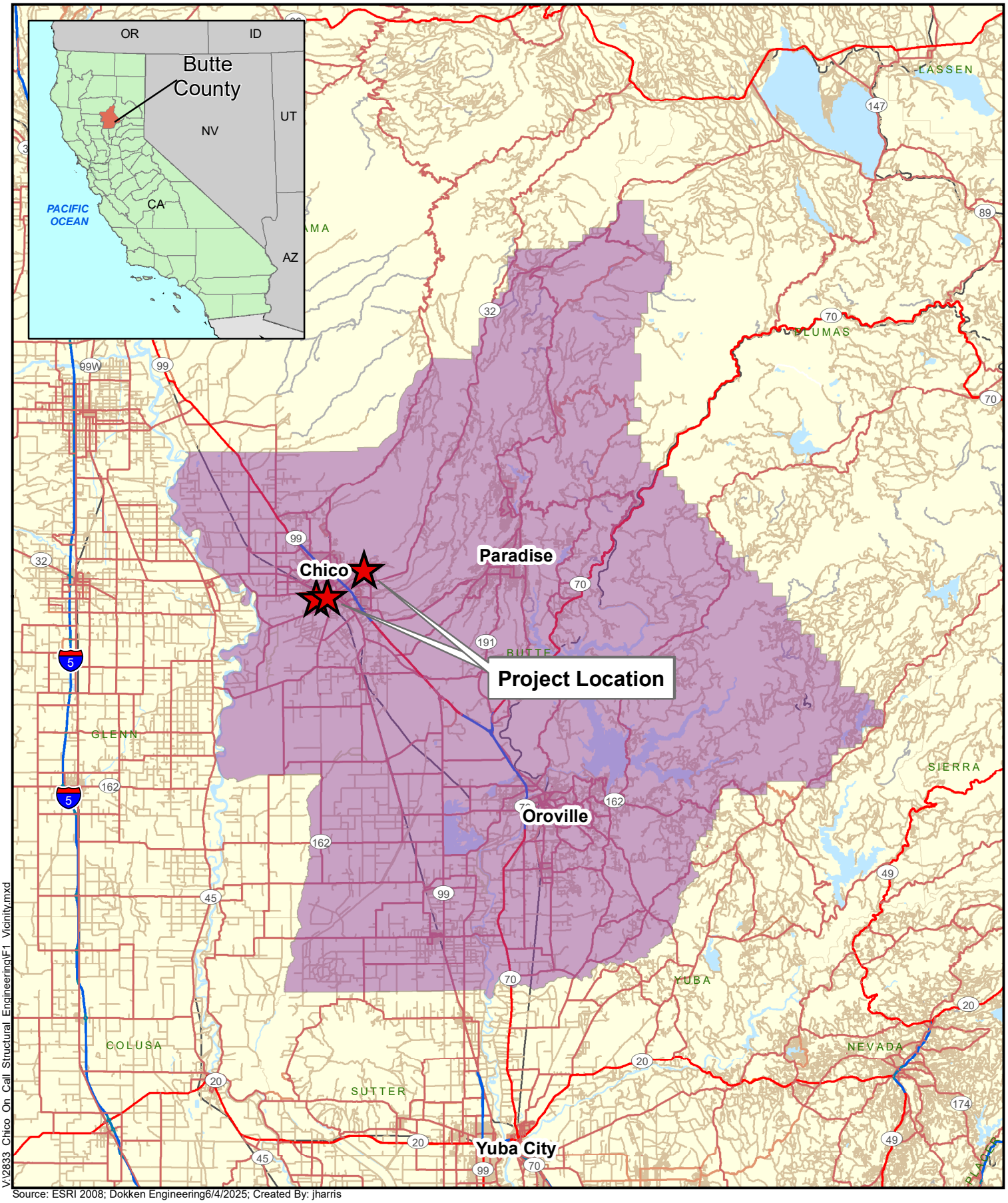
A total of 68 linear feet of RSP will be installed along the north creek bank upstream of the bridge and the base of the north bridge abutment. 50 linear feet of RSP will be placed along the south creek bank upstream of the bridge. The RSP will extend upstream to protect an existing stream gage. RSP will be placed on the downstream side of the concrete encased sewer pipe to prevent additional scour.

Warner Street Bridge: Existing Conditions

The Warner Street Bridge experienced damage during federally declared disasters in winter of 2023. The damage occurred when torrential rainfall in the Big Chico Watershed raised creek levels and exacerbated existing erosion problems on the north bank of the creek. The bridge was constructed in 1938 and modified in 1995. It is a two-span reinforced concrete T-girder bridge on reinforced concrete pier walls and open reinforced concrete diaphragm abutments with monolithic wingwalls that are all founded on spread foundations.

The Caltrans Bridge Inspection Report from October 2022 notes that “The stepped wingwall foundations on the right wingwall at Abutment 3 are exposed and undermined. There is an existing work recommendation to mitigate the scour at the right wingwall of Abutment 3 in accordance with HEC-23 procedures.”

The Report details the changes to the north abutment: “The right side of the Abutment 3 footing is exposed up to 1 foot vertically for approximately 5 feet in length. No undermining was noted when probed with an extension pole. This exposure was not noted in the 2018 and 2020 routine inspection reports, however the 9/14/2017 Hydraulic



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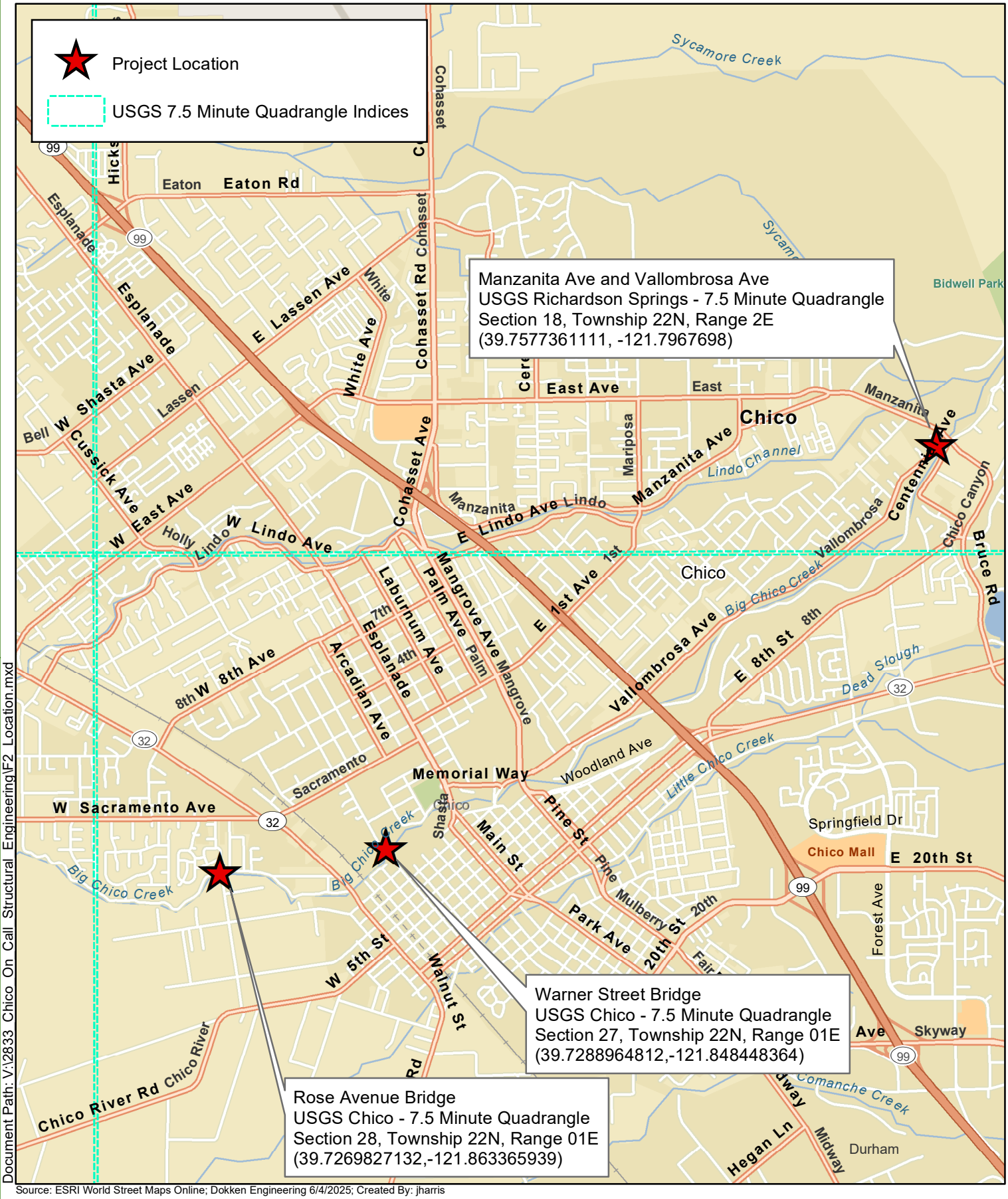
Source: ESRI 2008; Dokken Engineering6/4/2025; Created By: jharris

0 5 10 15 Miles

FIGURE 1
Project Vicinity
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California



Source: ESRI World Street Maps Online; Dokken Engineering 6/4/2025; Created By: jharris

Document Path: V:\2833 Chico On Call Structural Engineering\F2 Location.mxd

0 0.5 1 1.5 2 Miles

FIGURE 2
Project Location
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

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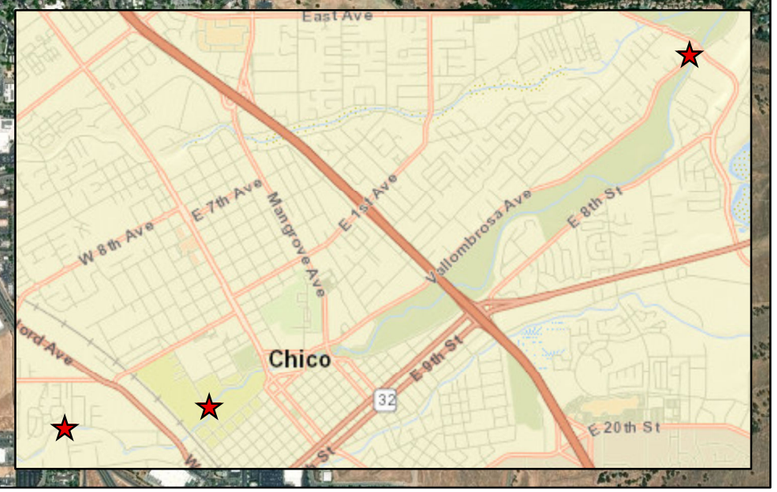
Action Area

Manzanita Avenue and Vallombrosa Aveue

Big Chico Creek

Warner Street Bridge

Rose Avenue Bridge



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Source: ESRI Maps Online; Dokken Engineering 6/4/2025; Created By: jharris

1 inch = 2,000 feet

0 2,000 4,000 6,000 8,000 Feet

Figure 3
Project Features
Page 1 of 4

Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Action Area (1.33 acres)

Bridge

Temporary Water Diversion (130 Linear Feet)

Project Features

Rock Slope Protection (Below OHWM)

Rock Slope Protection (Above OHWM)

Temporary Water Diversion Headwalls

Temporary Construction Disturbance Area

Aquatic Resources

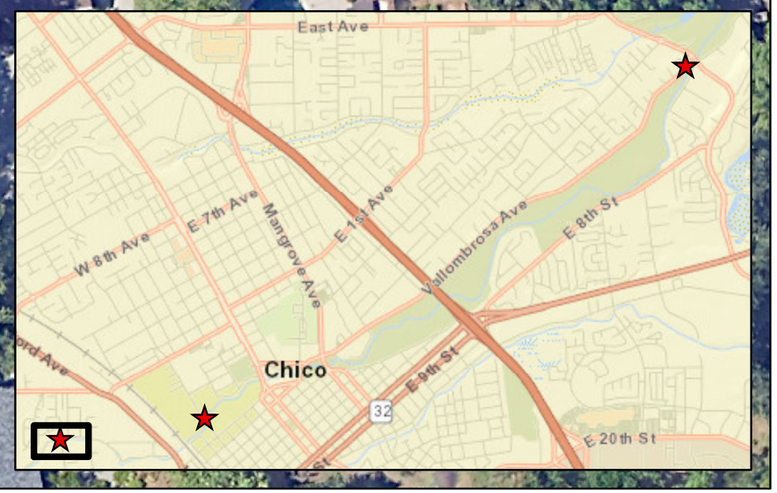
Perennial Creek (0.32 acres)

Bidwell Avenue

Text

Big Chico Creek

Rose Avenue



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Source: ESRI Maps Online; Dokken Engineering 7/1/2025; Created By: jharris

1 inch = 40 feet

0 40 80 120 160 200 Feet

Figure 3
Project Features
Page 2 of 4
Rose Avenue Bridge
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Action Area (1.30 acres)
Bridge and Pedestrian Bridges
Warner Wingwalls
Temporary Water Diversion (260 Linear Feet)

Project Features

Rock Slope Protection (Below OHWM)
Rock Slope Protection (Above OHWM)
Temporary Water Diversion Headwalls
Temporary Construction Disturbance Area

Aquatic Resources

Perennial Creek (0.40 acres)

Warner Street
Big Chico Creek
Ivy Street
Chico
W 8th Ave
E 7th Ave
Mangrove Ave
E 1st Ave
Vallombrosa Ave
E 8th St
Nord Ave
E 9th St
E 20th St
32

V:\2833_Chico_On_Call_Structural_Engineering\Biology\F3_Project Features Warner.mxd

Source: ESRI Maps Online; Dokken Engineering 6/23/2025; Created By: jharris

1 inch = 50 feet

0 40 80 120 160 200 Feet

Figure 3
Project Features
Page 3 of 4
Warner Street Bridge
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Action Area (3.22 acres)

Temporary Water Diversion (200 Linear Feet)

Project Features

Rock Slope Protection (Below OHWM)

Rock Slope Protection (Above OHWM)

Temporary Water Diversion Headwalls

Temporary Construction Disturbance Area

Aquatic Resources

Perennial Creek (0.68 Acres)

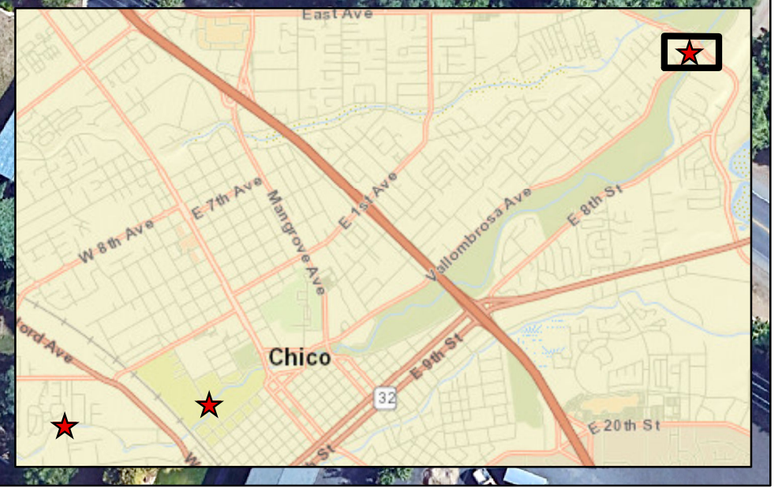
Covell Park Avenue

Vallombrosa Avenue

Big Chico Creek

Manzanita Avenue

Centennial Avenue



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Source: ESRI Maps Online; Dokken Engineering 6/23/2025; Created By: jharris

1 inch = 75 feet

0 50 100 150 200 250 Feet

Figure 3
Project Features
Page 4 of 4

Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

inspection noted that the footing had historically been exposed "on occasion". A work request to re-evaluate the scour vulnerability of the spread footing at Abutment 3 was submitted to SM&I's Local Hydraulic branch…"

Caltrans inspects the bridge every other year, typically in October. A review of eleven inspection reports covering a two-decade period revealed that water was present in creek during each of the inspections. The depth of water in the scour hole at Abutment 3 ranged from four to eight feet.

Warner Street Bridge: Permanent Repair

The City proposes to repair the erosion and address the scour issue on north bank of the creek using RSP. RSP will reinforce the existing creek bank and protect the northern abutment from undermining and failure. The RSP on the creek banks will be based on the Caltrans' Mounded Toe RSP design as shown in Highway Design Manual Figure 873.3D with a 1.5:1 slope. The RSP will be underlain with a gravel filter.

A total of 90 linear feet of RSP will be installed along the north bank upstream of the bridge, 40 linear feet of RSP along the north bridge abutment, and 50 linear feet of RSP will be placed along the north bank downstream of the bridge.

All ground disturbing activities will take place within the proposed temporary construction areas depicted in the plans. Right-of-way acquisitions, temporary construction easements, and encroachment permits will be needed to accommodate for construction. Construction will be staged so that two traffic lanes on the existing bridge will remain open. During certain stages of construction, lane closures, road closures, and detour routes will be necessary but will be short in duration. Utility relocations are not anticipated.

Manzanita Avenue and Vallombrosa Avenue Pedestrian Trail: Existing Conditions

This erosion site is located just downstream of the intersection of Manzanita Avenue and Vallombrosa Avenue. The west bank of the creek has significant erosion at the base. This location is a common recreation area during summertime where the public jumps off the top of bank into the creek. The scour has undercut the west bank, creating a "cave" that is exposed during normal flows. The recreation activity at this location could also be a contributing factor to the erosion at that site. The erosion damage is approximately 80 feet in length, 8 feet in width, and 15 feet high.

Manzanita Avenue and Vallombrosa Avenue Pedestrian Trail: Permanent Repair

The City proposes to repair the erosion and fill in the cave on the west bank of the creek using RSP. The undercut cave will be collapsed and regraded to remove any safety risks to the public. A total of 187 linear feet of RSP will then be installed along the west bank to reinforce the reconstructed creek banks and prevent further erosion. All ground disturbing activities will take place within existing City right-of-way.

2.3. Deconstruct the Proposed Action

2.3.1 Construction Scenario Summary

The construction scenario is similar for all three Projects. Any differences will be noted below.

The Action would replace the existing Rose Avenue and Warner Street bridges, and reinforce the eroded bank along Vallombrosa Avenue, with the purpose of improving safety and operations of the facilities. The following sections break down construction into chronological steps including site preparation, installation of temporary water diversion and/or dewatering system, grading and excavation, installation of RSP, removal of temporary water diversion and/or dewatering system, demobilization and site cleanup, and post-construction revegetation.

Site Preparation

Rose Avenue, Warner Street, Manzanita Avenue and Vallombrosa Avenue will remain open during construction; however, brief road closures may be necessary during certain stages of construction.

Prior to the initiation of construction, site boundaries will be marked off with a combination of lath and flagging and temporary high visibility fencing. After the site boundaries are marked off, the contractor will mobilize tools, equipment, and materials to staging areas adjacent to the existing Rose Avenue and Warner Street bridges, as well as the Manzanita and Vallombrosa erosion repair site. Staging areas will remain within the defined Action Area.

Vegetation will be cleared and grubbed from the top of bank down to the water line in areas where the RSP will be placed. At Warner Street and Vallombrosa Avenue, rough grading is needed to facilitate access down to the creek.

Installation of Temporary Water Diversion and/or Dewatering System

Before erosion repair work can begin, a temporary pipe diversion or open channel water diversion will be installed to divert flows through the work area and maintain a continuous flowing stream. The water diversion will ultimately be designed by the contractor consistent with the Caltrans' Construction Site BMP Manual (2017) "NS-5 Clear Water Diversion." The diversion is likely to consist of either a:

- Pipe Diversion:
  Flow will be diverted to a temporary conveyance structure using a temporary dam (consisting of concrete blocks and/or sandbags) and gravity fed or pumped via an intake hose to downstream of the Action Area, away from construction. The dam and water diversion will be removed upon completion of the erosion repair work.

or an

- Open channel diversion:
  Flow will be diverted to a temporary channel using barriers made of sandbags or other materials, creating a bypass around the construction area. Water will be redirected through this channel to ensure it flows downstream of the Project site, away from ongoing work. Once the construction is completed, the barriers and temporary channel will be removed, restoring the creek to its original flow path.

After the creek is diverted from the work area, subsurface seepage may enter the work area. The seepage would be removed using sump pumps or other methods to remove the water from the work area. Any dewatering operations necessary will be performed in accordance with the Construction Site BMP Manual "NS-2 Dewatering Operations" which directs compliance with the Caltrans Field Guide to Construction Site Dewatering Manual (2014). In addition, the water diversion and any dewatering activity will be subject to requirements from the Central Valley Regional Water Quality Control Board (CVRWQCB) and California Department of Fish and Wildlife(CDFW).

Grading/Excavation

Grading and excavation will occur primarily in the bank and not the creek bed. The mounded toe RSP does not need to be keyed into the creek bed. After grading, soil backfill will be placed and compacted as needed to establish a maximum steepness of a 1.5:1 slope. A 2:1 slope is not proposed as it would increase the extent of RSP into the creek bed by approximately one-third. A six-inch-thick gravel filter will be placed on areas to receive the RSP.

Concrete spall patch and sewer encasement extension (Rose Avenue only)

Unsound concrete spalls on the bridge will be removed. Rust from exposed reinforcement will be removed. The rock pocket on the upstream nose of Pier 3 is approximately 4 feet long by 6 inches tall by 2 inches deep. The unsound concrete will be removed and patched. It is unknown how far into the creek bank the concrete encasement of the sewer pipe extends.

Excavation Prior to Placement of Rock Slope Protection (Rose Avenue only)

Installation of the RSP along the steep banks of the Rose Avenue Bridge site will require up to 8 feet of excavation into the slope. The area to be excavated would occur within existing fill that has been disturbed previously due to installation of an existing sewer line, bridge abutments, as well as erosion control devices. The existing sewer line will be encased in concrete to protect it during excavation and RSP will be placed around it.

Rock Slope Protection

At Rose Avenue, the failed hard armoring at the northeast abutment will be removed. Existing RSP at the north abutment, will be reconfigured. At the two Piers and along the concrete encased sewer line, the excavation will be to scour depth with RSP backfilled.

At the Warner Street bridge, the Project will install RSP along the Big Chico Creek north side slope, headwall, and abutment.

At the Manzanita and Vallombrosa erosion repair site, RSP will be installed along the west bank of Big Chico Creek after regrading the slope.

Creek bed restoration (as necessary)

Prior to restoring the flows in the creek, the creek bed will be inspected for vehicle rutting, excavated materials, loose vegetation, or construction debris. All non-native materials will be removed, and the surface will be restored to its preconstruction condition.

Removal of Temporary Water Diversion and/or Dewatering System

After the erosion repair is complete, the temporary water diversion system can be removed. The downstream barrier/berms will be removed, then the upstream barrier/berms along with the temporary culverts, if implemented.

On-Site Revegetation

Following construction, all temporarily disturbed areas that do not receive RSP treatment will be regraded to pre-construction contours. If necessary, disturbed soils will be stabilized with hydroseed or temporary bonded fiber matrix to protect the area from surface erosion. Disturbed areas will be revegetated with a native seed mix.

Roadway/Bike path restoration (as necessary)

If construction equipment damages the existing pavement (asphalt or concrete), it will be repaired.

Demobilization & Site Cleanup

The contractor will recontour any temporarily disturbed areas to pre-construction contours. The contractor will then remove all perimeter fencing, equipment, tools, trash, and excess materials from the job site.

2.3.2 Project Operation and Maintenance

The proposed Action is a bridge maintenance and erosion repair activity. Standard bridge inspections and maintenance will continue as before.

2.3.3 Sequencing and Schedule

The construction activities listed in Section 2.3.1 are provided in chronological order. Construction is anticipated to begin as early as spring 2027. In-water work will be limited to July 15th to September 30th to avoid direct take of CVSR Chinook salmon and CCV steelhead.

2.4 Conservation Measures

2.4.1 Project Design Modifications for Avoidance and Minimization

The following conservation measures will be incorporated into the Project to minimize potential impacts on biological resources, migratory birds, and other wildlife species.

BIO-1: All construction personnel will be required to attend an environmental awareness training prior to working on the Project. The training will include an overview of sensitive habitats and special-status species, including but not limited to Big Chico Creek, riparian vegetation, VELB, CCV steelhead, and CVSR Chinook salmon. The training will include the protective measures that must be complied with.

BIO-2: Prior to the start of construction activities, the Project limits in proximity to the sensitive habitats (Big Chico Creek and riparian corridor) and elderberry shrubs will be marked with high visibility Environmentally Sensitive Area (ESA) fencing or staking to ensure construction will not further encroach into sensitive resources.

BIO-3: Best Management Practices will be incorporated during construction to minimize impacts on the environment including erosion and the release of pollutants (e.g. oils, fuels):

- Exposed soils and material stockpiles will be stabilized, through watering or other measures, to prevent the movement of dust at the Project site caused by wind and construction activities such as traffic and grading activities;
- All construction roadway areas will be properly protected to prevent excess erosion, sedimentation, and water pollution;
- All vehicle and equipment fueling/maintenance would be conducted outside of any surface waters;
- Equipment used in and around jurisdictional waters must be in good working order and free of dripping or leaking contaminants;
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life will be prevented from contaminating the soil or entering jurisdictional waters;
- All erosion control measures and storm water control measures will be properly maintained throughout construction;
- All temporarily disturbed areas will be re-graded to pre-construction contours;

- All disturbed areas will be revegetated, either through hydroseeding or other means, with native or approved non-invasive exotic species;

- All construction materials will be hauled off-site after completion of construction;

- Upon completion of construction activities, any temporary barriers to surface water flow will be removed to allow flow to resume.

BIO-4: A temporary water diversion will be installed prior to any in-water work in the channel. The diversion will be designed to accommodate existing and anticipated flows and will be constructed from clean materials in such a way that prevents excessive sedimentation. All materials must be removed from the channel upon completion of in-water work in the channel.

BIO-5: Poured concrete shall be excluded from the channel for a period of 30 days after it is poured. Commercial sealants may be applied to the poured concrete surface where difficulty in excluding water flow for the 30-day period may occur.

BIO-6: When feasible, refueling or maintenance of equipment will occur outside of Big Chico Creek and the associated riparian zone. All onsite refueling and maintenance must occur over plastic sheeting, drip pans, or other secondary containment measures to capture accidental spills before they can contaminate the soil. Secondary containment consisting of plastic sheeting or other impermeable sheeting must be installed underneath all stationary equipment to prevent petroleum products or other chemicals from contaminating the soil, riparian corridor or Big Chico Creek. Secondary containment must have a raised edge (e.g. sheeting wrapped around wattles).

BIO-7: A chemical spill kit must be kept onsite at all times during work and must be easily accessible for use in the event of a spill.

BIO-8: Vegetation removal will be limited to the trees/shrubs marked on the plans for removal. Trees will be preferentially trimmed rather than removed and trimming should not exceed 30% of the total canopy of each tree.

BIO-9: Prior to vegetation removal or initial ground disturbance during the nesting bird season (February 15th – August 31st) a pre-construction nesting bird survey must be conducted by a Project biologist prior to the start of work. The nesting bird survey must include the Action Area plus a 300-foot buffer. Within one week of the nesting bird survey, all vegetated areas surveyed, that are designated for removal, must be cleared.

If an active nest is discovered during construction, the contractor must immediately stop work until the appropriate no-work buffer is established, to be determined by a Project biologist. Other avoidance and minimization measures, such as visual and sound barriers, may be considered to avoid take of an active nest but must be approved by a Project biologist prior to implementation. A

Project biologist must monitor the initial implementation of alternative avoidance strategies. If the Project biologist determines that avoidance strategies are insufficient to avoid take of active nests, all Project activities shall cease, and work will not resume until the Project biologists determines that the young have fledged.

If a Swainson's hawk nest is observed during the pre-construction survey CDFW will be contacted for further guidance. The contractor is prohibited from conducting work that could result in take of an active Swainson's hawk nest.

BIO-10: Prior to arrival at the Project site and prior to leaving the Project site, construction equipment that may contain invasive plants and/or seeds will be cleaned to reduce the spread of noxious weeds.

BIO-11: All food-related trash must be disposed into closed containers and must be removed from the Action Area daily. Construction personnel must not feed or otherwise attract wildlife to the Action Area.

BIO-12: If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed.

2.4.2 Species Specific Conservation Measures - Valley Elderberry Longhorn Beetle

The following measures are specifically designed to avoid impacts to VELB.

BIO-13: Prior to construction, the Project biologist will conduct a survey of the Action Area to ensure that no new shrubs, with stems 1 inch or greater, have appeared since the original survey. If new shrubs, with stems 1 inch or greater, are discovered that may be impacted by the Project coordination with USFWS will occur.

BIO-14: Herbicides, insecticides, fertilizers, or other chemicals that might harm the VELB or elderberry shrubs will not be used within 100 feet of elderberry shrubs. If required, any chemicals will be applied using a backpack sprayer or a similar direct application method.

BIO-15: To prevent fugitive dust from drifting into adjacent habitat, all clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, demolition activities, or other dust generating activities will be effectively controlled for fugitive dust emissions utilizing application of water or by presoaking.

BIO-16: Project activities will be timed to fall outside of the VELB flight season (March – June).

BIO-17: Elderberry stems ≥ 1 inch in diameter may not be trimmed between March and October.

BIO-18: A qualified biologist will monitor the Action Area at Project during vegetation removal and installation of RSP to assure that all avoidance and minimization measures are implemented.

2.4.3 Species Specific Conservation Measures – CCV Steelhead and CVSR Chinook Salmon

BIO-19: In-water work will be limited to July 15th to September 30th to minimize potential for direct take of CCV steelhead and CVSR Chinook salmon.

BIO-20: A temporary water diversion and fish capture/relocation plan must be submitted to NOAA Fisheries and CDFW at least 10 days prior to the start of project activities. This allows time for review and any necessary modifications to activities involving the handling of protected fish species.

BIO-21: Screens on pumps used for dewatering efforts must follow the NMFS salmonid-screening specifications (CDFW 2010):

- Porosity: The screen surface shall have a minimum open area of 27 percent. We recommend the maximum possible open area consistent with the availability of appropriate material, and structural design considerations. The use of open areas less than 40 percent shall include consideration of increasing the screen surface area, to reduce slot velocities, assisting in both fish protection and screen cleaning.

- Round Openings: Round openings in the screening shall not exceed 2.38mm (3/32in).

- Square Openings: Square openings in screening shall not exceed 2.38mm (3/32in) measured diagonally.

- Slotted Openings: Slotted openings shall not exceed 1.75mm (0.07in).

BIO-22: Erosion control measures shall be in place at all times during construction. Construction shall not start until temporary control materials and devices are in place downslope or downstream of the work site within the riparian area:

- Materials will not contain plastic netting.

- After Project completion, and before close of seasonal work window, all exposed soils shall be stabilized with erosion control measures such as mulch, seeding, and or placement of erosion control blankets.

- Precautions to minimize turbidity/siltation shall be taken into account during Project planning and shall be implemented at the time of construction. This may require placing silt fencing, well-anchored sandbag or sheet pile cofferdams, temporary water bladder dams, coir logs, coir

rolls, straw bale dikes, or other siltation barriers so that silt and/or other deleterious materials are not allowed to enter flowing water.

2.5 Compensation

VELB

The Project will result in approximately 0.10 acres of temporary impacts and 0.11 acres of permanent impacts to suitable riparian habitat, resulting in the fragmentation of the riparian corridor and direct/indirect impacts to elderberry shrubs within the Action Area. The proposed Project will result in the removal of six elderberry shrubs. Habitat level compensatory mitigation for impacts to VELB habitat is proposed based on the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS 2017). The following measure is included to offset Project impacts to potentially suitable VELB habitat.

BIO-23: Prior to the start of construction, the City will propagate elderberry shrubs within an offsite mitigation site along Big Chico Creek with equivalent habitat, and/or purchase VELB mitigation credits from a USFWS-approved mitigation bank in accordance with the final Biological Opinion issued for the Project. If VELB mitigation credits are not available at the time of construction, the City will develop a habitat enhancement plan in accordance with the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017)*, to appropriately mitigate for the Project's permanent impacts to VELB habitat in coordination with USFWS.

In addition to the impacts listed above to VELB, the Project will result in temporary and permanent impacts to the Big Chico Creek floodplain, including CCV steelhead and CVSR Chinook salmon critical habitat. The following measure is included to offset Project impacts to salmonid critical habitat.

BIO-24: To offset the loss of riparian trees and aquatic resources, the City will either purchase mitigation credits from a mitigation bank (if available) or fund an offsite riparian restoration project. The mitigation ratios will be consistent with the requirements of the applicable regulatory permitting agencies.

Chapter 3. Environmental Baseline

Environmental baseline refers to the condition of the listed species or its designated Critical Habitat in the Action Area, without the consequences to the listed species or designated Critical Habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the Action Area, the anticipated impacts of all proposed Federal projects in the Action Area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated Critical Habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR §402.02).

3.1 Summary of Environmental Baseline

The Project is located in Butte County, California within the Sacramento Valley geographic subdivision of the California Floristic Province (Jepson 2024). This region is also part of the Great Valley section of the California Dry Steppe ecological province (USDA 2007). The area experiences hot, dry summers, and cool, wet winters, typical of a Mediterranean climate. Average summer highs range from 89-94°F and average winter lows range from 35-38°F. Average annual precipitation is approximately 27 inches in the form of rain (U.S. Climate Data 2024).

Within this broader regional setting, the project is located along Big Chico Creek, a perennial waterway that flows westward from the Sierra Nevada foothills through the City of Chico before ultimately joining the Sacramento River. Historically, the creek served as a key tributary supporting riparian ecosystems and cold-water fisheries within the Sacramento River Basin. The surrounding landscape was once dominated by valley oak woodlands and extensive riparian habitats along the creek corridor.

Over time, urban development within Chico and surrounding areas has altered the natural flow regime and ecological character of Big Chico Creek. Portions of the creek have been modified to accommodate flood control and urban runoff, with some areas channelized or bordered by levees. The riparian corridor has been reduced, with invasive species such as Himalayan blackberry and English ivy encroaching upon native vegetation.

Despite these changes, Big Chico Creek continues to provide important habitat for fish and wildlife. The creek supports runs of CVSR Chinook salmon and CCV steelhead, both of which rely on the creek for migration, spawning, and juvenile rearing. Additionally, the riparian zone serves as a movement corridor for terrestrial wildlife, such as VELB, while the aquatic environment supports a range of species sensitive to changes in water quality and temperature.

3.2 Description of the Action Area

The Action Area was defined as the area of direct and indirect effects from construction activities, including potential staging/access areas with an approximate 50-meter buffer to account for impacts to VELB, CVSR Chinook salmon, and CCV steelhead. The Action Area is approximately 5.85 acres in size and includes all areas necessary for Project construction, access, and staging.

Physical Conditions

Topography

The Action Area falls within California's Central Valley. Topography within the Action Area is relatively flat, with an elevation ranging from approximately 185 to 275 feet above sea level.

Hydrological Resources

Big Chico Creek is a perennial freshwater creek that flows from east to west through the City of Chico. The creek originates in the Sierra Nevada at an elevation of about 6,000 feet northeast of the City of Chico and has a 240 square mile watershed. As it flows through the foothills and to the valley floor, the creek experiences infiltration and often in late summer no flows reach the Sacramento River (Chico State University, 2024). The riverbed is composed of pebbles, cobbles, and small boulders and has an average width of 37 feet within the Action Area. Big Chico Creek is the only aquatic feature within the Action Area and is considered a jurisdictional water of the U.S. and State.

The streambed of Big Chico Creek is predominantly shaded by the surrounding upland riparian forest, with incised channel banks. In the Action Area heavy creek flows from atmospheric river events in Winter 2023/Spring 2024 caused further erosion.

The Action Area located in a part of the federal authorized civil works project for flood control known as the Sacramento River and Major and Minor Tributaries project, Chico and Mud Creeks, and Sandy Gulch. The Central Valley Flood Protection Board (CVFBP) is the non-federal sponsor of the project. Big Chico Creek, as it flows through the City of Chico, is a non-leveed, unimproved component of the federal flood project with a project design flow of 1,500 cubic feet per second. Big Chico Creek is a regulated stream per the CVFPB.

Soils

The soil types identified within the Action Area are as follows, according to the Natural Resources Conservation Service:

- Redsluff gravelly loam (10.3% of Action Area)
- Vina fine sandy loam (70.9% of Action Area)
- Charger fine sandy loam (18.8% of Action Area)

The characteristics of these soils are listed below in Table 4.

Table 3. Soil Characteristics within the Action Area

Soil Type	Slopes	Drainage	Depth to Water Table	Depth to Restrictive Feature	Hydric (Yes/No)
Redsluff gravelly loam	0 to 2%	Moderately well drained	35 to 80 inches	>80 inches	No
Vina fine sandy loam	0 to 2%	Well drained	>80 inches	>80 inches	No
Charger fine sandy loam	0 to 1%	Moderately well drained	About 40 to 80 inches	>80 inches	No

Land Use

The Action Area encompasses portions of Bidwell Avenue, Rose Avenue, and Vallombrosa Avenue, which are paved roadways devoid of vegetation. The land uses adjacent to Big Chico Creek include a mix of residential, recreational, educational, and public spaces. Big Chico Creek provides aquatic and riparian habitat within the Action Area and flows east to west through the Action Area.

Natural Communities and Land Cover Types

The Action Area is situated within a region that has largely been altered for residential and recreational development. The Action Areas are divided by Big Chico Creek, a perennial channel that flows east to west. Vegetation communities within the Action Area include roadways, urban/developed, riparian forest, and perennial creek (Figure 4. Vegetation Communities). Plant and wildlife species observed within the Action Area during the July 2024, October 2024, and February 2025 biological surveys were used to define habitat types based on composition, abundance, and cover (Table 5. Plant Species Observed; Table 6. Wildlife Species Observed).

Riparian Forest

A riparian corridor refers to the strip of land along the banks of a river, stream, or other water bodies. It is characterized by its unique ecological and environmental features,

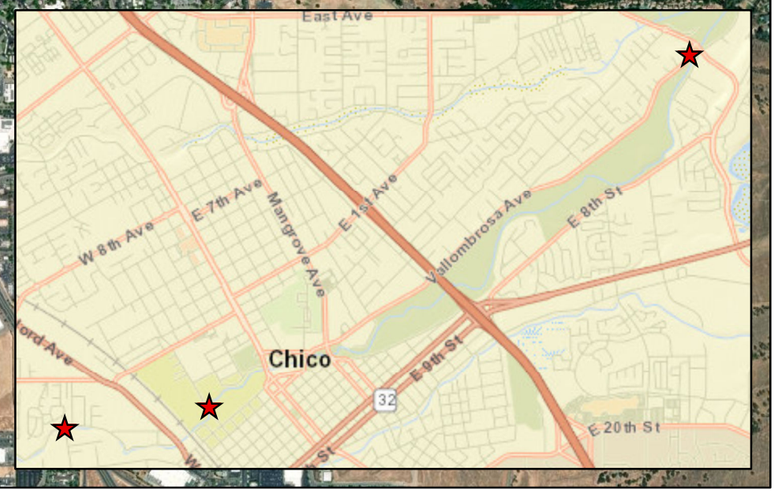
Action Area

Manzanita Avenue and Vallombrosa Aveue

Big Chico Creek

Warner Street Bridge

Rose Avenue Bridge



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Source: ESRI Maps Online; Dokken Engineering 6/4/2025; Created By: jharris

1 inch = 2,000 feet

0 2,000 4,000 6,000 8,000 Feet

Figure 4
Vegetation Communities
Page 1 of 4

Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Action Area (1.33 acres)

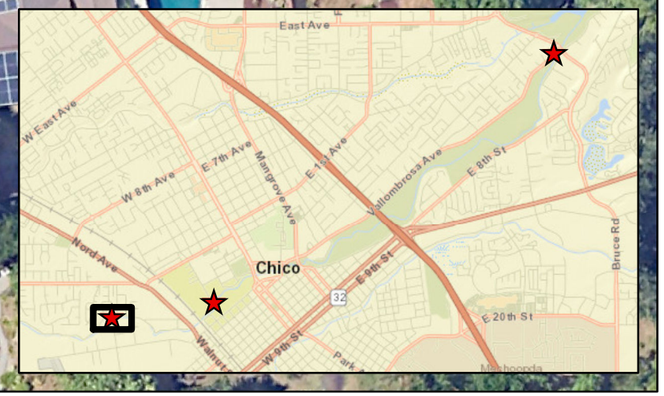
Vegetation Communities

- Perennial Creek (0.33 acres)
- Riparian Forest (0.81 acres)
- Road (0.18 acres)
- Urban/Developed (0.04 acres)
- Elderberry Shrubs
- Non-Native Trees

Bidwell Avenue

Big Chico Creek

Rose Avenue



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Source: ESRI Maps Online; Dokken Engineering 6/23/2025; Created By: jharris

1 inch = 40 feet

0 40 80 120 160 200 Feet

Figure 4
Vegetation Communities

Rose Avenue Bridge
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Action Area (1.30 acres)

Vegetation Communities

Perennial Creek (0.40 acres)

Riparian Forest (0.79 acres)

Road (0.12 acres)

Urban/Developed (0.06 acres)

Patch of Elderberry Shrubs

Elderberry Shrubs

Box Elder Trees

18 Elderberry Shrubs

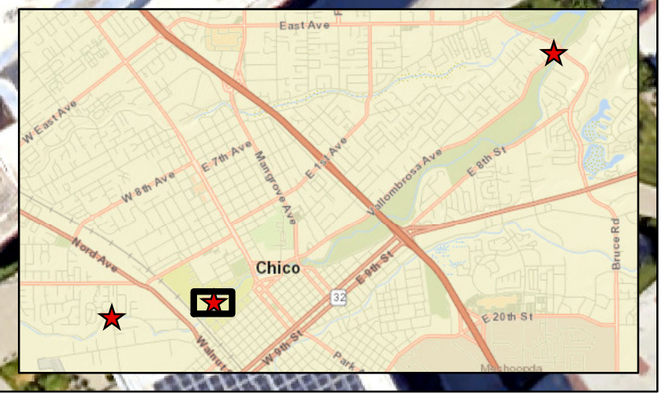
Warner Street

Big Chico Creek

10 Elderberry Shrubs

Ivy Street

24 Elderberry Shrubs



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Source: ESRI Maps Online; Dokken Engineering 6/23/2025; Created By: jharris

1 inch = 50 feet

0 40 80 120 160 200 Feet

Figure 4
Vegetation Communities
Page 3 of 4
Warner Street Bridge
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Action Area (3.22 acres)

Vegetation Communities

- Riparian Forest (1.28 acres)
- Road (0.56 acres)
- Urban/Developed (0.70 acres)
- Perennial Creek (0.68 acres)
- Patch of Elderberry Shrubs
- Elderberry Shrubs (~70 Shrubs)
- Native Trees

Big Chico Creek

Covell Park Avenue

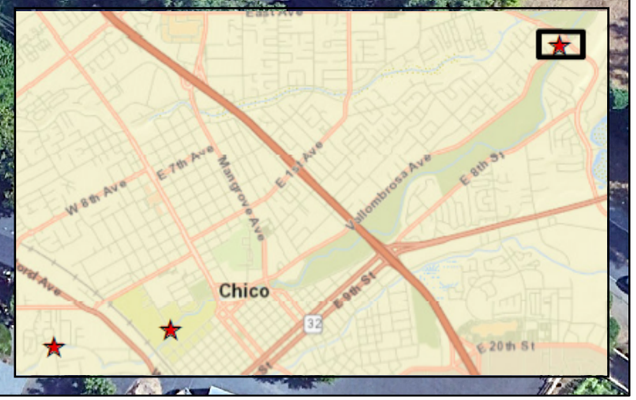
Manzanita Avenue

Centennial Avenue

Vallombrosa Avenue

18 Shrubs

30 Shrubs



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Source: ESRI Maps Online; Dokken Engineering 6/24/2025; Created By: jharris

1 inch = 75 feet

0 40 80 120 160 200 Feet

Figure 4
Vegetation Communities

Manzanita Avenue and Vallombrosa Avenue
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

including the vegetation, wildlife, and aquatic ecosystems that thrive in and around these waterways.

The riparian forest habitat within the Action Area occurs along the slopes and banks of Big Chico Creek. This habitat is characterized by an overstory of large riparian tree species such as southern catalpa (*Catalpa bignonioides)*, Fremont cottonwood (*Populus fremontii)*, California sycamore (*Platanus racemosa),* valley oak (*Quercus lobata*), Northern California black walnut (*Juglans hindsii)* and white alder (*Alnus rhombifolia*). The understory composition within the riparian forest varies along Big Chico Creek within the Action Area, influenced by the degree of urban development. At the Rose Avenue Bridge, the understory is largely comprised of invasive species, including Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*), and common fig (*Ficus carica*). The understory near the Warner Street Bridge consists of a mix of California wild grape (*Vitis californica*), dallis grass (*Paspalum dilatatum*), black locust (*Robinia pseudoacacia*), prickly lettuce (*Lactuca serriola*), and Himalayan blackberry. At the Vallombrosa Avenue site, along the west bank, the understory is relatively undeveloped, with the exception of sporadic, dense patches of poison oak (*Toxicodendron diversilobum*). The understory of the riparian corridor along the east bank is highly developed and features dense stands of California wild grape (*Vitis californica*) intertwined with blue elderberry (*Sambucus mexicana*).

Stream Channel

Big Chico Creek, a tributary of the Sacramento River, is the only aquatic feature within the Action Area. Big Chico Creek is a perennial creek that is primarily regulated by natural hydrological processes, with some human intervention for recreation, habitat protection, and local water use. A federal flood control project diverts winter flows into a bypass channel system upstream of the Action Area which limits the maximum winter flows to 1,500 cfs. Big Chico Creek flows east to west through the Action Area and empties into the Sacramento River approximately five miles downstream of Rose Avenue.

Table 4. Plant Species Observed

Common name	Scientific Name	Native (N) / Non-native (X)[1]
Arroyo willow	*Salix exigua*	N
Bay laurel	*Umbellularia californica*	N
Black locust	*Robinia pseudoacacia*	X [Limited]
Common nightshade	*Solanum americanmun*	N
Boxelder	*Acer negundo*	N
Bur chevril	*Anthriscus caucalis*	X
Buttonbush	*Cephalanthus occidentalis*	N
California man-root	*Marah fabacea*	N
California mugwort	*Artemisia douglasiana*	N
California pipevine	*Aristolochia californica*	N
California sycamore	*Platanus racemosa*	N

Common name	Scientific Name	Native (N) / Non-native (X)[1]
American pokeweed	*Phytolacca americana*	X
California sycamore	*Platanus racemosa*	N
California wild grape	*Vitis californica*	N
California wild rose	*Rosa californica*	N
Callery pear	*Pyrus calleryana*	X
Canada horseweed	*Erirgeron canadensis*	N
Coast redwood	*Sequoia sempervirens*	N
Common bedstraw	*Galium aparine*	N
Common fig	*Ficus carica*	X [Moderate]
Common mullein	*Verbascum thapsus*	X [Limited]
Common vetch	*Vicia sativa ssp. nigra*	X
Coyote brush	*Baccharis pilularis*	N
Curly dock	*Rumex crispus*	N
Dallis grass	*Paspalum dilatatum*	X
Devil's beggartick	*Bidens frondosa*	N
Dogtail grass	*Cynosurus echinatus*	X [Moderate]
Elderberry shrub	*Sambucus mexicana*	N
English Ivy	*Hedera helix*	X [High]
European nettle tree	*Celtis australis*	X
Fremont cottonwood	*Populus fremontii*	N
Himalayan blackberry	*Rubus armeniacus*	X [High]
Interior live oak	*Quercus wislizeni*	N
Italian lords and ladies	*Arum italicum*	X
Loquat	*Eriobotrya japonica*	X
Miner's lettuce	*Claytonia perfoliata*	N
Mulefat	*Baccharis salicifolia*	N
Narrow leaf milkweed	*Asclepias fascicularis*	N
Northern California black walnut	*Juglans hindsii*	N
Oleander	*Nerium oleander*	X
Oregon ash	*Fraxinus latifolia*	N
Persian silk tree	*Albizia julibrissin*	X
Poison oak	*Toxicodendron diversilobum*	N
Prickly lettuce	*Lactuca serriola*	X
Raspberry	*Rubus idaeus*	N
Shepherd's purse	*Capsella bursa-pastoris*	X
Silver bush lupine	*Lupinus albifrons*	N
Sitka brome	*Bromus sitchensis*	N
Southern catalpa	*Catalpa bignonioides*	X
Spanish brome	*Bromus madritensis*	X
Stinging nettle	*Urtica dioica*	N

Common name	Scientific Name	Native (N) / Non-native (X)[1]
Straw-colored flatsedge	*Cyperus strigosus*	N
Sweetgum	*Liquidambar styraciflua*	X
Tall flatsedge	*Cyperus exaltatus*	N
Tree privet	*Ligustrum lucidum*	X [Limited]
Tree-of-heaven	*Ailanthus altissima*	X [Moderate]
Valley oak	*Quercus lobata*	N
White alder	*Alnus rhombifolia*	N
White mulberry	*Morus alba*	X
White sweetclover	*Melilotus albus*	X
Wild oat	*Avena fatua*	X [Moderate]

[1]Cal-IPC Rating

Urban/Development

Urban and developed areas within the Action Area consist of unpaved roads as well as parking lots, residences, and buildings within the staging area. This land cover type features little to no natural vegetation, except for landscaped and ornamental plantings associated with the residential and commercial developments near the Rose Avenue Bridge, Chico State University at the Warner Street Bridge location, and adjacent to the Vallombrosa Avenue site.

Roadway

Roadways are characterized by impervious surfaces like asphalt and concrete, which are devoid of vegetation and provide limited shelter and food sources for wildlife. Roadways within the Action Area consist of paved roads including the intersection of Rose Avenue and Bidwell Avenue, Warner Street, and Manzanita Avenue and Vallombrosa Avenue.

Wildlife

On July 30th, 2024, and February 26th, 2025, wildlife observed within the Action Area included locally common bird species such as the Anna's hummingbird (*Calypte anna*), oak titmouse (*Baeolophus inornatus*), and acorn woodpecker (*Melanerpes formicivorus*). During the biological survey, the bridge structure was inspected for signs of bat colonies and migratory nesting birds. No suitable bat roosting crevices or cavities were observed under the existing bridge structure. Remnants of cliff swallow nests were observed at Rose Ave.

Aquatic wildlife observed within Big Chico Creek include CCV steelhead, bluegill (*Lepomis macrochirus*), and mosquitofish (*Gambusia affinis*) (Table 6. Wildlife Species Observed).

Table 5. Wildlife Species Observed

Common Name	*Scientific Name*	Native (N)/Non-Native (X)
Acorn woodpecker	*Melanerpes formicivorus*	N
Anna's hummingbird	*Calypte anna*	N
Bewick's wren	*Thryomanes bewickii*	N
Black phoebe	*Sayornis nigricans*	N
Bluegill	*Lepomis macrochirus*	X
CCV steelhead	*Oncorhynchus mykiss irideus pop. 11*	N
European starling	*Sturnus vulgaris*	X
Lesser goldfinch	*Spinus psaltria*	N
Mosquitofish	*Gambusia affinis*	X
Oak titmouse	*Baeolophus inornatus*	N

Invasive Species

During biological surveys, at least six invasive plant species were observed within the Action Area, each having a California Invasive Plant Council (Cal-IPC) rating of Moderate or higher. Furthermore, invasive plant species such as wild oat, Himalayan blackberry, and English ivy comprise a majority of the understory vegetative cover observed within the Action Area. The prevalence of invasive species along with extensive local residential development contribute to the disturbed nature of the natural communities within the Action Area.

3.3 Habitat Conditions in the Action Area

The Action Area is located within the Central Valley and falls within the anticipated range of VELB. In addition, the Action Area encompasses potentially suitable riparian habitat, a transitional habitat community that occurs along the banks of Big Chico Creek. As such, the Action Area encompasses suitable physical and biological features (PBFs) and may support populations of VELB.

The Action Area within Big Chico Creek supports designated critical habitat for CCV steelhead and CVSR Chinook salmon, both of which are listed as threatened under the FESA. The CVSR Chinook salmon is also listed as threatened under the CESA. Big Chico Creek provides essential habitat features required by these salmonids for their various life stages, including migration, spawning, and juvenile rearing.

3.4 Status of Federally-Listed/Proposed Species

After an assessment of the habitat requirements, distribution of documented occurrences, and presence of salmonid critical habitat, it was determined that the federally threatened VELB, CCV steelhead, and federally and state threatened CVSR Chinook salmon may be affected by the proposed Action. Based on suitable habitat within the Action Area, presence of salmonid critical habitat, the level of Project impacts,

and the life history of the species, it was determined that the Action *May Affect and is Likely to Adversely Affect* VELB, and *May Affect and is not Likely to Adversely Affect* CCV steelhead and CVSR Chinook salmon.

3.4.1 Discussion of Valley Elderberry Longhorn Beetle

The VELB has been federally listed as threatened since 1980. Elderberry shrubs, which grow in riparian areas and foothill woodlands in California's Central Valley, are VELB's obligate host plant which they depend on for survival and reproduction. The beetle goes through four life stages: egg, larvae, pupa, and adult. Females lay their eggs on the bark of the elderberry shrub and the larvae hatch and burrow into the stems. Larvae are active within the stems year-round and take one to two years to emerge as adults. The adults are active from March to June. The beetle feeds exclusively on the elderberry shrub throughout all stages of its life (USFWS 2017). VELB's usage of elderberry shrubs can be detected by the presence of exit holes created by the beetle's larval stage in the stem of the shrubs. The VELB is threatened by habitat loss of California's Central Valley riparian areas, mainly due to agriculture and urban development.

3.4.2 Survey Results

In accordance with the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS 2017), the riparian corridor within the Action Area provides potentially suitable habitat for VELB. During the biological surveys conducted on July 30th, October 30th, 2024, and February 26, 2025, 17 blue elderberry shrubs were identified within the Rose Avenue Bridge Action Area, within riparian forest habitat. 64 shrubs were found within the Warner Street Bridge Action Area. Additionally, 118 shrubs were identified within the riparian forest along the east bank of Big Chico Creek at the Manzanita Avenue and Vallombrosa Avenue erosion repair site. Two historic (1991) CNDDB occurrences of the species were identified within the riparian corridor of Big Chico Creek or 3.5 miles upstream of the Action Area at Warner Street Bridge (CNDDB 2024). One shrub with potential exit holes was observed at the Rose Avenue Bridge site. Since the Action Area lies within the known range of the VELB and contains multiple elderberry shrubs, the Action Area provides potentially suitable habitat for the species and may be currently occupied by the species.

3.4.3 Status of Designated Critical Habitat in the Action Area for Valley Elderberry Longhorn Beetle

The American River Parkway in Sacramento County, California hosts the densest known populations of VELB as well as their obligate host plant, the elderberry shrub (*Sambucus sp.*). Portions of the parkway have been identified as Critical Habitat by the USFWS (45 FR 52803, August 1980). The Action Area does not occur within the American River Parkway and does not encompass Critical Habitat for this species. No impacts to VELB Critical Habitat will result from the proposed action.

3.4.4 Discussion of Steelhead–Central Valley DPS

CCV steelhead is listed as threatened under the FESA (63 FR 13347, March 19, 1998) and is under the jurisdiction of NMFS. This DPS consists of CCV steelhead in the Sacramento and San Joaquin River basins in the Central Valley. CCV steelhead are anadromous fish that spend part of their life cycle in freshwater and part in salt water. Adults typically leave the ocean from August through April and enter freshwater from August to November to spawn between December and April in small streams with cool, well oxygenated water. Eggs hatch in the late winter or early spring and fry emerge from the gravel reeds about 4 to 6 weeks later. Fry typically spend their first summer in their natal streams before emigrating to the rest of the watershed, eventually reaching the lower reaches of the Sacramento and San Joaquin Rivers and the Delta in the fall, winter, or spring. Juveniles migrate to the ocean after 1 or 2 years in freshwater to mature. They return as adults to their natal streams to spawn and complete their life cycle.

The species was once abundant in California coastal and Central Valley drainages. Population numbers have declined significantly, especially in the tributaries of the Sacramento River and the species was thought to be extirpated entirely from the San Joaquin River Watershed but small populations have recently been discovered in the Stanislaus, Mokelumne, and Calaveras Rivers. Upon entering freshwater, they hold until flows are high enough in tributaries to enter for spawning. Unlike Pacific salmon, CCV steelhead are capable of spawning more than once before they die. CCV steelhead may survive a wide temperature gradient, but optimal immigration and holding temperatures are 46°F to 52°F and optimal growing temperatures for juveniles are 59°F to 64.4°F.

There are six biological features for CCV steelhead critical habitat, including: freshwater spawning sites, freshwater rearing sites, freshwater migration corridors, estuarine areas, nearshore marine areas, and offshore marine areas (NOAA 2014).

3.4.5 Survey Results

During the biological survey on July 30, 2024, juvenile CCV steelhead were observed within the Action Area at both sites proposed for erosion repair work. During the biological surveys conducted on October 30th, 2024 and February 26, 2025, no CCV steelhead were observed within the Action Area. It was determined that the lower reaches of Big Chico Creek, located west of the Vallombrosa Avenue erosion repair site, do not provide suitable spawning habitat for CCV steelhead. This is primarily due to insufficient cool water temperatures, the absence of deep pools, inadequate water flow, and restricted access to spawning sites caused by intermittent drying of the creek bed. Furthermore, the creek's low flow conditions, warm water, and lack of channel complexity are not conducive to juvenile rearing, as these factors fail to provide the necessary shelter, food resources, and protection for early life stages. CCV steelhead typically spawn about three miles upstream of the Vallombrosa Avenue erosion repair site, in the less disturbed, higher-elevation sections of the creek, where water

temperature, gravel substrate, pool depth, and flow conditions are more conducive to spawning and juvenile rearing.

Water quality within the lower reaches of Big Chico Creek is outside of the optimal range for the species. Specifically, water temperature measured at the Chico State Campus, approximately 0.2 miles river miles upstream of the Warner Street bridge erosion repair location, during in-water construction months (July – September), is on average 10 degrees Fahrenheit (°F) higher than the upper limit of optimal growing temperatures for juveniles (Chico State University 2021). Warm water temperature suggests this reach of the creek is not frequently utilized by resident juveniles or as spawning habitat. The creek is a freshwater migration corridor between freshwater spawning and rearing sites higher in the watershed and estuarine and marine habitats in the San Francisco Bay and Pacific Ocean.

Dokken Engineering biologists Jeffery Little and Jeff Harris spoke with CDFW Region 2 biologists who have extensive experience with listed salmonids in the region. During a November 19th, 2024 call and subsequent email exchange with Senior Environmental Scientist Ian MacLeod, it was confirmed that CCV steelhead and CVSR Chinook salmon, would not persist in Big Chico Creek between July 15th and September 30th. During this period, water temperatures would be lethal for salmonids, and the section of Big Chico Creek below Rose Avenue may dry up entirely, depending on the previous winter's rainfall. CDFW advised Dokken Engineering biologists that no take of these species is anticipated, provided the Project is completed within the summer work window (CDFW 2024).

Additionally, personal communications with FISHBIO, the BCCER, and Chico State University revealed that available fish count data for Big Chico Creek is limited to the upper reaches, within the BCCER in the foothills. Studies of CCV steelhead are primarily conducted in these upper reaches because they offer critical spawning and juvenile rearing habitats, with better water quality and fewer human impacts. The lack of fish count data for the Action Area, combined with CDFW's knowledge of local low flow conditions, pool depth, and warm water temperatures, supports the conclusion that CCV steelhead are unlikely to persist during the timing of in-water Project construction activities.

3.4.6 Status of Designated Critical Habitat in the Action Area for Steelhead–Central Valley DPS

Based on the NOAA Fisheries ESA Critical Habitat Mapper, (NOAA 2023), the Action Area is located within designated Critical Habitat for CCV steelhead. Federal regulations state that the PBFs essential to the conservation of the protected species include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historical geographical and ecological distribution of a species.

3.4.7 Discussion of Chinook Salmon–Central Valley Spring-Run ESU

CVSR Chinook salmon is listed as threatened under the FESA (70 FR 37160, June 28, 2005) and is under the jurisdiction of NMFS. CVSR Chinook salmon are anadromous fish that spend part of their life cycle in freshwater and part in salt water. Adults typically leave the ocean between January and May, entering freshwater from March to July. After migrating up rivers, they hold in deep pools with cool, well-oxygenated water during the summer months before spawning in the fall, usually between September and October. Eggs hatch in late fall or early winter, and the fry emerge from the gravel nests (redds) about 4 to 6 weeks later. Juvenile salmon typically spend 3 to 12 months in freshwater before migrating downstream through the Sacramento River system and into the Delta, eventually reaching the ocean. Once in the ocean, they mature over a period of 2 to 4 years before returning to their natal streams to spawn and complete their life cycle (NOAA 2014).

Historically, CVSR Chinook salmon were abundant in the rivers and tributaries of the Sacramento and San Joaquin River systems. Population numbers have drastically declined due to habitat loss, water diversions, and barriers such as dams. In particular, many populations were thought to be extirpated from the San Joaquin River, but restoration efforts have led to the reintroduction of small populations in some tributaries. Upon entering freshwater, the salmon hold in deep pools until flows increase enough to access upstream spawning areas.

Unlike CCV steelhead, CVSR Chinook salmon are semelparous, meaning they die after spawning once. The species can tolerate a range of water temperatures, but optimal holding temperatures range between 52°F to 60°F, while ideal temperatures for egg incubation and juvenile rearing range from 50°F to 55°F (NOAA 2014).

There are five biological features for CVSR Chinook salmon critical habitat, including: freshwater spawning sites, freshwater rearing sites, freshwater migration corridors, estuarine areas, and nearshore marine areas.

3.4.8 Survey Results

CVSR Chinook salmon were not observed within the Action Area during the July 30th, 2024, October 30th, 2024, and February 26th, 2025 general biological surveys; however, there are documented CNDDB occurrences documented in the upper reaches of Big Chico Creek from 1997 and spawning populations of the species have been recently documented in the major tributaries to the Sacramento River including the Feather River, Yuba River, Butte Creek, Deer Creek, Mill Creek, and Clear Creek.

Within the Action Area, in the lower reaches of Big Chico Creek that are west of the Vallombrosa Avenue repair site, slow-moving warm water conditions do not provide suitable spawning habitat for CVSR Chinook salmon. CVSR Chinook salmon typically spawn over 3 miles upstream of the Vallombrosa Avenue repair site, in the less disturbed, higher-elevation sections of the creek where water temperature, gravel

substrate, pool depth, and flow conditions are more suitable for spawning and juvenile rearing.

As mentioned in the survey results section for CCV steelhead, water quality within the lower reaches of Big Chico Creek is outside of the optimal range for the listed salmonids, including CVSR Chinook salmon. Specifically, water temperature measured at the Chico State Campus, approximately 0.2 miles river miles upstream of the Warner Street bridge erosion repair location, during in-water construction months (July – September), is on average 12°F higher than the upper limit of optimal growing temperatures for juvenile CVSR Chinook salmon (Chico State University 2021). The Action Area is a potential freshwater migration corridor between freshwater spawning and rearing sites higher in the watershed and estuarine and marine habitats in the San Francisco Bay and Pacific Ocean.

As discussed above, personal communications with CDFW Region 2 Senior Environmental Scientist Ian MacLeod confirmed that CCV steelhead and CVSR Chinook salmon, would not persist in the lower reaches of Big Chico Creek between July 15th and September 30th. During this period, water temperatures would be lethal for salmonids, and the section of Big Chico Creek below Rose Avenue may dry up entirely, depending on the previous winter's rainfall. CDFW advised the Dokken Engineering biologists that no take of these species is anticipated, provided the Project is completed within the summer work window.

Additionally, personal communications with FISHBIO, the BCCER, and Chico State University revealed that fish count data for Big Chico Creek is limited to the upper reaches, within the Ecological Reserve in the foothills. Studies of CCV steelhead are primarily conducted in these upper reaches because they offer critical spawning and juvenile rearing habitats, with better water quality and fewer human impacts. The lack of fish count data for the Action Area, combined with CDFW's knowledge of local low flow conditions, pool depth, and warm water temperatures, supports the conclusion that CVSR Chinook salmon are unlikely to be present during the timing of in-water Project construction activities.

3.4.9 Status of Designated Critical Habitat in the Action Area for Chinook Salmon–Central Valley Spring-Run ESU

Based on NOAA Fisheries West Coast Region Species and Habitat App (NOAA 2024), the Action Area is located within designated Critical Habitat for CVSR Chinook salmon. Federal regulations state that the PBFs essential to the conservation of the protected species include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historical geographical and ecological distribution of a species.

Chapter 4. Effects of the Action

Effects of the action are all consequences to listed species or Critical Habitat that are caused by the proposed action, including consequences of other activities that are caused by the proposed action. The analysis of effects of the action first identifies stressors from Project actions, then exposure to stressors, and finally the response to exposure to stressors to determine consequences. The effects of the action are used to make determinations for each listed species and Critical Habitat.

4.1 Stressors from the Action

Stressors induce an adverse response in an organism by any physical, chemical, or biological alteration of the environment that can lead to a response from the individual. Potential stressors to VELB, CCV steelhead, and CVSR Chinook salmon because of the Project are listed below:

4.1.1 VELB

Potential stressors to VELB because of the Project are listed below:

- Elderberry shrub removal
- Indirect effects to elderberry shrubs
- Riparian habitat loss

4.1.2 CCV Steelhead and CVSR Chinook Salmon

Potential stressors to CCV steelhead and CVSR Chinook salmon because of the Project are listed below:

- Removal of Riparian Trees
- Addition of Rock Slope protection
- Temporary Diversion of Stream Channel

4.2 Exposure to Stressors from the Action

Exposures are defined as the interaction of the species, their resources, and the stressors that result from the Project action.

4.2.1 VELB

Elderberry Shrub Removal

Construction activities east of the Rose Avenue Bridge will result in the removal of six elderberry shrubs identified within the Action Area (Figure 5. Project Impacts). No shrubs will be removed at the Warner Street Bridge or Vallombrosa Avenue sites. All 3 sites are presumed occupied by VELB and any VELB within the six shrubs to be removed at the Rose Avenue Bridge site would be exposed to this stressor.

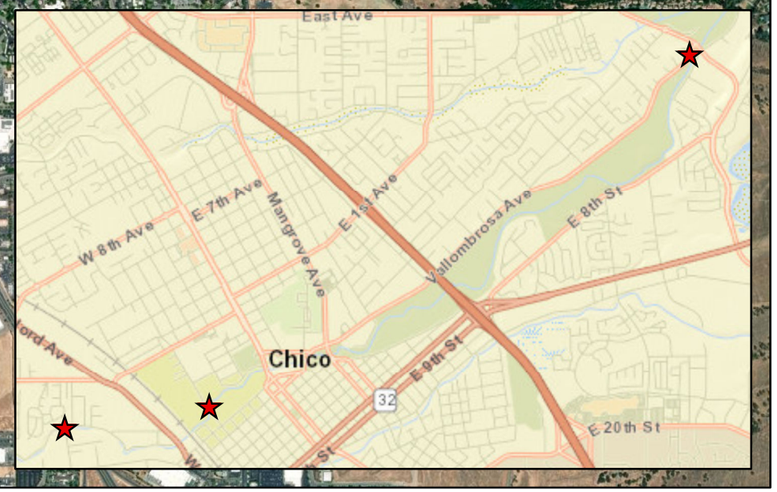
Action Area

Manzanita Avenue and Vallombrosa Aveue

Big Chico Creek

Warner Street Bridge

Rose Avenue Bridge



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Source: ESRI Maps Online; Dokken Engineering 6/4/2025; Created By: jharris

1 inch = 2,000 feet

0 2,000 4,000 6,000 8,000 Feet

Figure 5
Project Impacts
Page 1 of 4

Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Action Area (1.33 acres)
Temporary Water Diversion (130 Linear Feet)
Bridge
ESA Fencing

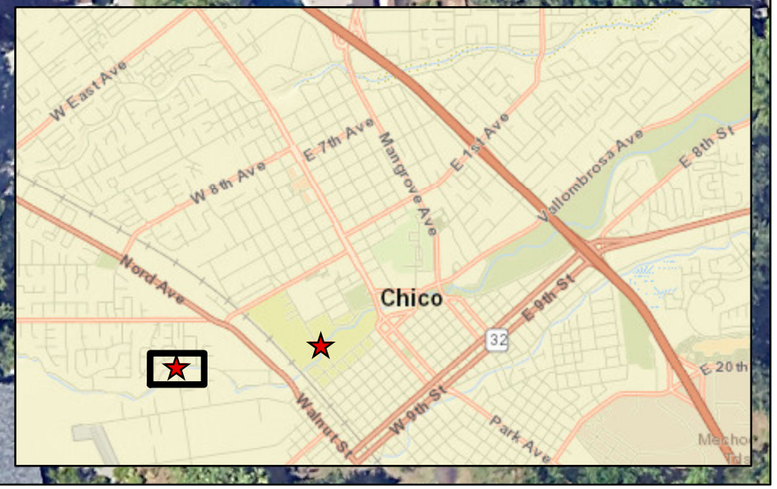
Project Impacts

Permanent Aquatic (RSP Below OHWM - 0.03 acres)
Permanent Riparian (RSP Above OHWM - 0.04 acres)
Temporary Riparian (Access and Staging - 0.03 acres)
Temporary Aquatic (Water Diversion Headwalls - 0.01 acres)
Temporary Aquatic (Dewatering - 0.09 acres)
Elderberry Shrubs - No Impact (3 Shrubs)
Elderberry Shrubs - Removal (6 Shrubs)
Elderberry Shrubs - Indirect Impacts (7 Shrubs)
Non-Native Trees to be Removed (2 Trees)

Vegetation Communities

Riparian Forest (0.81 acres)
Perennial Creek (0.33 acres)
Road (0.18 acres)
Urban/Developed (0.04 acres)

Glossy Privet
12- Feet from ESA Fencing
Bidwell Avenue
Big Chico Creek
Nettle Tree
Rose Avenue



V:\2833_Chico_On_Call_Structural_Engineering\Biology\F5_Project_Impacts_Rose.mxd

Source: ESRI Maps Online; Dokken Engineering 7/1/2025; Created By: jharris

1 inch = 40 feet

0 40 80 120 160 200 Feet

Figure 5
Project Impacts
Page 2 of 4
Rose Avenue Bridge
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Action Area (1.30 acres)
Temporary Water Diversion (260 Linear Feet)
Bridge and Pedestrian Bridges
Warner Wingwalls
ESA Fencing

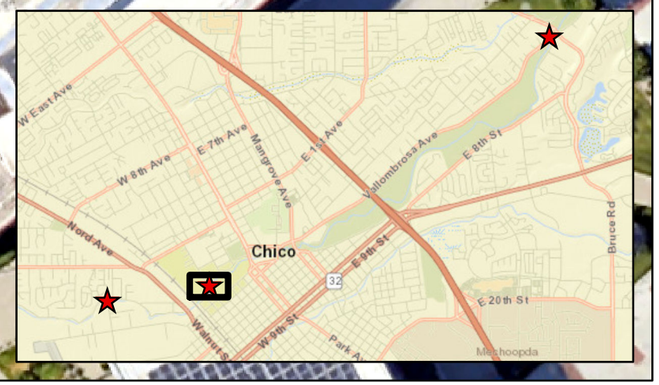
Project Impacts

Permanent Aquatic (RSP Below OHWM - 0.06 acres)
Permanent Riparian (RSP Above OHWM - 0.03 acres)
Temporary Riparian (Access and Staging - 0.03 acres)
Temporary Aquatic (Water Diversion Headwalls - 0.01 acres)
Temporary Aquatic (Dewatering - 0.19 acres)
Patch of Elderberry Shrubs - No Impact (43 Shrubs)
Patch of Elderberry Shrubs - Indirect Impacts (9 Shrubs)
Elderberry Shrubs - No Impact (12 Shrubs)
Native Box Elder Trees to be Removed (5 Trees)

Vegetation Communities

Riparian Forest (0.79 acres)
Perennial Creek (0.40 acres)
Road (0.12 acres)
Urban/Developed (0.06 acres)

Warner Street
Big Chico Creek
Ivy Street



V:\2833_Chico_On_Call_Structural_Engineering\Biology\F5_Project Impacts Warner.mxd

Source: ESRI Maps Online; Dokken Engineering 6/23/2025; Created By: jharris

1 inch = 50 feet

0 50 100 150 200 250 Feet

Figure 5
Project Impacts
Page 3 of 4
Warner Street Bridge
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Action Area (3.22 acres)

Temporary Water Diversion (200 Linear Feet)

Project Impacts

Permanent Aquatic (RSP Below OHWM - 0.07 acres)

Permanent Riparian (RSP Above OHWM - 0.04 acres)

Temporary Riparian (Access and Staging - 0.04 acres)

Temporary Aquatic (Water Diversion Headwalls - 0.02 acres)

Temporary Aquatic (Dewatering - 0.19 acres)

Patch of Elderberry Shrubs - No Impact (~48 Shrubs)

Elderberry Shrubs - No Impact (~70 Shrubs)

Native Trees to be Removed

Vegetation Communities

Riparian Forest (1.28 acres)

Road (0.56 acres)

Urban/Developed (0.70 acres)

Perennial Creek (0.68 acres)

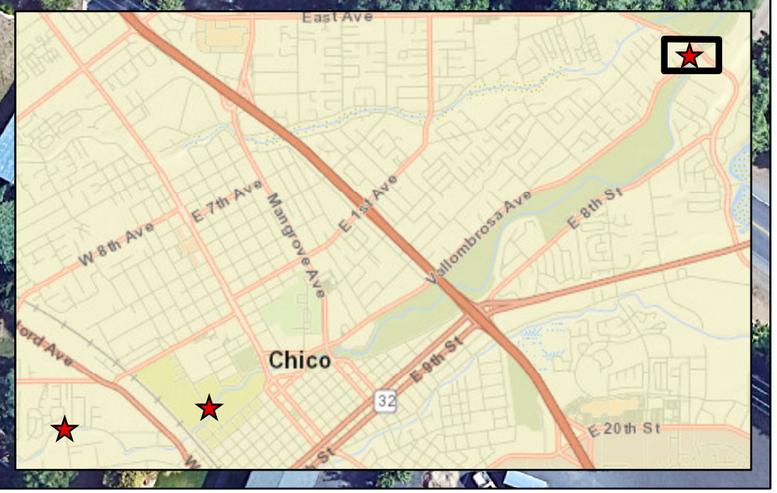
Big Chico Creek

Covell Park Avenue

Manzanita Avenue

Vallombrosa Avenue

Centennial Avenue



V:\2833_Chico_On_Call_Structural_Engineering\Manzanita and Vallombrosa\EF5_Project Impacts.mxd

Source: ESRI Maps Online; Dokken Engineering 6/24/2025; Created By: jharris

1 inch = 75 feet

0 75 150 225 300 Feet

Figure 5
Project Impacts
Page 4 of 4
Manzanita Avenue and Vallombrosa Avenue
Big Chico Creek Erosion Repair Project
City of Chico, Butte County, California

Indirect Effects to Elderberry Shrubs

Indirect effects include a temporary increase in noise, vibration, diesel fumes, and dust accumulation during construction. Any VELB occupying shrubs outside of the work area but within the Action Area may be exposed to indirect effects to elderberry shrubs.

Work activities will be timed outside of the flight season for VELB when the beetle exists as larvae within living elderberry shrub stems. As such, exposure of individual VELB to these stressors will be minimized.

Riparian Habitat Loss

The permanent loss of riparian habitat will result in the removal of six elderberry shrubs, permanent modification of 0.11 acres (4,792 ft^2) of riparian habitat, and temporary disturbance of 0.10 acres (4,356 ft^2) of riparian habitat. This habitat will result in a slight reduction in available habitat along the Big Chico Creek corridor. Any VELB in the vicinity of these projects would be exposed to this stressor.

4.2.2 CCV Steelhead and CVSR Chinook Salmon

Removal of Riparian Trees

Permanent modification of the riparian habitat will result in the removal of riparian trees at all 3 sites. The removal of riparian vegetation is considered to be an indirect impact. Removal of riparian trees and understory vegetation may reduce the availability of listed salmonid critical habitat elements such as shaded refuge, food sources, and stable creek banks.

Addition of Rock Slope Protection

The placement of RSP within Big Chico Creek will disrupt aquatic critical habitat features necessary for the growth and survival of salmonid species. The addition of hard, impermeable RSP may alter localized water flow patterns reducing the availability of deep pools and slow-moving water areas that provide refuge for juvenile salmonids from strong currents and predators. The placement of RSP is not anticipated to affect the integrity of spawning habitat as the Project is downstream of spawning habitat.

The addition of RSP will also result in temporary and permanent impacts to the riparian corridor, which is considered a PBF of salmonid Critical Habitat. As discussed above, this reach of Big Chico Creek is likely used as a migration corridor (from October 1st to June 30th) between spawning habitat farther upstream in the watershed and marine habitats and juveniles are not likely to take up residence in this reach. The loss of riparian trees and vegetation would have a minimal impact on the critical habitat value for salmonids within the Action Area.

Temporary Diversion of Stream Channel

Salmonid critical habitat would be temporarily impacted due to the implementation of a temporary water diversion utilized to place the RSP along the eroded banks and scoured bridge structures.

The temporary water diversion proposed by the Project may serve as a physical barrier to salmonids migrating within Big Chico Creek. As mentioned in Section 3.4.4, salmonids are not expected to be present within the Action area or utilize the water diversion during the work window of July 15th to September 30th, as temperatures in Big Chico Creek would be lethal to salmonids. Therefore, no take of salmonids is anticipated as a result of the implementation of a temporary water diversion.

4.3 Response to the Exposure

4.3.1 VELB

Elderberry Shrub Removal

Shrubs within the Action Area are likely occupied by VELB, the removal of the shrubs is likely to result in the injury or death of VELB eggs, larvae, or adults, depending on the time of removal. The removal of the shrubs will result in a permanent loss of locally suitable VELB habitat.

Indirect Effects to Elderberry Shrubs

Temporary dust accumulation on elderberry shrubs that may result from construction activities may reduce the overall vigor of host elderberry shrubs by limiting the photosynthetic potential of leaves.

The loss of suitable riparian habitat within the Action Area will reduce the available habitat for elderberry shrubs, the obligate host plant for VELB. Removal of riparian vegetation may expose VELB to fluctuations in temperature and humidity, as well as increased predation risk, which could lower survival rates for both adults and larvae and impair development. The loss of riparian vegetation will decrease foraging opportunities for adults, potentially resulting in lower VELB populations and reduced breeding success. Habitat fragmentation may create a genetic bottleneck, reducing genetic diversity and potentially leading to inbreeding or local extinctions. Furthermore, noise and physical disturbances from the installation of RSP could interfere with normal VELB behaviors such as mating, foraging, and egg-laying, further diminishing reproductive success.

While the Project will reduce the amount of suitable habitat for its host plant, VELB will have the potential to occur within the Action Area in the avoided shrubs.

Riparian Habitat Loss

The loss of riparian habitat would involve the removal of six elderberry shrubs, diminishing the habitat value of the riparian corridor within the Action Area at the Rose Avenue site for VELB. This could displace adult VELB and/or destroy larval habitat, increasing the mortality risk for both adults and larvae, and negatively affecting future generations of VELB.

4.3.2 CCV Steelhead and CVSR Chinook Salmon

Removal of Riparian Trees

Removal of riparian trees will reduce critical habitat elements, leading to increased water temperatures, decreased water quality, and a reduction in available shelter for juvenile salmonids, which depend on riparian vegetation for cover from predators and fluctuations in environmental conditions. Elevated temperatures can be lethal or decrease growth rates in juveniles. The loss of riparian habitat may lead to the displacement of salmonids from the Action Area, especially juveniles, as they rely on shelter and refuge provided by riparian vegetation.

Riparian vegetation provides shelter, feeding opportunities, and pools for resting in the form of undercut banks, overhanging vegetation, and in stream woody debris. Removal of these elements of the habitat would reduce the habitat complexity that the riparian corridor provides, would make salmonids more susceptible to predation during juvenile development, and would reduce the number of insects and leaves that fall into the creek, reducing foraging efficiency, resulting in slower growth rates, reduced survival, and lower fitness.

Riparian vegetation helps filter out pollutants and nutrients from runoff before they enter the stream. The removal of vegetation could lead to a greater influx of nutrients (e.g., from agricultural runoff or urban development), which could cause algal blooms, reduce oxygen levels in the water, and disrupt aquatic food webs, creating conditions that are detrimental to salmon during critical life stages such as migration and rearing.

The disturbance from construction activities associated with riparian vegetation removal may result in increased sedimentation and turbidity in the creek, which may hinder foraging success, increase stress levels, or smother gravel substrates that the salmonids depend on for reproduction, decreasing the chance of the survival of salmonid eggs.

Addition of Rock Slope Protection

Salmonids may be displaced from sections of the creek bed where RSP is to be placed. The disturbance from construction activities related to the addition of RSP include increased turbidity, noise, and equipment presence, which may force fish to move to other areas of the creek. This displacement can result in increased energy expenditure as salmonids seek alternative habitat, which could potentially stress the fish, especially juveniles that rely on specific microhabitats for feeding and shelter.

Elevated sediment levels from the placement of RSP can impair the respiratory function of juvenile salmonids by clogging their gills and reducing their ability to absorb oxygen. Increased turbidity also decreases water clarity, which can hinder fish's ability to forage for food and increase their vulnerability to predators.

The introduction of RSP can alter natural flow patterns in the creak, reducing the natural variability in streamflow, potentially creating areas of excessive current that may be difficult for juvenile salmonids to navigate, increasing stress and reducing access to refuge areas. Conversely, the modification of the creek bed may also reduce the availability of slow-moving water habitats, which are critical for juvenile salmonids to avoid strong currents and predators.

Temporary Diversion of Stream Channel

If salmonids are present within Big Chico Creek during the installation of the temporary water diversion, these individuals would likely be forced to move, become trapped, or get injured, which may result in mortality. Furthermore, the implementation of a temporary water diversion would reduce the availability of suitable aquatic habitat within the Action Area. This would disrupt the foraging and/or dispersal behavior of local salmonids, increasing their energy expenditure as they find another suitable habitat to occupy.

Temporary impacts to salmonid aquatic habitat would be restored following the completion of construction activities. In-water construction activities are anticipated to span one summer (dry) season; therefore, salmonids may be subject to the temporary loss of suitable habitat for the duration of one season.

4.4 Effects of the Action

Effects of the action are all consequences to listed species or Critical Habitat that are caused by the proposed action, including consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur (50 CFR §402.17). Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR §402.02). The effect of the action is the consequence (behavioral, physical, or physiological) of a response to a stressor.

A conclusion that activities are reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available. Factors to consider whether an activity caused by the proposed action is reasonably certain to occur include but are not limited to: past experiences with similar activities that have resulted from actions that are similar in scope, nature and magnitude to the proposed action; existing plans for the activities; any remaining economic, administrative and legal requirements necessary for the activity to go forward.

Considerations for determining a consequence to the species or Critical Habitat is not caused by the proposed action include, but are not limited to: the consequence is so remote in time from the proposed action that it is not reasonably certain to occur; or the consequence is so geographically remote from the immediate area involved in the proposed action that it is not reasonably certain to occur; or the consequence is only reached through a lengthy causal chain that involves so many steps as to make the consequence not reasonably certain to occur (50 CFR §402.17).

4.4.1 VELB

CNDDB occurrences of the species are typically constrained to the riparian corridors along Butte Creek, the Feather River, and the Sacramento River. Although the Action Area does not contain any CNDDB occurrences of the species, there are two historic (1991) CNDDB occurrences of the species within the riparian corridor of Big Chico Creek approximately 3.5 miles upstream of the Warner Street Bridge. Due to the presence of elderberry shrubs, VELB's obligate host plant, within the Action Area as well as the historic local occurrences of this species, VELB has a high potential to occur within the Action Area.

As discussed above, the proposed Action will result in the permanent removal of 0.11 acres of riparian corridor habitat, including the removal of six elderberry shrubs from the Action Area at the Rose Avenue Bridge, reducing local habitat suitability for VELB. Approximately 0.10 acres of riparian habitat will be temporarily impacted to allow for equipment access within the Action Area, reducing local habitat for elderberry shrubs and the associated VELB for the duration of construction; however, at all 3 locations elderberry shrubs and riparian habitat will persist on both the upstream and downstream ends of the projects. While the projects will slightly widen existing gaps in the riparian canopy, this is not expected to create an impassible barrier to VELB movement along the corridor.

ESA fencing will be installed along the borders of the Project to indicate the presence of suitable VELB habitat and to prevent construction from encroaching on this sensitive resource. No herbicides, insecticides, fertilizers, or other chemicals will be implemented for the duration of the Project.

In accordance with measure BIO-23, direct impacts from the loss of six elderberry shrubs will be mitigated through either purchase of mitigation credits from a mitigation bank (if available) or by propagating shrubs within an offsite mitigation site along Big Chico Creek with equivalent habitat in order to offset 0.09 acres of temporary impacts and 0.11 acres of permanent impacts to VELB habitat in coordination with the USFWS.

4.4.2 CCV Steelhead and CVSR Chinook Salmon

Populations of CCV steelhead and CVSR Chinook salmon within the lower reaches of Big Chico Creek within the Action area are well documented on CNDDB. Additionally, CCV steelhead were observed during the biological surveys conducted on July 30th,

2024. As such, listed salmonids may have a moderate potential to occur within the Action Area from October 1st to July 14th.

As discussed above, the proposed Action is likely to cause alter streamflow dynamics and sediment transport, potentially degrading critical spawning and rearing habitats by increasing sedimentation or reducing habitat complexity. The temporary water diversion could disrupt migration patterns, potentially stranding fish or reducing access to essential habitats for spawning and juvenile rearing. The permanent and temporary loss of riparian vegetation would decrease shading, increasing water temperatures and reducing shelter and food sources for juvenile fish, which could hinder their growth and survival. Additionally, the loss of riparian habitat may increase predation risks and further degrade water quality, negatively impacting both species throughout their life stages.

In accordance with the species-specific avoidance and minimization measures, in-water work will be limited to the summer (dry) season (July 15th to September 30th) and a focused pre-construction survey will be conducted within Big Chico Creek prior to the installation of the temporary water diversion. During this dry season, CCV steelhead and CVSR Chinook salmon are not expected to be within the Action Area, due to a lack of flowing water at the Rose Avenue Bridge site, and lethal water temperatures at both sites.

The Project may still result in increased stress or energy expenditure of CCV steelhead and CVSR Chinook salmon if they are exposed to Project-related stressors, which may have a negative effect on any individuals in the area. If CCV steelhead or CVSR Chinook salmon are identified within the Project footprint during construction, in-water work will be suspended, and NOAA Fisheries will be contacted for further guidance.

4.5 Cumulative Effects

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the Action Area described in this BA. Future federal actions that are unrelated to the proposed action are not considered in these cumulative effects analysis because those actions will require separate consultation pursuant to Section 7 of the FESA.

No current, reasonably foreseeable, non-federal actions have been identified within the Action Area that have the potential to affect VELB, CCV Steelhead or CVSR Chinook salmon. This Project would not encourage changes to existing land use patterns, is not part of a larger project, and there are no other projects related to this one outside of the Action Area. The Project is not anticipated to contribute to cumulative effects on VELB, CCV Steelhead or CVSR Chinook salmon within the Action Area.

4.6 Determination

The following determinations have been made for the listed and proposed species that were returned on USFWS and NOAA Fisheries database searches. Based on literature

review, habitat assessment, and biological surveys, three federally listed species have the potential to occur within the Action Area: CVSR Chinook salmon, CCV steelhead and VELB. In addition, the Big Chico Creek is Critical Habitat for CVSR Chinook salmon and CCV steelhead within the Action Area.

4.6.1 Species and Critical Habitat Determination

1) No Effect

A *No Effect* determination was made for the following species. No consultation is required.

Butte County meadowfoam (*Limnanthes floccose ssp. californica*) E

Conservancy fairy shrimp (*Branchinecta conservatio*) E

CVSR Chinook Salmon EFH

Foothill yellow-legged frog – Feather River DPS (*Rana boylii pop.2*) T

Giant garter snake (*Thamnophis gigas*) T

Greene's tuctoria (*Tuctoria greenei*) E

Monarch butterfly (*Danaus plexippus*) PT

Northwestern pond turtle (*Actinemys marmorata*) PT

Slender Orcutt grass (*Orcuttia tenuis*) T

SRWR Chinook salmon (*Oncorhynchus tshawytscha pop. 7)* E

Vernal pool fairy shrimp (*Branchinecta lynchi*) T

Vernal pool tadpole shrimp (*Lepidurus packardi*) E

Western spadefoot (*Spea hammondii*) T

2) May Affect-Not Likely to Adversely Affect

A *May Affect, Not Likely to Adversely Affect* determination was made for the following species and designated Critical Habitat. Informal consultation is required.

CVSR Chinook salmon ESU (*Oncorhynchus tshawytscha pop. 11*) T

CVSR Chinook salmon Critical Habitat

CCV steelhead DPS (*Oncorhynchus mykiss irideus pop. >11*) T

CCV steelhead DPS Critical Habitat

3) May Affect-Likely to Adversely Affect

A *May Affect, Likely to Adversely Affect* determination was made for the following species. Formal consultation is required.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)

Chapter 5. Essential Fish Habitat Assessment

The MSFCMA takes immediate action to conserve and manage fishery resources found off the coasts of the US, and the anadromous species and Continental Shelf fishery resources of the US, by exercising sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone of the US, and exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources and fishery resources in the special areas.

5.1 Essential Fish Habitat

5.1.1 Essential Fish Habitat Background

Public Law 104-297, the Sustainable Fisheries Act of 1996, amended the MSFCMA to establish new requirements for EFH descriptions in federal fishery management plans (FMPs). In addition, the MSFCMA established procedures designed to identify, conserve, and enhance EFH for those species regulated under a federal fisheries management plan. Pursuant to the MSFCMA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

- NOAA Fisheries must provide conservation recommendations for any federal or state action that would adversely affect EFH;

- Federal agencies must provide a detailed response in writing to the NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the effect of the activity on EFH. In the case of a response that is inconsistent with the NOAA Fisheries' EFH conservation recommendations, the federal agency must explain its reasons for not following the recommendations.

EFH has been defined for the purposes of the MSFCMA as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". NOAA Fisheries has further added the following interpretations to clarify this definition:

- "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate;

- "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities;

- “Necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and

- “Spawning, breeding, feeding, or growth to maturity” covers the full life cycle of a species.

Adverse effect means any effect that reduces quality and/or quantity of EFH, and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), or site-specific or habitat-wide effects, including individual, cumulative, or synergistic consequences of actions.

EFH consultation with the NOAA Fisheries is required regarding any federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action may adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH. Under section 305(b)(4) of the MSFCMA, NOAA Fisheries is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that may adversely affect EFH. Wherever possible, NOAA Fisheries utilizes existing interagency coordination processes to fulfill EFH consultations with federal agencies. For the proposed action, this goal is being met by incorporating EFH consultation into the FESA Section 7 consultation, as represented by this EFH Assessment.

5.2 Managed Fishery Habitats with Potential to Occur in the Action Area

The MSFCMA requires that EFH be identified for all federally managed species including all species managed by the Pacific Fisheries Management Council (PFMC). The PFMC is responsible for managing commercial fisheries resources along the coast of Washington, Oregon, and California. Managed species that have a potential to occur in the Action Area are described in a FMP.

The geographic extent of CVSR Chinook salmon EFH encompasses all the water bodies currently or historically occupied by PFMC managed species within the USGS hydrologic units identified within the FMP (PFMC 2024). This designation includes the Big Chico Creek and the Sacramento River (HUC 18020157) for all runs of this species. Within the Action Area, Big Chico Creek has been identified as EFH for CVSR Chinook salmon.

5.3 Potential Adverse Effects on Essential Fish Habitat

Potential effects to EFH evaluated include those that relate to: (1) sedimentation and turbidity; (2) hazardous materials and chemical spills; (3) re-suspension of contaminants; (4) aquatic habitat modification and shading; (5) entrainment and stranding potential; (6) predation risk; and (7) food resources.

5.3.1 Potential Adverse Effects on Essential Fish Habitat for Pacific Salmonids

NOAA Fisheries has identified and mapped EFH for each life stage of nearly 1,000 federally managed fish species, including CVSR Chinook salmon. In addition, Habitat Areas of Particular Concern (HAPC), discrete subsets of EFH, have also been identified for groundfish and salmon. HAPC for salmon include complex channels and floodplains, thermal refugia, spawning habitat, estuaries, and marine and estuarine submerged aquatic vegetation.

The Project will result in a temporary increase in sedimentation and turbidity within CVSR Chinook salmon EFH, which would subside post construction. To offset these impacts, construction will be timed during the summer when flows are lower, BMPs will be implemented during construction, and a temporary water diversion will be installed to isolate in-channel work from flowing water. In addition, an off-site riparian restoration mitigation project will be funded within the BCCER which would stabilize the banks of Big Chico Creek, upstream of the Action Area. In addition, the purpose of the proposed bank stabilization projects is to prevent further bank scour and erosion at these locations and will result in a long term reduction of suspended sediments and turbidity. With inclusion of these minimization and mitigation measures, the project is not expected to have an adverse effect on sedimentation and turbidity.

The risk of hazardous material or chemical spills within Chinook salmon EFH will be avoided and minimized through the implementation of BIO-3, BIO-6, and BIO-7. These measures ensure that such spills will not contribute to adverse effects on EFH. Additionally, since the Project does not involve excavation below the OHWM of Big Chico Creek, re-suspension of potential contaminants is not anticipated.

Aquatic habitat modification will occur due to the placement of RSP below the OHWM of Big Chico Creek and the implementation of a temporary water diversion. These actions will not result in long-term water quality impacts that would influence CVSR Chinook salmon EFH.

The potential for entrainment or stranding of listed salmonids is not anticipated due to in-water work being conducted within the work window mentioned previously in the BA. Any stranded aquatic life will be relocated by the Project biologist, who will oversee the implementation of the water diversion and the installation of RSP below the OHWM of Big Chico Creek.

The removal of riparian vegetation within the Action Area will increase the predation risk for juvenile salmonids by reducing the shelter provided by the riparian canopy, overhanging vegetation, and submerged roots. Furthermore, the removal of riparian trees will decrease food availability by reducing the number of terrestrial invertebrates that fall into the creek from the tree canopy.

Project impacts to EFH are anticipated to be minimal. The Project *will not adversely affect* EFH for CVSR Chinook salmon. No cumulative impacts to EFH are anticipated. No compensatory mitigation for CVSR Chinook salmon EFH is proposed currently.

5.3.2 Potential Adverse Effects on Essential Fish Habitat for Pacific Coast Ground Fishes

Big Chico Creek does not provide suitable habitat for pacific coast ground fish species and therefore the Project is not anticipated to impact EFH for pacific coast ground fish species.

5.3.3 Potential Adverse Effects on Essential Fish Habitat for Coastal Pelagic Species

Big Chico Creek does not provide suitable habitat for coastal pelagic species and therefore the Project is not anticipated to impact EFH for coastal pelagic species.

5.4 Essential Fish Habitat Conservation Measures

Conservation measures that have been included in the Project design for CCV steelhead and CVSR Chinook salmon will also serve to minimize potential Project impacts to Chinook salmon EFH. CCV steelhead and CVSR Chinook salmon conservation measures are listed in Section 2.4.3.

5.5 Essential Fish Habitat Conclusions

This BA explains why the proposed action *will not adversely affect* EFH for Chinook salmon.

The Action Area contains floodplains and thermal refugia, but lacks complex channels, spawning habitat, estuaries, and marine and estuarine submerged aquatic vegetation that may serve as HAPCs for CVSR Chinook salmon. The Project would have minimal permanent effects to aquatic habitat resources and the associated riparian corridor. During construction, the Project is expected to reduce overall habitat quality due to the placement of RSP along the banks and within the creek bed of Big Chico Creek; however, CVSR Chinook salmon are not anticipated to be present within the Action Area during construction. For this reason, the Project is not expected to adversely affect EFH.

Chapter 6. Literature Cited

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Appendix A Database Search Results

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Chico (3912167) OR Ord Ferry (3912168) OR Nord (3912178) OR Richardson Springs (3912177) OR Hamlin Canyon (3912166) OR Paradise West (3912176))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
adobe-lily *Fritillaria pluriflora*	PMLIL0V0F0	None	None	G2G3	S2S3	1B.2
Ahart's buckwheat *Eriogonum umbellatum var. ahartii*	PDPGN086UY	None	None	G5T3	S3	1B.2
Ahart's paronychia *Paronychia ahartii*	PDCAR0L0V0	None	None	G3	S3	1B.1
American bumble bee *Bombus pensylvanicus*	IIHYM24260	None	None	G3G4	S2	
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
Antioch Dunes anthicid beetle *Anthicus antiochensis*	IICOL49020	None	None	G3	S3	
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S3	
big-scale balsamroot *Balsamorhiza macrolepis*	PDAST11061	None	None	G2	S2	1B.2
Brazilian watermeal *Wolffia brasiliensis*	PMLEM03020	None	None	G5	S2	2B.3
brownish beaked-rush *Rhynchospora capitellata*	PMCYP0N080	None	None	G5	S2	2B.2
burrowing owl *Athene cunicularia*	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
Butte County checkerbloom *Sidalcea robusta*	PDMAL110P0	None	None	G2	S2	1B.2
Butte County fritillary *Fritillaria eastwoodiae*	PMLIL0V060	None	None	G3Q	S3	3.2
Butte County meadowfoam *Limnanthes floccosa ssp. californica*	PDLIM02042	Endangered	Endangered	G4T1	S1	1B.1
Butte County morning-glory *Calystegia atriplicifolia ssp. buttensis*	PDCON04012	None	None	G5T3	S3	4.2
California beaked-rush *Rhynchospora californica*	PMCYP0N060	None	None	G1	S1	1B.1
California black rail *Laterallus jamaicensis coturniculus*	ABNME03041	None	Threatened	G3T1	S2	FP
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
California satintail *Imperata brevifolia*	PMPOA3D020	None	None	G3	S3	2B.1
chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha pop. 11*	AFCHA0205L	Threatened	Threatened	G5T2Q	S2	
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G4	S4	SSC
Coastal and Valley Freshwater Marsh *Coastal and Valley Freshwater Marsh*	CTT52410CA	None	None	G3	S2.1	
Conservancy fairy shrimp *Branchinecta conservatio*	ICBRA03010	Endangered	None	G2	S2	
Crotch's bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
dissected-leaved toothwort *Cardamine pachystigma var. dissectifolia*	PDBRA0K1B1	None	None	G3G5T2Q	S2	1B.2
Ferris' milk-vetch *Astragalus tener var. ferrisiae*	PDFAB0F8R3	None	None	G2T1	S1	1B.1
foothill yellow-legged frog - Feather River DPS *Rana boylii pop. 2*	AAABH01052	Threatened	Threatened	G3T2	S2	
foothill yellow-legged frog - north coast DPS *Rana boylii pop. 1*	AAABH01051	None	None	G3T4	S4	SSC
Gallaway's amphipod *Stygobromus gallawayae*	ICMAL05E10	None	None	G1	S1	
giant gartersnake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2	S2	
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
great egret *Ardea alba*	ABNGA04040	None	None	G5	S4	
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	
green sturgeon - southern DPS *Acipenser medirostris pop. 1*	AFCAA01031	Threatened	None	G2T1	S1	SSC
Greene's tuctoria *Tuctoria greenei*	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
hoary bat *Lasiurus cinereus*	AMACC05032	None	None	G3G4	S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Hoover's spurge *Euphorbia hooveri*	PDEUP0D150	Threatened	None	G1	S1	1B.2
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S3	
midvalley fairy shrimp *Branchinecta mesovallensis*	ICBRA03150	None	None	G2	S2S3	
North American porcupine *Erethizon dorsatum*	AMAFJ01010	None	None	G5	S3	
Northern Hardpan Vernal Pool *Northern Hardpan Vernal Pool*	CTT44110CA	None	None	G3	S3.1	
northern slender pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091	None	None	G5T5	S2S3	2B.2
Northern Volcanic Mud Flow Vernal Pool *Northern Volcanic Mud Flow Vernal Pool*	CTT44132CA	None	None	G1	S1.1	
northwestern pond turtle *Actinemys marmorata*	ARAAD02031	Proposed Threatened	None	G2	SNR	SSC
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G4	S3	SSC
pink creamsacs *Castilleja rubicundula var. rubicundula*	PDSCR0D482	None	None	G5T2	S2	1B.2
Red Bluff dwarf rush *Juncus leiospermus var. leiospermus*	PMJUN011L2	None	None	G2T2	S2	1B.1
Sacramento anthicid beetle *Anthicus sacramento*	IICOL49010	None	None	G4	S4	
silky cryptantha *Cryptantha crinita*	PDBOR0A0Q0	None	None	G2	S2	1B.2
silver-haired bat *Lasionycteris noctivagans*	AMACC02010	None	None	G3G4	S3S4	
spicate calycadenia *Calycadenia spicata*	PDAST1P090	None	None	G3?	S3	1B.3
steelhead - Central Valley DPS *Oncorhynchus mykiss irideus pop. 11*	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened	None	G3T3	S3	
veiny monardella *Monardella venosa*	PDLAM18082	None	None	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered	None	G3	S3	
Wawona riffle beetle *Atractelmis wawona*	IICOL58010	None	None	G3	S1S2	
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G4G5T4	S3S4	SSC
western red bat *Lasiurus frantzii*	AMACC05080	None	None	G4	S3	SSC
western spadefoot *Spea hammondii*	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
white-stemmed clarkia *Clarkia gracilis ssp. albicaulis*	PDONA050J1	None	None	G5T3	S3	1B.2
woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	PDLIM02043	None	None	G4T4	S3	4.2
woolly rose-mallow *Hibiscus lasiocarpos var. occidentalis*	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Yuma myotis *Myotis yumanensis*	AMACC01020	None	None	G5	S4	

Record Count: 72

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: 06/09/2025 21:26:38 UTC
Project Code: 2025-0107472
Project Name: Big Chico Creek Erosion Repair Project

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

To Whom It May Concern:

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

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

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

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

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

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

PROJECT SUMMARY

Project Code: 2025-0107472
Project Name: Big Chico Creek Erosion Repair Project
Project Type: Bridge - Maintenance
Project Description: Erosion/scour repair and bank stabilization
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.72700825,-121.86331802445414,14z

Counties: Butte County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
California Condor *Gymnogyps californianus* Population: Pacific Northwest NEP No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8193	Experimental Population, Non-Essential

REPTILES

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
Western Spadefoot *Spea hammondii* Population: Northern DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

FLOWERING PLANTS

NAME	STATUS
Butte County Meadowfoam *Limnanthes floccosa ssp. californica*	Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4223	
Slender Orcutt Grass *Orcuttia tenuis*	Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1063	

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Dokken Engineering
Name: Jeffrey Harris
Address: 110 Blue Ravine Rd #200
City: Folsom
State: CA
Zip: 95630
Email jharris@dokkenengineering.com
Phone: 9167651015

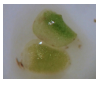
CALIFORNIA NATIVE PLANT SOCIETY

CNPS Rare Plant Inventory

Search Results

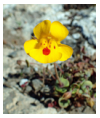
37 matches found. Click on scientific name for details

Search Criteria: , Quad is one of [**3912167:3912168:3912178:3912177:3912166:3912176**]

▲ COMMON NAME	SCIENTIFIC NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
adobe-lily	*Fritillaria pluriflora*	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2G3	S2S3	1B.2	Yes	1974-01-01	 © 2015 Steve Matson
Ahart's buckwheat	*Eriogonum umbellatum* var. *ahartii*	Polygonaceae	perennial herb	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	2010-11-29	No Photo Available
Ahart's paronychia	*Paronychia ahartii*	Caryophyllaceae	annual herb	Feb-Jun	None	None	G3	S3	1B.1	Yes	1988-01-01	 © 2004 Carol W. Witham
Bidwell's knotweed	*Polygonum bidwelliae*	Polygonaceae	annual herb	Apr-Jul	None	None	G4	S4	4.3	Yes	1974-01-01	 ©2020 Neal Kramer
big-scale balsamroot	*Balsamorhiza macrolepis*	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 ©1998 Dean Wm. Taylor
Brazilian watermeal	*Wolffia brasiliensis*	Araceae	perennial herb (aquatic)	Apr-Dec	None	None	G5	S2	2B.3		2001-01-01	 © 2021 Scot Loring

brownish beaked-rush	*Rhynchospora capitellata*	Cyperaceae	perennial herb	Jul-Aug	None	None	G5	S2	2B.2		1974-01-01	 ©2004 Dean Wm. Taylor
Butte County calycadenia	*Calycadenia oppositifolia*	Asteraceae	annual herb	Apr-Jul	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
Butte County checkerbloom	*Sidalcea robusta*	Malvaceae	perennial rhizomatous herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2010 George W Hartwell
Butte County fritillary	*Fritillaria eastwoodiae*	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3Q	S3	3.2		1974-01-01	 ©2009 Sierra Pacific Industries
Butte County meadowfoam	*Limnanthes floccosa* ssp. *californica*	Limnanthaceae	annual herb	Mar-May	FE	CE	G4T1	S1	1B.1	Yes	1980-01-01	 © 2007 George W. Hartwell
Butte County morning-glory	*Calystegia atriplicifolia* ssp. *buttensis*	Convolvulaceae	perennial rhizomatous herb	May-Jul	None	None	G5T3	S3	4.2	Yes	1984-01-01	 ©2018 Sierra Pacific Industries
California beaked-rush	*Rhynchospora californica*	Cyperaceae	perennial rhizomatous herb	May-Jul	None	None	G1	S1	1B.1	Yes	1974-01-01	 © 2004 Steve Matson
California satintail	*Imperata brevifolia*	Poaceae	perennial rhizomatous herb	Sep-May	None	None	G3	S3	2B.1		2006-12-26	 © 2020 Matt C. Berger

depauperate milk-vetch	*Astragalus pauperculus*	Fabaceae	annual herb	Mar-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	 ©2012 Tim Kellison
dissected-leaved toothwort	*Cardamine pachystigma* var. *dissectifolia*	Brassicaceae	perennial rhizomatous herb	Feb-May	None	None	G3G5T2Q	S2	1B.2	Yes	1988-01-01	No Photo Available
Ferris' milk-vetch	*Astragalus tener* var. *ferrisiae*	Fabaceae	annual herb	Apr-May	None	None	G2T1	S1	1B.1	Yes	1994-01-01	No Photo Available
Greene's tuctoria	*Tuctoria greenei*	Poaceae	annual herb	May-Jul(Sep)	FE	CR	G1	S1	1B.1	Yes	1974-01-01	 ©2008 F. Gauna
hogwallow starfish	*Hesperevax caulescens*	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2017 John Doyen
Hoover's spurge	*Euphorbia hooveri*	Euphorbiaceae	annual herb	(May-Jun)Jul-Sep(Oct)	FT	None	G1	S1	1B.2	Yes	1974-01-01	 © 2020 Neal Kramer
Humboldt lily	*Lilium humboldtii* ssp. *humboldtii*	Liliaceae	perennial bulbiferous herb	May-Jul(Aug)	None	None	G4T3	S3	4.2	Yes	1994-01-01	 © 2008 Sierra Pacific Industries
marsh claytonia	*Claytonia palustris*	Montiaceae	perennial herb	May-Oct	None	None	G4	S4	4.3	Yes	1988-01-01	 ©2006 Dean Wm. Taylor, Ph.D.
Mexican mosquito fern	*Azolla microphylla*	Azollaceae	annual/perennial herb	Aug	None	None	G5	S4	4.2		1994-01-01	No Photo Available
northern slender pondweed	*Stuckenia filiformis* ssp. *alpina*	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	None	None	G5T5	S2S3	2B.2		1994-01-01	 Dana York (2016)

pink creamsacs	*Castilleja rubicundula* var. *rubicundula*	Orobanchaceae	annual herb (hemiparasitic)	Apr-Jun	None	None	G5T2	S2	1B.2	Yes	2001-01-01	 ©2010 Vernon Smith
Red Bluff dwarf rush	*Juncus leiospermus* var. *leiospermus*	Juncaceae	annual herb	Mar-Jun	None	None	G2T2	S2	1B.1	Yes	1974-01-01	 ©2016 Dylan Neubauer
red-stemmed cryptantha	*Cryptantha rostellata*	Boraginaceae	annual herb	Apr-Jun	None	None	G4	S3	4.2		2018-06-26	No Photo Available
serpentine leptosiphon	*Leptosiphon ambiguus*	Polemoniaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	Yes	1994-01-01	 © 2010 Aaron Schusteff
shield-bracted monkeyflower	*Erythranthe glaucescens*	Phrymaceae	annual herb	Feb-Aug(Sep)	None	None	G3G4	S3S4	4.3	Yes	1974-01-01	 Neal Kramer 2020
silky cryptantha	*Cryptantha crinita*	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.2	Yes	1980-01-01	 ©2009 Sierra Pacific Industries
spicate calycadenia	*Calycadenia spicata*	Asteraceae	annual herb	May-Sep	None	None	G3?	S3	1B.3		2023-04-05	 © 2023 Christopher Bronny
Tehama navarretia	*Navarretia heterandra*	Polemoniaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3		1974-01-01	 ©2021 Scot Loring

valley brodiaea	*Brodiaea rosea* ssp. *vallicola*	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G4G5T3	S3	4.2	Yes	2019-01-07	 © 2011 Steven Perry
veiny monardella	*Monardella venosa*	Lamiaceae	annual herb	May-Jul	None	None	G1	S1	1B.1	Yes	1984-01-01	 © 2007 George W. Hartwell
white-stemmed clarkia	*Clarkia gracilis* ssp. *albicaulis*	Onagraceae	annual herb	(Apr)May-Jul	None	None	G5T3	S3	1B.2	Yes	1994-01-01	No Photo Available
woolly meadowfoam	*Limnanthes floccosa* ssp. *floccosa*	Limnanthaceae	annual herb	Mar-May(Jun)	None	None	G4T4	S3	4.2		1980-01-01	 © 2021 Scot Loring
woolly rose-mallow	*Hibiscus lasiocarpos* var. *occidentalis*	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry

Showing 1 to 37 of 37 entries

Go to top

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2025. Rare Plant Inventory (online edition, v9.5.1). Website https://www.rareplants.cnps.org [accessed 9 June 2025].

}

Quad Name **Chico**
Quad Number **39121-F7**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat - **X**
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Thank you,

Jeff Harris
Biologist/Environmental Planner
Dokken Engineering
Phone: 916.858.0642
Email: jharris@dokkenengineering.com
110 Blue Ravine Road, Suite 200 | Folsom, CA 95630
www.dokkenengineering.com

Appendix B Representative Photographs

Photo 1. Represenative photo of Big Chico Creek at the Rose Avenue Bridge, taken during a period of low flow, facing north. Note bank protection on steep slope. The large tree right of center was lost during the 2023 storms. Photo taken October 2018.

Photo 2. Representative photo of the 2023 storm damage along the northeast abutment and wingwall of the Rose Avenue Bridge. In 2024, some of the bank protection was lost, and the slope in front of the armoring eroded after a tree fell. Photo taken October 2024.

Photo 3. Represenative photo of Big Chico Creek and its associated riparian forest at the Rose Avenue Bridge location, taken facing east, looking upstream. A 21” sewer line, encased in concrete, functions as a low weir across the creek. Photo taken July 2024.

Photo 4. Represenative photo of Big Chico Creek at the Rose Avenue Bridge, taken facing west, looking downstream. Photo taken July 2024.

Photo 5. Representative photo of the exposed footing of Pier 2 and a lack of flowing water at the Rose Avenue Bridge site. Taken September 2016.

Photo 6. Representative photo of the concrete encased utility at the Rose Avenue Brdige site when Big Chico Creek is not flowing. Taken October 2016.

Photo 7. Representative photo of the scour at the northern abutment. Scour has caused the creek bank to retreat, exposing the concrete wingwall footings. A pedestrian bridge that spans the creek is visible upstream of the Warner Street Bridge Taken October 2024

Photo 8. Representative photo of right wing wall step #2 footing that is complteley undermined. Taken October 2024.

Photo 8. Represenative photo of Big Chico Creek at the Warner Street Bridge location , taken facing west, looking downstream. Pedestrian bridges occur on both sides of Warner Street bridge. Note existing RSP on north creek bank downstream of the bridge abutment. Photo taken July 2024.

Photo 9. Representative photo of Big Chico Creek and its riparian forest, taken facing west from the pedestrian path on the Manzanita Pedestrian Bridge—approximately 100 feet south of the Manzanita Avenue and Vallombrosa Avenue intersection—looking downstream. Photo taken February 2025.

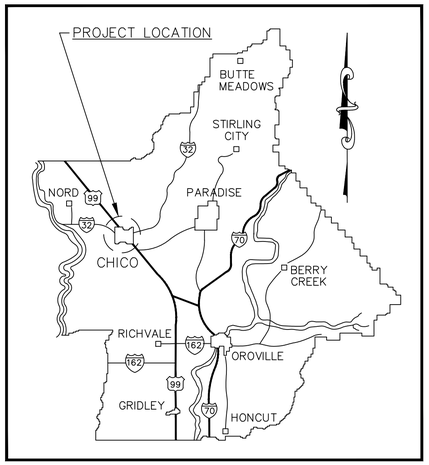
Photo 10. Represenative photo of the erosion feature along the west bank of Big Chico Creek , taken facing west from the east bank. Photo taken February 2025.

Photo 11. Represenative photo of Big Chico Creek, showing conditions downstream of the erosion feature. Photo taken February 2025, facing southgwest.

Photo 12. Represenative photo of the erosion feature along the west bank of Big Chico Creek, taken facing east. Photo taken February 2025.

Appendix C. Construction Plan Sheets

Sheet — of 02



KEY MAP
OF
BUTTE COUNTY

CITY OF CHICO PUBLIC WORKS DEPARTMENT

CHICO, CALIFORNIA

PLANS FOR THE CONSTRUCTION OF :

BIG CHICO CREEK EROSION REPAIR
CITY PROJECT NO. 50497–002–4140

TO BE SUPPLEMENTED WITH:
CALTRANS STANDARD PLANS DATED 2023
CITY OF CHICO STANDARD PLANS DATED 2016

INDEX OF SHEETS

LEGEND

	EXISTING	PROPOSED
STREET LIGHT	☼	
FIRE HYDRANT		
WATER VALVE		
AREA DRAIN INLET		
ROADSIDE SIGN–ONE POST		
SD MANHOLE		
SS MANHOLE		
UTILITY POLE		
SURVEY CONTROL POINT		
PROPERTY OWNER NUMBER	#	
REMOVE TREE	×	
RIGHT–OF–WAY		
PROPERTY LINE		
BIKEWAY RIGHT–OF–WAY		
TEMPORARY CONSTRUCTION EASEMENT		
CENTERLINE		
CATCHLINE		
GUTTER FLOWLINE		
SAWCUT		
RETAINING WALL		
CHAINLINK FENCE		
CHAINLINK RAILING TYPE 7 (MOD), RSP B11–52		
TEMPORARY HIGH VISIBILITY FENCE		X — THVF
UG ELECTRIC	e e	E
UG GAS	g g	
UG SANITARY SEWER LINE	ss SD–SIZE	
UG STORM DRAIN LINE	sd SD–SIZE	
UG TELECOMMUNICATIONS	t t	
UG WATER	w w	
UG WATER ABANDONED	w w	

ABBREVIATIONS

AGGREGATE BASE	AB
AC	ACE
ANGLE POINT	AP
ASSESSOR PARCEL NUMBER	APN
BEGIN BRIDGE	BB
BEGIN CURVE	BC
BEGIN	BEG
BACK OF CURB	BOC
BACK OF WALK	BOW
BEGIN VERTICAL CURVE ELEVATION	BVCE
BEGIN VERTICAL CURVE STATION	BVCS
CURVE #	C
CURB AND GUTTER	CG
CENTERLINE	CL
CONCRETE	CONC
CORRUGATED PLASTIC PIPE	CPP
CURB RAMP	CR
DIAMETER AT BREAST HEIGHT	DBH
DECOMPOSED GRANITE	DG
DROP INLET	DG
DIAMETER	DI
DRIVE	DR
DRAWING	DWG
ELECTRIC	E
EAST	E.
EASTING	E:
END BRIDGE	EB
END CURVE	EC
ELEVATION	ELEV
EDGE OF PAVEMENT	EP
EASEMENT	ESMT
END VERTICAL CURVE ELEVATION	EVCE
END VERTICAL CURVE STATION	EVCS
EXISTING	EX
FINISHED GRADE	FG
FIRE HYDRANT	FH
FLOW LINE	FL
FIBER ROLL	FR
GAS	G
GRADE BREAK	GB
GAS METER	GM
HOT MIX ASPHALT	HMA
INVERT ELEVATION	INV
LINE #	L
LINEAR FEET	LF
LIP OF GUTTER	LIP
LAYOUT LINE	LOL
LEFT	LT
MAXIMUM	MAX
MANHOLE	MH
MINIMUM	MIN
MODULAR BLOCK WALL	MBW
MILES PER HOUR	MPH
NOT TO SCALE	NTS
NORTHING	N:
NORTHBOUND	NB
NATIONAL GEODETIC SURVEY	NGS
NUMBER	No.
NOMINAL PIPE SIZE	NPS
ORIGINAL GROUND	OG
PROFESSIONAL ENGINEER	P.E.
PULLBOX	PB
POINT OF CURVATURE	PC
PORTLAND CEMENT CONCRETE	PCC
PORTABLE CHANGEABLE MESSAGE SIGN	PCMS
PACIFIC GAS & ELECTRIC	PG&E
PERMANENT IDENTIFIER	PID
PROPERTY LINE	PL
POINT OF BEGINNING	POB
POINT OF END	POE
POINT OF REVERSE CURVATURE	PRC
POINT OF TANGENCY	PT
POLYVINYL CHLORIDE	PVC
POINT OF VERTICAL INTERSECTION ELEVATION	PVIE
POINT OF VERTICAL INTERSECTION STATION	PVIS
RADIUS	R
REGISTERED CIVIL ENGINEER	R.C.E.
REINFORCED CONCRETE PIPE	RCP
RETAINING	Ret
RIGHT OF WAY	ROW
ROCK SLOPE PROTECTION	RSP
RIGHT	RT
RETAINING WALL	RW
SLOPE	S
SOUTHBOUND	SB
STORM DRAIN	SD
STORM DRAIN MANHOLE	SDMH
SHOULDER	SHLD
SQUARE FEET	SQFT
STATE ROUTE 99	SR99
SANITARY SEWER	SS
SANITARY SEWER MANHOLE	SSMH
STREET	ST
STATION	STA
STANDARD	STD
SIDEWALK	SW
TOP OF CURB	TC
TEMPORARY CONSTRUCTION EASEMENT	TCE
TEMPORARY HIGH VISIBILITY FENCE	THVF
TYPICAL	TYP
UNDERGROUND	UG
VARIES	VAR
VERTICAL CURVE	VC
WATER	W
WAYFINDING	WF
WATER METER	WM

PREPARED BY OR UNDER THE SUPERVISION OF:

DANIEL LIERLY, P.E.
P.E. NO. 89563

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____
STATE OF CALIFORNIA

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

APPROVED BY: _____
BRENDAN OTTOBONI, P.E.
PUBLIC WORKS DIRECTOR – ENGINEERING
CITY OF CHICO, CALIFORNIA
DATE: _____

60% PLANS NOT FOR CONSTRUCTION

Title: BIG CHICO CREEK EROSION REPAIR

Drawing Path: J:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_ab01.dwg – 1 TITLE, Mon, Jun 30 2025 – 4:01:43pm, jmodden

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record

Drawing Number

Designed: DL	Approved: ROB BURNS	Revision	Date	By	CITY OF CHICO PUBLIC WORKS DEPARTMENT
Drawn By: JM	Date: 03/05/2025				DOKKEN ENGINEERING 110 BLUE RAVINE ROAD SUITE 200, FOLSOM CA. 916-858-0642
Checked: AOF					BIG CHICO CREEK EROSION REPAIR

Project Number: 50497–002–4140
Scale:
Drawing Number T–1
Sheet 01 of 10

NOTES:

THE CONTRACTOR SHALL NOTIFY THE CITY OF CHICO AT (530) 879–6910, 48 HOURS PRIOR TO THE INTENTION TO BEGIN CONSTRUCTION.

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF CHICO IMPROVEMENT STANDARDS AND SPECIFICATIONS, APPLICABLE PORTIONS OF THE BUTTE COUNTY IMPROVEMENT STANDARDS AND APPLICABLE PORTIONS OF THE 2006 STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS. APPROVAL BY THE CITY IS REQUIRED. CONTRACTOR SHALL HAVE SIGNED PLANS IN HIS POSSESSION PRIOR TO COMMENCEMENT OF WORK.

LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE EXISTENCE, LOCATION, AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UNDERGROUND FACILITIES OR OTHER BURIED OBJECTS WHICH MAY BE ENCOUNTERED BUT WHICH ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (USA) AT (800) 227–2600 OR 811 AT LEAST 3 DAYS PRIOR TO CONSTRUCTION. THE CITY OF CHICO IS NOT A MEMBER OF UNDERGROUND SERVICE ALERT (USA). THE CONTRACTOR SHALL CALL THE CITY OF CHICO AT (530) 894–4200 AND REQUEST MARKING OF CITY OWNED FACILITIES AT LEAST 72 HOURS (3 WORKING DAYS) PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING MONUMENTS AND OTHER SURVEY MARKERS DURING CONSTRUCTION. ALL SUCH MONUMENTS OR MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.

ALL PERMITS REQUIRED FOR THIS JOB ARE TO BE ACQUIRED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.

AC SURFACES TO BE JOINED, SHALL BE SAW CUT TO A NEAT STRAIGHT LINE AND THE EXPOSED EDGES SHALL BE TACKED WITH EMULSION PRIOR TO PAVING.

TRANSITION ALL DRIVEWAYS, SIDEWALKS AND RAMPS TO EXISTING SURFACE. TRANSITION SHALL MATCH EXISTING MATERIAL (AC, CONCRETE, SOD, ETC.). THIS WORK SHALL BE CONSIDERED INCLUDED IN OTHER ITEMS OF WORK AND NO SEPARATE PAYMENT WILL BE ALLOWED UNLESS NOTED ON PLANS.

TRENCH SHEETING, SHORING AND BRACING SHALL BE INSTALLED FOR ANY TRENCH OR BORING AND JACKING PIT FIVE FEET OR MORE IN DEPTH. SHORING SYSTEM SHALL CONFORM TO THE LATEST EDITION OF THE STATE DIVISION OF INDUSTRIAL SAFETY CONSTRUCTION SAFETY ORDERS, SECTIONS 1539 – 1542 PURSUANT TO STATE ASSEMBLY BILL NO. 150 DATED OCTOBER 2, 1973 AND CAL OSHA STANDARDS.

ANY PRIVATE FACILITIES OR UTILITIES IN CONFLICT WILL BE RELOCATED AT THE CONTRACTORS EXPENSE.

ALL EXPOSED SURFACES SHALL BE REVEGETATED AS SOON AS POSSIBLE.

PRIOR TO FINAL PAYMENT, THE CONTRACTOR SHALL SUBMIT ONE FULL SIZE SET (24"X36") OF AS–BUILT PLANS TO THE CITY.

CONCRETE REMOVAL AND REPLACEMENT SHALL BE STRAIGHT SAW CUT TO MATCH EXISTING SCORE MARKS OR EXPANSION JOINTS. DRIVEWAYS AND CURBS AND GUTTERS SHALL BE DOWELLED WITH #4 REBAR. CURB AND GUTTER SHALL HAVE 3 DOWELS PER SIDE, DRIVEWAYS AND SIDEWALK WITHIN DRIVEWAY SHALL HAVE DOWELS AT 18" ON CENTER, 6" MINIMUM FROM EDGES, BOTH SIDES. DOWEL MUST BE SNUG FIT IN HOLE OR EPOXIED.

CONCRETE FINISH SHALL MATCH EXISTING. REPLACE ALL IMPACTED PAVEMENT MARKINGS IN KIND, IN THEIR ENTIRETY. REPAIR IMPACTED SPEED BUMPS IN KIND.

SEWER NOTES:

CONTRACTOR SHALL MAKE ANY ADJUSTMENTS NECESSARY TO AVOID SEWER LINE PIPE JOINTS NEAR STORM DRAIN CROSSINGS.

THE LOCATION OF THE SEWER LATERAL SHALL BE REFERENCED BY THE LETTER "S", MINIMUM HEIGHT 2.5", CAST IN THE TOP OF THE CURB OVER THE SEWER LATERAL OR CHISELED INTO THE TOP OF EXISTING CURB.

60% PLANS NOT FOR CONSTRUCTION

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record Drawing Path: J:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_ab02.dwg – AB02– NOTES, Mon, Jun 30, 2025 – 4:01:45pm, jmadden

Title: BIG CHICO CREEK EROSION REPAIR

Drawing Number T–2

Designed: DL	Approved: ROB BURNS	Revision	Date	By	CITY OF CHICO PUBLIC WORKS DEPARTMENT
Drawn By: JM	Date: 03/05/2025				
Checked: AOF					

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BIG CHICO CREEK EROSION REPAIR
GENERAL NOTES

Project Number: 50497–002–4140	Drawing Number T–2
Scale: NO SCALE	Sheet 02 of 10

PERMANENT REPAIR AREA

TEMPORARY CONSTRUCTION DISTURBANCE AREA

TEMPORARY FIBER ROLL

TEMPORARY COFFER DAM

ESA FENCING

60% PLANS NOT FOR CONSTRUCTION

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record Drawing Path: J:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_e001.dwg – e001, Mon, Jun 30 2025 – 4:01:46pm, jmadden

Title: BIG CHICO CREEK EROSION REPAIR

Drawing Number

Designed:	DL	Approved: ROB BURNS	Revision	Date	By
Drawn By:	JM				
Checked:	AOF	Date: 03/05/2025			

CITY OF CHICO
PUBLIC WORKS DEPARTMENT

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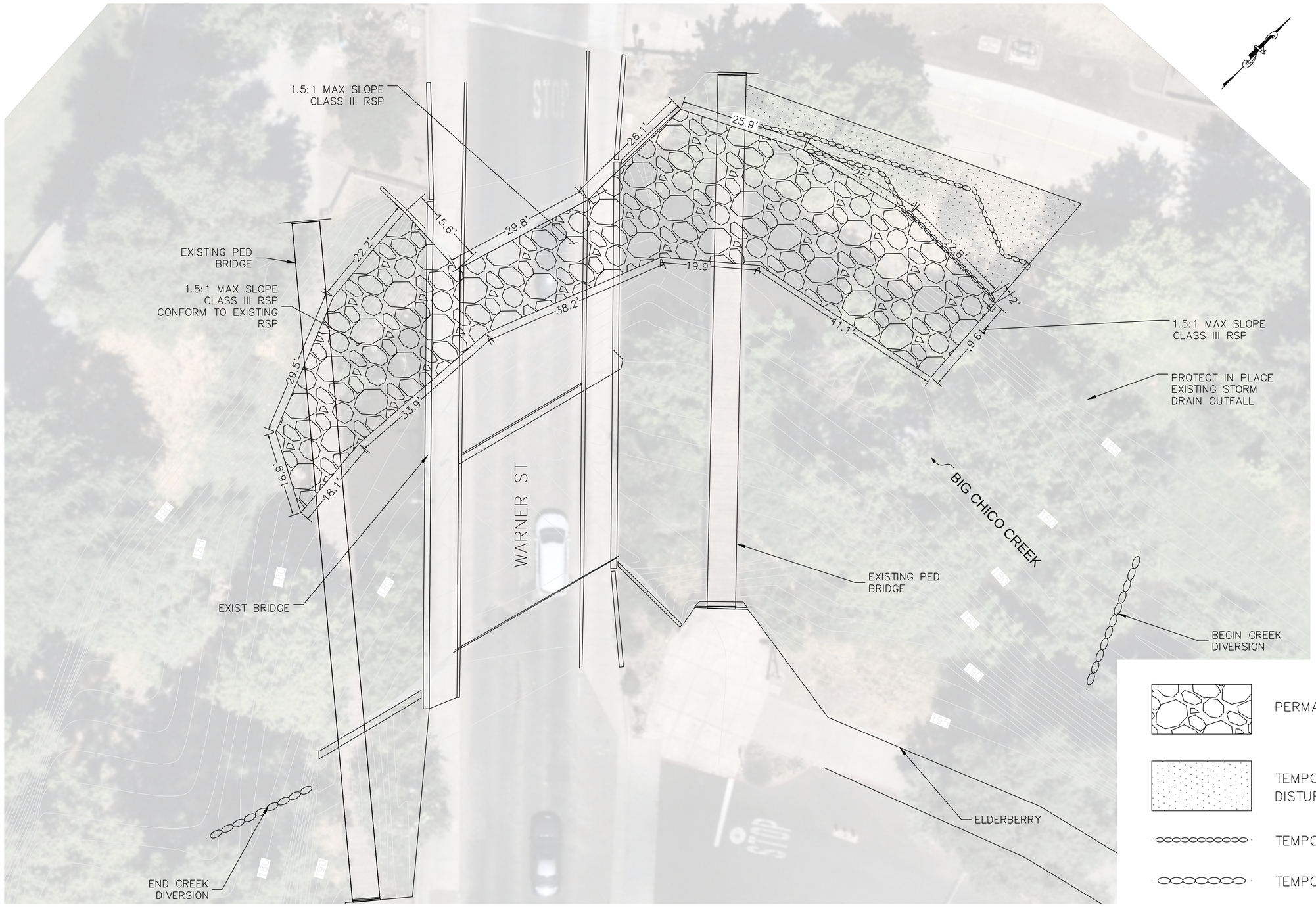
BIG CHICO CREEK EROSION REPAIR
LAYOUT PLAN – ROSE AVE

Project Number: 50497–002–4140	Drawing Number L–1
Scale: SCALE: 1"=10'	Sheet 03 of 10

Sheet — of 08



60% PLANS NOT FOR CONSTRUCTION

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record Drawing Path: J:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_es01.dwg — es02, Mon, Jun 30, 2025 - 4:01:48pm, jmadden

Title: BIG CHICO CREEK EROSION REPAIR

Drawing Number

Designed: DL	Approved: ROB BURNS	Revision	Date	By
Drawn By: JM				
Checked: AOF	Date: 03/05/2025			

CITY OF CHICO
PUBLIC WORKS DEPARTMENT

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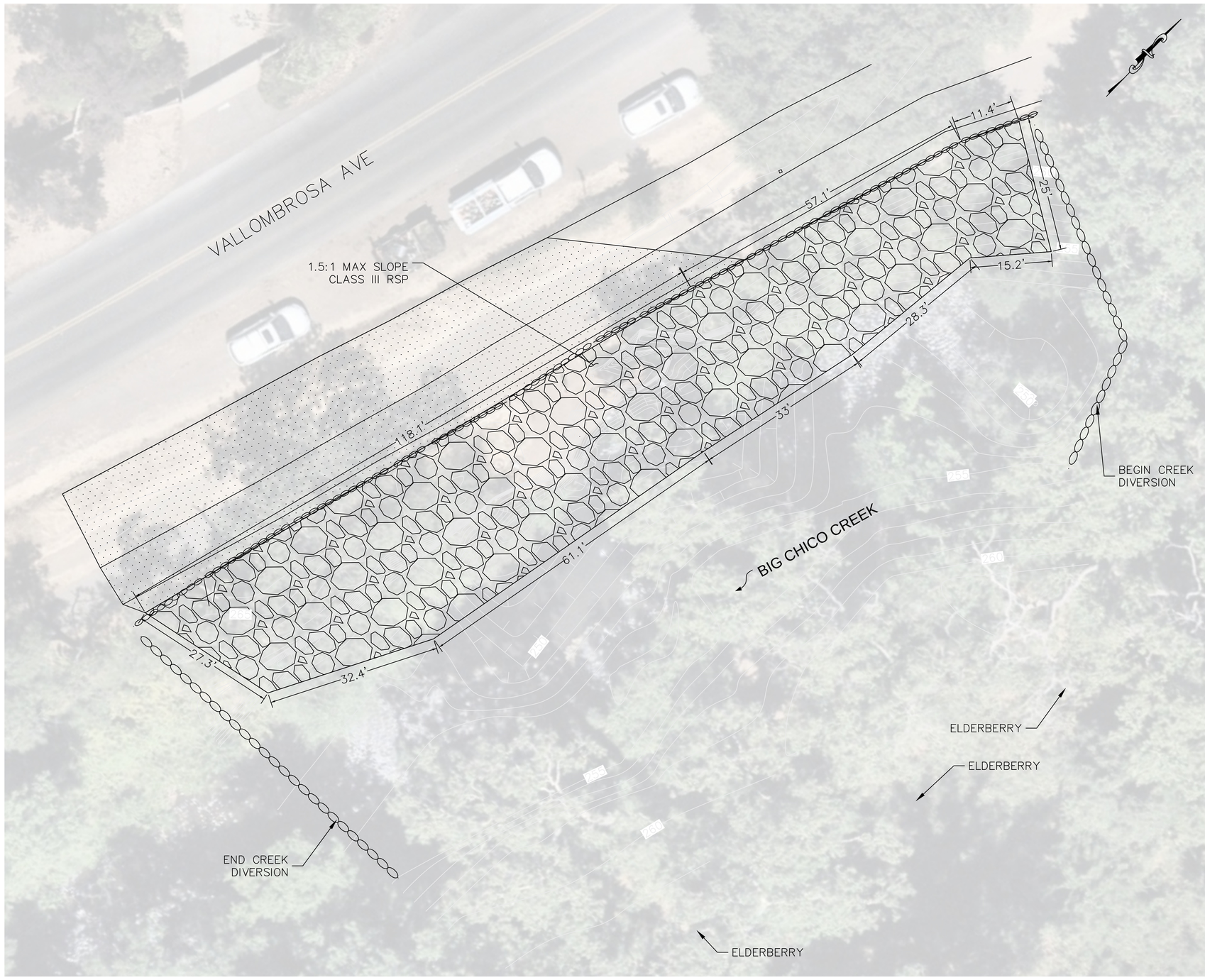
BIG CHICO CREEK EROSION REPAIR
LAYOUT PLAN – WARNER ST

Project Number: 50497-002-4140	Drawing Number L-2
Scale: SCALE: 1"=10'	Sheet 04 of 10



NOTES:

1. FOR RSP, SEE SHEET DD–1.

PERMANENT REPAIR AREA

TEMPORARY CONSTRUCTION DISTURBANCE AREA

TEMPORARY FIBER ROLL

TEMPORARY COFFER DAM

60% PLANS NOT FOR CONSTRUCTION

Title: BIG CHICO CREEK EROSION REPAIR

Drawing Number

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record Drawing Path: J:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_ee01.dwg — ee03, Mon, Jun 30 2025 — 4:01:51pm, jmadden

Designed: DL	Approved: ROB BURNS	Revision	Date	By	CITY OF CHICO PUBLIC WORKS DEPARTMENT
Drawn By: JM					
Checked: AOF	Date: 03/05/2025				

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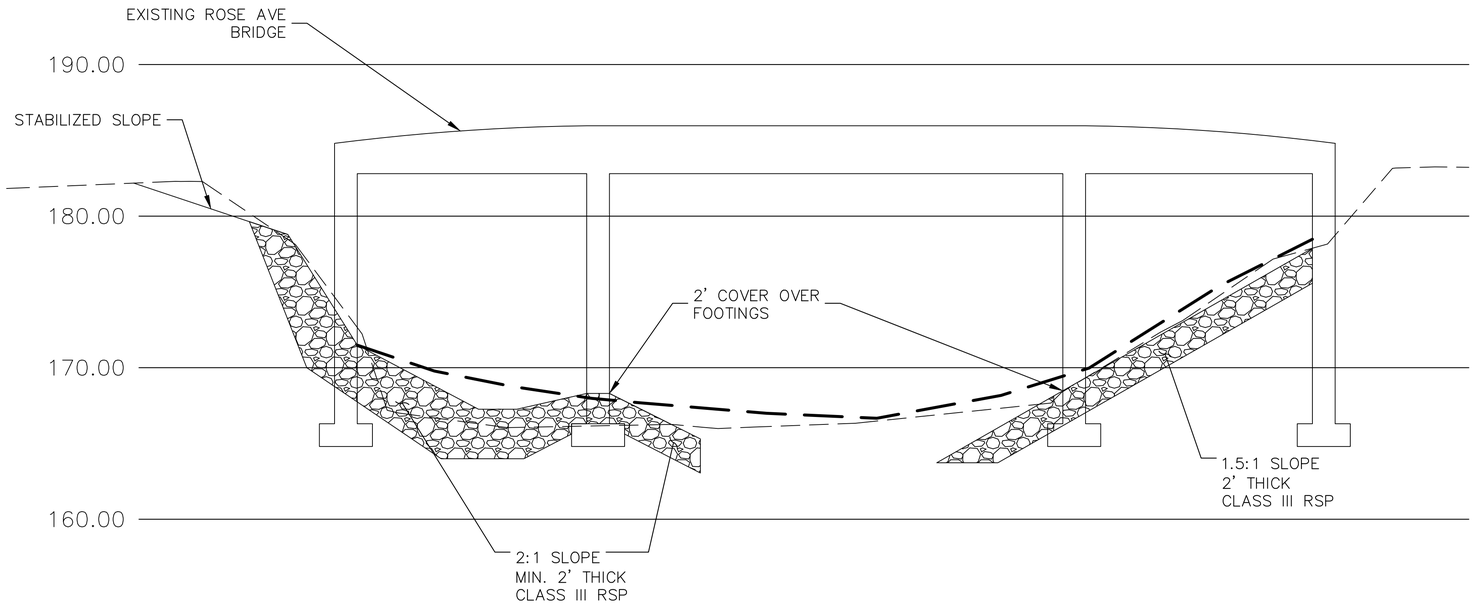
BIG CHICO CREEK EROSION REPAIR
LAYOUT PLAN – VALLOMBROSA AVE

Project Number: 50497–002–4140	Drawing Number L–3
Scale: SCALE: 1"=10'	Sheet 05 of 10

Sheet — of 08

ROSE AVENUE BRIDGE

UPSTREAM FACE CROSS SECTION



LEGEND

- CLASS III RSP
- 2016 BRIDGE INSPECTION REPORT CHANNEL SURFACE
- EXISTING SURFACE
- PROPOSED SURFACE

60% PLANS NOT FOR CONSTRUCTION

Drawing Number

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record Drawing Path: J:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_es01.dwg — S-1, Mon, Jun 30 2025 - 4:01:51pm, jmadden

Title: BIG CHICO CREEK EROSION REPAIR

Designed: DL	Approved: ROB BURNS	Revision	Date	By	CITY OF CHICO PUBLIC WORKS DEPARTMENT
Drawn By: JM					
Checked: AOF	Date: 03/05/2025				

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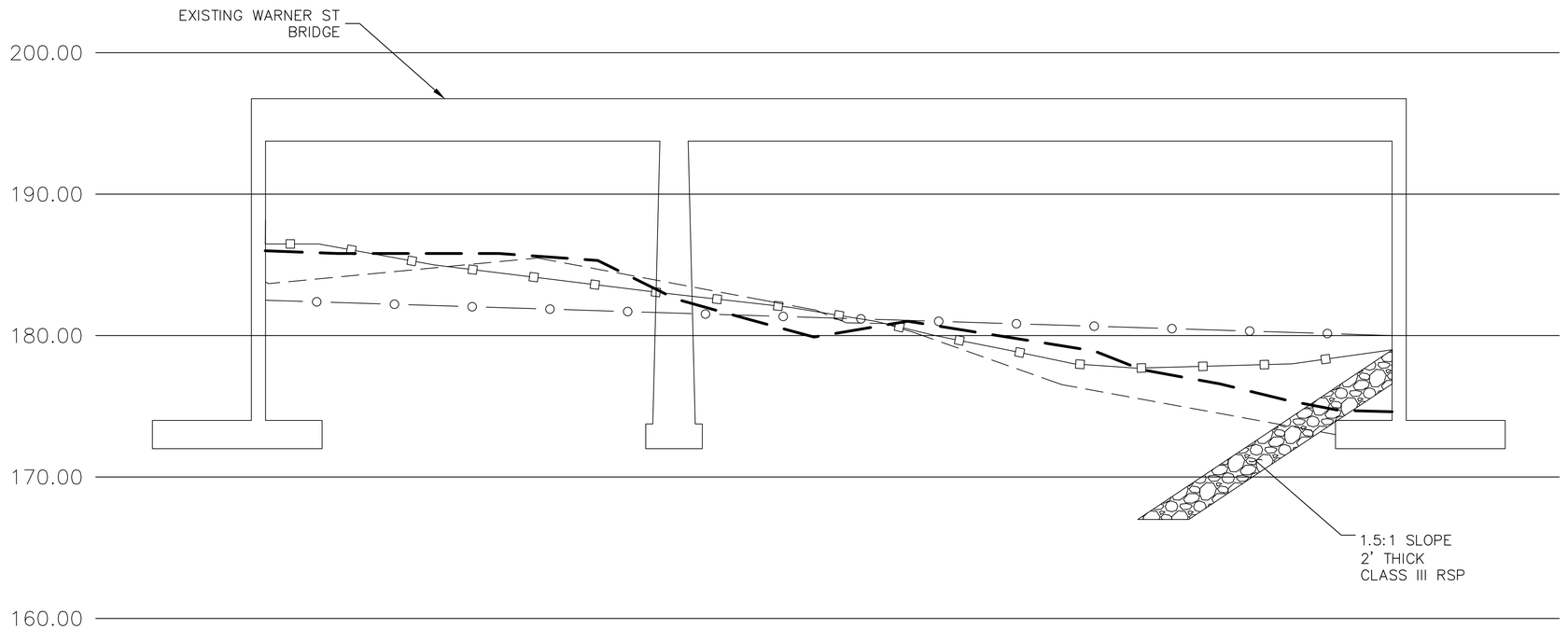
BIG CHICO CREEK EROSION REPAIR
DESIGN SECTION – ROSE AVE

Project Number: 50497-002-4140	Drawing Number S-1
Scale: SCALE: 1"=5'	Sheet 06 of 10

Sheet — of 08

WARNER STREET BRIDGE

UPSTREAM FACE CROSS SECTION



LEGEND

- CLASS III RSP
- 2016 BRIDGE INSPECTION REPORT CHANNEL SURFACE
- CHANNEL SURFACE PER 16471 PERMIT PLAN CONTOURS
- 1977 AS-BUILT SURFACE
- EXISTING SURFACE

60% PLANS NOT FOR CONSTRUCTION

Title: BIG CHICO CREEK EROSION REPAIR

Drawing Number

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record Drawing Path: J:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_es01.dwg — S-2, Mon, Jun 30 2025 - 4:01:51pm, jmadden

Designed: DL	Approved: ROB BURNS	Revision	Date	By	CITY OF CHICO PUBLIC WORKS DEPARTMENT	BIG CHICO CREEK EROSION REPAIR DESIGN SECTION – WARNER STREET
Drawn By: JM						
Checked: AOF	Date: 03/05/2025					

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Project Number:	Drawing Number
50497-002-4140	S-2
Scale: SCALE: 1"=5'	Sheet 07 of 10

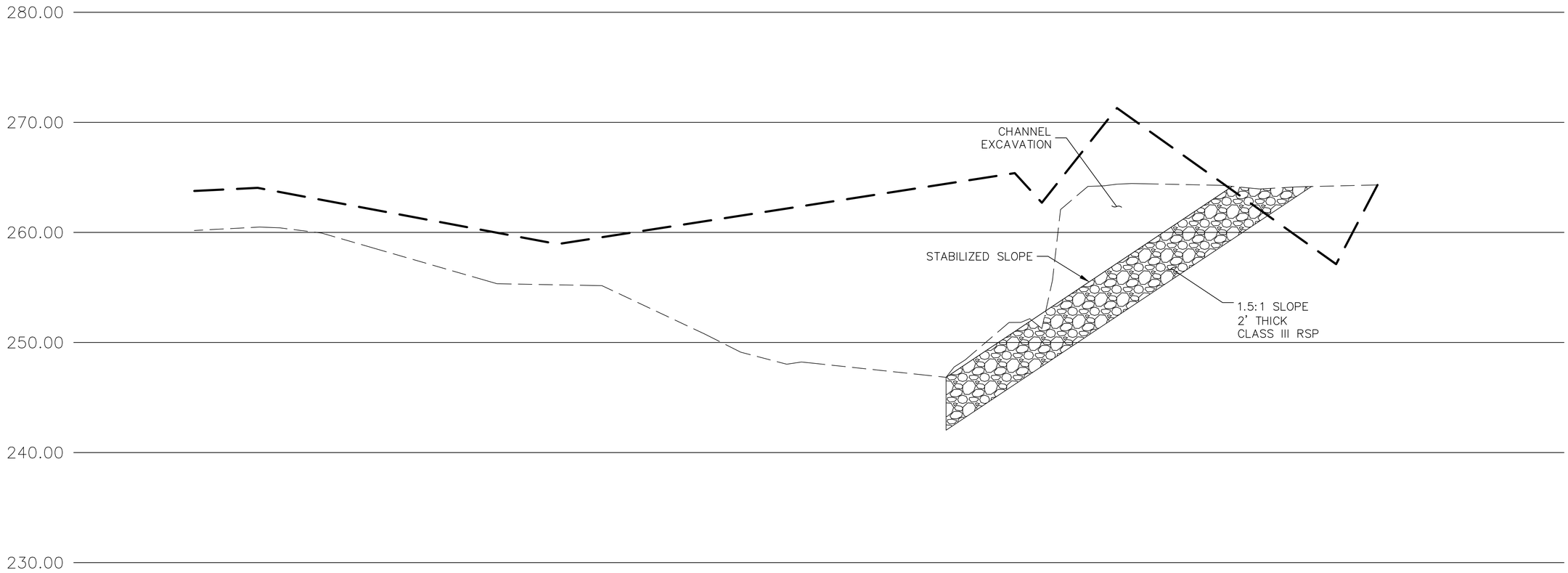
Sheet — of 08

VALLOMBROSA AVENUE

TYPICAL CROSS SECTION

LEGEND

- CLASS III RSP
- 2015 HEC–RAS CROSS SECTION GENERATED BY NRO
- EXISTING SURFACE
- PROPOSED SURFACE



60% PLANS NOT FOR CONSTRUCTION

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record Drawing Path: J:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_es01.dwg — S-3, Mon, Jun 30 2025 - 4:01:53pm, jmadden

Title: BIG CHICO CREEK EROSION REPAIR

Drawing Number

Designed: DL	Approved: ROB BURNS	Revision	Date	By	CITY OF CHICO PUBLIC WORKS DEPARTMENT
Drawn By: JM	Date: 03/05/2025				
Checked: AOF					

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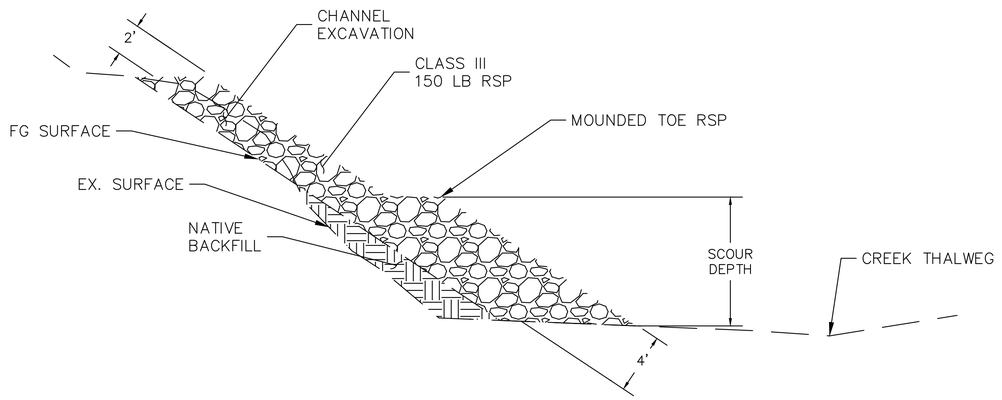
BIG CHICO CREEK EROSION REPAIR
DESIGN SECTION – VALLOMBROSA AVE

Project Number: 50497–002–4140	Drawing Number S–1
Scale: SCALE: 1"=5'	Sheet 08 of 10



MOUNDED TOE RSP DETAIL
5' = 1"

60% PLANS NOT FOR CONSTRUCTION

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record Drawing Path: J:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_ic01.dwg - ic-1 (RSP), Mon, Jun 30 2025 - 4:01:53pm, jmodden

Title: BIG CHICO CREEK EROSION REPAIR

Drawing Number

Designed: DL	Approved: ROB BURNS	Revision	Date	By	CITY OF CHICO PUBLIC WORKS DEPARTMENT
Drawn By: JM	Date: 03/05/2025				
Checked: AOF					

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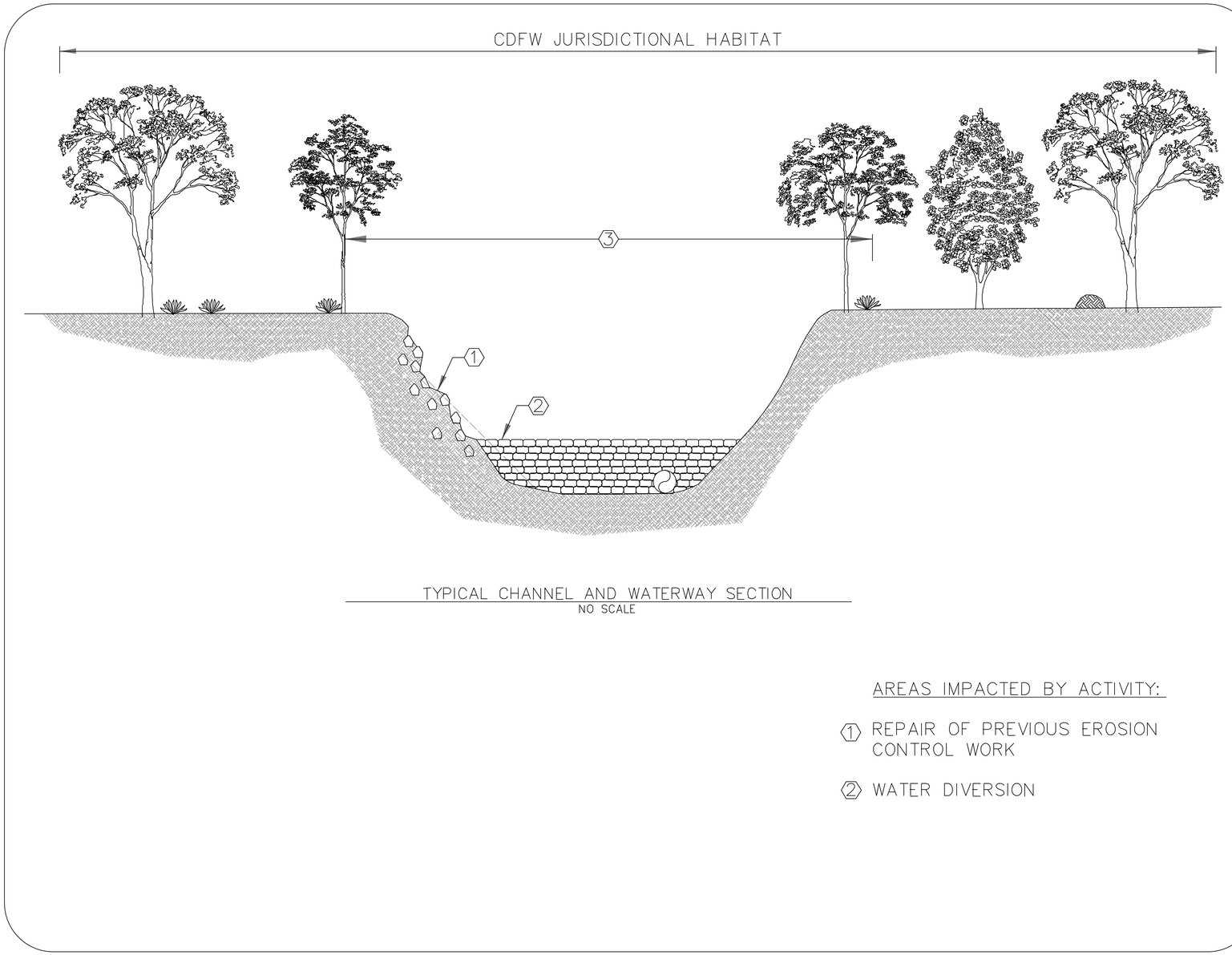
BIG CHICO CREEK EROSION REPAIR
DRAINAGE DETAILS

Project Number:	Drawing Number
50497-002-4140	DD-1
Scale:	Sheet 09 of 10



TYPICAL CHANNEL AND WATERWAY SECTION
NO SCALE

AREAS IMPACTED BY ACTIVITY:

1. REPAIR OF PREVIOUS EROSION CONTROL WORK
2. WATER DIVERSION

60% PLANS NOT FOR CONSTRUCTION

Title: BIG CHICO CREEK EROSION REPAIR

Drawing Number

Plan Status: ☒ Conceptual, ☐ Approved Final, ☐ Record Drawing Path: i:\2833_Chico_On-Call_Structural_Engineering\T010_Big Chico Creek Erosion Repair\511\2833_tf01.dwg – temp clear water div., Mon, Jun 30 2025 – 4:01:56pm, jmadden

Designed: DL	Approved: ROB BURNS	Revision	Date	By	CITY OF CHICO PUBLIC WORKS DEPARTMENT
Drawn By: JM					
Checked: AOF	Date: 03/05/2025				

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BIG CHICO CREEK EROSION REPAIR
TEMPORARY CLEAR WATER DIVERSION EXHIBIT

Project Number: 50497-002-4140
Scale:
Drawing Number TCD-1
Sheet 10 of 10