

Lake County Bridge Replacement Project NES



Natural Environment Study

Wolf Creek Road Over Upper Wolf Creek Bridge Replacement Project

Spring Valley

Federal Project No. BRLO-5914(095), Bridge Number 14C-0049
District 1-Lake County

September 2018



Natural Environment Study

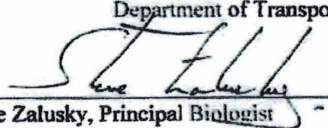
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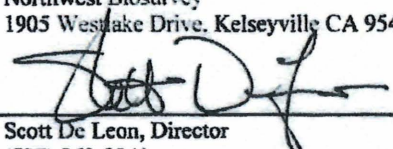
STATE OF CALIFORNIA
Department of Transportation

Prepared By:


Steve Zalusky, Principal Biologist
(707) 889-1061
Northwest Biosurvey
1905 Westlake Drive, Kelseyville CA 95451

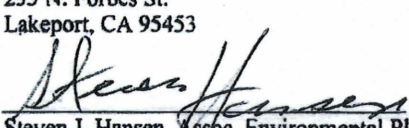
Date: 11-5-18

Approval By:


Scott De Leon, Director
(707) 263-2341
Lake County Department of Public Works.
255 N. Forbes St.
Lakeport, CA 95453

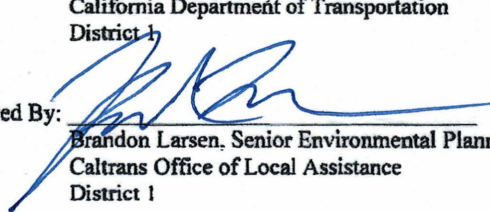
Date: 11-6-2018

Approved By:


Steven J. Hansen, Assoc. Environmental Planner
California Department of Transportation
District 1

Date: 11-7-2018

Approved By:


Brandon Larsen, Senior Environmental Planner
Caltrans Office of Local Assistance
District 1

Date: 11/08/18

Summary

The Lake County Department of Public Works, in cooperation with the California Department of Transportation (Caltrans) and Federal Highway Administration (FHA), is proposing to replace an existing bridge (Bridge No. 14C-0049) over Wolf Creek at Wolf Creek Road. The project is located near the intersection of Wolf Creek Road and Spring Valley Road in the Spring Valley Lakes community in eastern Lake County, approximately five miles northeast of Clearlake Oaks. The proposed project will replace the existing bridge, Bridge No. 14C-0049, where Wolf Creek Road crosses Upper Wolf Creek.

The bridge has a sufficiency rating (SR) of 60.1 and has been designated as functionally obsolete (FO) per the Caltrans Structure Maintenance & Investigations, Local Agency Bridge List (July 2015). The most recent sufficiency rating (11/2017) is 55.4. The functionally obsolete designation is a result of the insufficient deck width. Wolf Creek Road is a two-lane road and the clear width of the existing bridge is too narrow to support standard lane and shoulder widths for a two-lane facility. Additionally, the existing bridge fails to meet the current Caltrans design standard for freeboard requirements. Hydraulic studies indicate that the existing bridge may be overtopped during a 100-year storm event.

The replacement bridge will be wider to comply with current AASHTO standards for local rural roads, including 9-foot travel lanes and 2-foot shoulders, plus crash-tested vehicular barriers. The replacement bridge will be approximately 84 feet long. This length is appropriate for a two-span bridge, which matches the existing bridge configuration, or a single span bridge, which would reduce the construction duration and increase the hydraulic capacity of the channel.

The project need is to provide a safe permanent crossing over Wolf Creek at this location since the existing structure has been designated as Functionally Obsolete as discussed previously. The primary objective is to replace the Functionally Obsolete structure to improve public safety and to provide for a structure that has long-term value for the County.

The purpose of the proposed project is to provide a replacement structure that is consistent with appropriate Caltrans structural design standards, is placed on a road alignment that meets the appropriate AASHTO roadway geometry standards and is hydraulically capable of passing and clearing the design storm events (50-year storm plus 2 feet of freeboard and 100-year storm).

A creek diversion system using temporary coffer dams and culverts will be used to divert and purvey flow through the construction zone. The stream diversion will be designed in conformance with County specifications and regulations as required by the California Department of Fish and Wildlife (CDFW). The temporary cofferdams and culverts will be

completely removed after the completion of the replacement bridge construction, the placement of rock slope protection (RSP), and the removal of the existing bridge.

Because the proposed bridge is relatively short, falsework beams will be able to span from one abutment to the other without the need for falsework bents or other temporary supports in the creek channel.

Impacted Habitat: The Biological Study Area (BSA) encompasses 21.79 acres including existing roadways, structures, and other disturbed areas as well as undisturbed natural habitat. The area of actual ground disturbing activities (Project Impact Area [PIA]) is limited to 1.98 acres within the bridge replacement area. These impacts include vegetation removal or trimming, soil excavation and grading, backfill and compaction, stream channel work, new bridge foundation construction, and placement of rock slope protection. Some potential impacts will be permanent, such as the modification of vegetation at the location of the permanent structure, approaches, and piers.

Special Status Species Impacted: Within the context of the federal Endangered Species Act (FESA) this project will have no effect on federally listed species. Within the context of the California Endangered Species Act (CESA), the project may affect one candidate for listing as threatened, the foothill yellow-legged frog. However, with the implementation of avoidance and minimization measures listed in Section 4.3.2, take of the species is unexpected. It should be noted that any take of a state listed species requires that an Incidental Take Permit (ITP) be obtained from the California Department of Fish and Wildlife. In addition, there is the potential for several California Species of Special Concern and Fully Protected species and their associated habitat to be present within the BSA and these include western pond turtle, bald eagle, white-tailed kite, yellow warbler, yellow breasted chat, north American river otter, and the pallid bat.

Special Status Plant Species: No state or federal listed plant species, or other species with sensitive regulatory status in California, occur within the BSA. Although there is no sensitive regulatory status for oak trees, including blue oak, local agencies and project proponents are encouraged to protect and mitigate for the loss of oak trees under the California's 2001 Oak Conservation Act. Appropriate mitigation ratios will be determined during the permitting phase.

Natural Communities of Special Concern:

There are no natural communities of special concern listed in the Benmore Canyon quadrangle. As described above, while no sensitive status has been given to oak woodlands, local agencies

and project proponents are encouraged to protect oak woodlands under California's 2001 Oak Conservation Act.

Required Permits: Permits will be required for this project from the following agencies:

- California Department of Fish and Wildlife: 1602 Streambed Alteration Agreement
- U.S. Army Corps of Engineers: 404 Nationwide Permit
- Regional Water Quality Control Board: 401 Water Quality Certification
- Incidental Take Permit from CDFW for foothill yellow-legged frog, if required

Invasive Species: There are no significant invasive species affecting the banks and upper terraces of Wolf Creek. The floristic-level survey identified 47 species within the BSA, 16 of which are non-native (see **Appendix A**).

Beneficial Effects: The new bridge will provide safe access for residents and visitors over this part of Wolf Creek.

Mitigation Agreements: There are no species present with sensitive federal regulatory status and no federal agency mitigation agreements are required. If required, a mitigation agreement will be submitted to the California Department of Fish and Wildlife for foothill yellow-legged frog following the measures proposed in Section 4.3.2.4. If the California Department of Fish and Wildlife deems the mitigation agreement appropriately protects and prevents take of foothill yellow-legged frog, a consistency determination could be obtained rather than a full Incidental Take Permit.

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List of Abbreviated Terms

BA	Biological Assessment
BSA	Biological Study Area
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
FHA	Federal Highway Administration
FESA	Federal Endangered Species Act
ITP	Incidental Take Permit
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NMFS	National Marine Fisheries Service
PIA	Project Impact Area
RWQCB	Regional Water Quality Control Board
USFWS	U.S. Fish and Wildlife Service

Chapter 1. Introduction

1.1. Project History

The existing bridge was constructed in 1967 and is a simply supported modified two-span steel railroad car frame span with a timber plank deck on an RC pier and RC seat type abutments. It was founded on assumed spread footings.

The bridge has a sufficiency rating (SR) of 60.1 and has been designated as functionally obsolete (FO) per the Caltrans Structure Maintenance & Investigations, Local Agency Bridge List (July 2015). The functionally obsolete designation is a result of the insufficient deck width. Wolf Creek Road is a two-lane road and the clear width of the existing bridge is too narrow to support standard lane and shoulder widths for a two-lane facility. Additionally, the existing bridge fails to meet the current Caltrans design standard for freeboard requirements.

1.2. Project Description

1.2.1. Introduction

The project site is located near the intersection of Wolf Creek Road and Spring Valley Road in the Spring Valley Lakes community in eastern Lake County approximately 5 miles northeast of Clearlake Oaks (Attachment A, Figures 1 and 2, Regional and Project Location Map). The proposed project will replace the existing bridge, Bridge No. 14C-0049, where Wolf Creek Road crosses Upper Wolf Creek.

1.2.2. Project Purpose and Need

The bridge has a sufficiency rating (SR) of 60.1 and has been designated as functionally obsolete (FO) per the Caltrans Structure Maintenance & Investigations, Local Agency Bridge List (July 2015). The functionally obsolete designation is a result of the insufficient deck width. Wolf Creek Road is a two-lane road and the clear width of the existing bridge is too narrow to support standard lane and shoulder widths for a two-lane facility. Additionally, the existing bridge fails to meet the current Caltrans design standard for freeboard requirements. Hydraulic studies indicate that the existing bridge may be overtopped during a 100-year storm event.

The purpose of the proposed project is to provide a replacement structure that is consistent with appropriate Caltrans structural design standards, is placed on a road alignment that meets the appropriate AASHTO roadway geometry standards, and is hydraulically capable of passing and clearing the design storm events (50-year storm plus 2 feet of freeboard and 100-year storm).

1.2.3. Description

The replacement bridge will be wider to comply with current AASHTO standards for local rural roads, including 9-foot travel lanes and 2-foot shoulders, plus crash-tested vehicular barriers. The replacement bridge will be approximately 84 feet long. This length is appropriate for a two-span bridge, which matches the existing bridge configuration, or a single span bridge, which would reduce the construction duration and increase the hydraulic capacity of the channel.

It is anticipated that deep foundations will be needed to support the replacement bridge. The underlying formation of the soil is rock overlaid by alluvial fan deposits which have washed down from the mountains. The upper material is subject to scour; this is often best suited for concrete piles, as they can be designed to act as columns if the soil material scours away. The most feasible pile type will be determined during the type selection process, when further geotechnical information is available.

The two alternatives being considered can be constructed with either a single span or two-span bridge. The primary differences of the single vs. two-span alternative are that the single span alternative will require raising the roadway grade approximately 1'-8" higher than the existing profile (due to a larger structure depth as the single span bridge requires a deeper superstructure for the longer span), while the two-span bridge will not raise the existing roadway profile but will require construction of a pier and foundation in the creek (similar to the existing bridge which is a two-span structure).

Alternative 1: Constructing the Replacement Bridge by Fully Closing Wolf Creek Road

The replacement bridge may be constructed by fully closing Wolf Creek Road at the Upper Wolf Creek Bridge location and using a temporary detour to route public traffic around the project site. Closing the road will avoid the need to construct a temporary creek crossing. Due to the close proximity of the intersection with Spring Valley Road, staging the construction of the replacement bridge is not a viable option. For residents directly adjacent to the bridge location the temporary detour would take about 10 minutes and would be approximately 3 miles in length.

Alternative 2: Constructing the Replacement Bridge Using a Temporary Creek Crossing

If closing the road is determined to be unacceptable, a temporary creek crossing will be built upstream (north) of the existing bridge to handle public traffic through the site during project construction. The installation of the temporary creek crossing will increase the field construction time over the time needed to construct the project using a full road closure. More extensive temporary construction easements will also be required from the private properties north of the bridge.

Demolition of the existing bridge will be performed in accordance with the Caltrans Standard Specifications modified to meet environmental permit requirements. All concrete and other debris resulting from the bridge demolition will be removed from the project site and disposed of by the contractor. The construction contractor will prepare a bridge demolition plan.

Demolition

Demolition of the existing bridge will be performed in accordance with the Caltrans Standard Specifications modified to meet environmental permit requirements. All concrete and other debris resulting from the bridge demolition will be removed from the project site and disposed of by the contractor. The construction contractor will prepare a bridge demolition plan.

Right-of-Way

Temporary construction easements will be needed for all seven of the adjacent properties to construct the project. If the construction of a temporary creek crossing is determined to be necessary, more extensive temporary construction easements will be needed from the two adjacent properties north of the existing bridge. Additional permanent right-of-way takes are not anticipated. Detailed easements have not been determined at this point.

Utilities

There are several utilities at the site, both overhead and underground. Overhead electric and communication lines run parallel to the bridge on the north side of Wolf Creek Road. These lines may need to be temporarily relocated or de-energized during the construction of the replacement bridge; to be determined as the design of the project progresses.

A 6-inch waterline, owned and operated by the Special Districts Administration, runs along the south side of Wolf Creek Road, and is attached to the superstructure of the existing bridge. This waterline will need to be relocated to the new structure.

Construction Activities

Project construction will consist of the following activities for both Alternatives 1 and 2:

- Removing trees
- Clearing and grubbing
- Earthwork grading
- Installing a temporary creek diversion system using temporary coffer dams and pipe culverts
- Removing the existing bridge

- Excavating for the replacement bridge abutment foundations
- Constructing the new abutments in the creek bank
- Placing temporary falsework within the creek channel
- Constructing the replacement bridge superstructure
- Placing rock slope protection along the creek banks in the vicinity of the new bridge abutments
- Reconstructing the road approaches
- Placing post construction erosion control native grass seeds and mulch

Alternative 2 will have the following additional construction activities:

- Construction of a temporary creek crossing upstream of the existing bridge to handle public traffic through the site during construction. The temporary creek crossing would require either two additional bridge abutment foundations to support a temporary bridge structure.
- Additional earthwork grading and pavement for the temporary bridge crossing approaches.

If the two-span option is constructed instead of a single span bridge option, the project will have the following additional construction activities:

- Excavating for the replacement bridge pier wall foundations
- Constructing new pier walls within the creek channel

The table below provides a description of the type of equipment likely to be used during the construction of the proposed project.

Equipment	Construction Purpose
Drill Rig	Construction of drilled or driven pile foundations
Backhoe	Soil manipulation + drainage work
Bobcat	Fill distribution
Bulldozer / Loader	Earthwork construction + clearing and grubbing
Crane	Placement of precast concrete girders or false work beams
Dump Truck	Fill material delivery
Excavator	Soil manipulation
Front-End Loader	Dirt or gravel manipulation
Grader	Ground grading and leveling
Haul Truck	Earthwork construction + clearing and grubbing
Roller / Compactor	Earthwork and asphalt concrete construction
Paver	Asphalt concrete construction
Truck with seed sprayer	Erosion control landscaping
Water Truck	Earthwork construction + dust control
Generators	Power Hand Tools

The project will include the removal of a portion of the existing concrete slope pavement on the west bank of Wolf Creek and the placement of new Rock Slope Protection (RSP) on the west and east bank. The RSP size on both the west and east banks will be 1 Ton Rock (D50) and is anticipated to be 2 to 4 feet thick, with a key at the base of the slope. The key is anticipated to be 6-foot wide and extend into the ground at a depth to be determined in design, typically the scour elevation (a minimum 6-foot by 6-foot key is expected). The RSP on the west bank will extend approximately 125 feet long (measured along the creek alignment) centered with the bridge (62.5 feet upstream and downstream) by 55 feet wide (measured along the slope of the bank) for a total rough coverage area of 6,875 square feet and a volume of approximately 509 cubic yards. The RSP on the east bank will extend approximately 125 feet along the bank of Wolf Creek centered with the bridge and 30 feet up the bank of the creek for a total rough coverage area of 4,500 square feet and a volume of approximately 306 cubic yards. The existing downstream concrete apron, across the creek, will be protected in place and the 10-foot scour hole at the bottom of the apron will be repaired (most likely with replacing the lost concrete section in this area or with RSP). The project will not involve any other modifications to the downstream concrete apron or grouted boulders and they will be protected in place during construction.

Creek Diversion and Dewatering

The anticipated flow range in the Wolf Creek during the construction period for the project is 6 to 25 cubic feet per second (cfs). A creek diversion system will be used to divert flow through the construction zone and dewater the site during construction. The creek diversion system will consist of placing coffer dams upstream and downstream of the construction site and conveying the water from the Upper Wolf Creek through temporary culverts. The coffer dams may consist of sheet piles, clean gravel bags, water filled bladder dams, or another agency approved method. The approximate length of the diversion system will be 112 feet and impact approximately 7,850 square feet of waters of the U.S. Any temporary fill associated with the dewatering system will be removed at the end of construction returning the creek to its original condition. The temporary cofferdams and culverts will be completely removed after the removal of the existing bridge, completion of replacement bridge construction, the placement of RSP, and placement of the concrete sloped pavement. Any temporary fill associated with the dewatering system will be removed at the end of construction returning the creek to its original condition. Groundwater pumping, will most likely be required to construct the foundation of the west abutment and pier foundation. The pumped ground water would be treated and returned to the creek downstream of the project site.

The creek diversion system will be designed in conformance with County specifications and regulations as required by the California Department of Fish and Wildlife. Site dewatering will occur in conformance with County specifications, and regulations as required by the RWQCB and, California Department of Fish and Wildlife, and US Fish and Wildlife Service.

Demolition Work

Demolition of the existing bridge will be performed in accordance with the Caltrans Standard Specifications modified to meet environmental permit requirements. The following specifications will apply:

13-4.03D(3) Concrete Waste: Prevent the discharge of concrete and asphalt concrete waste into storm drain systems and receiving waters. Collect concrete waste, including grout, dust and debris from demolition, saw cutting, coring, grinding, or grooving, simultaneously with the waste-producing activity.

13-4.03E(6) Structure Removal Over or Adjacent to Water: Do not allow demolished material to enter storm drain systems and receiving waters. Use authorized covers and platforms to collect debris. Use attachments on equipment to catch debris during small demolition activities. Empty debris-catching devices daily and handle debris under section 13-4.03D.

All concrete and other debris resulting from the bridge demolition will be removed from the project site and disposed of by the contractor. The construction contractor will prepare a bridge demolition plan.

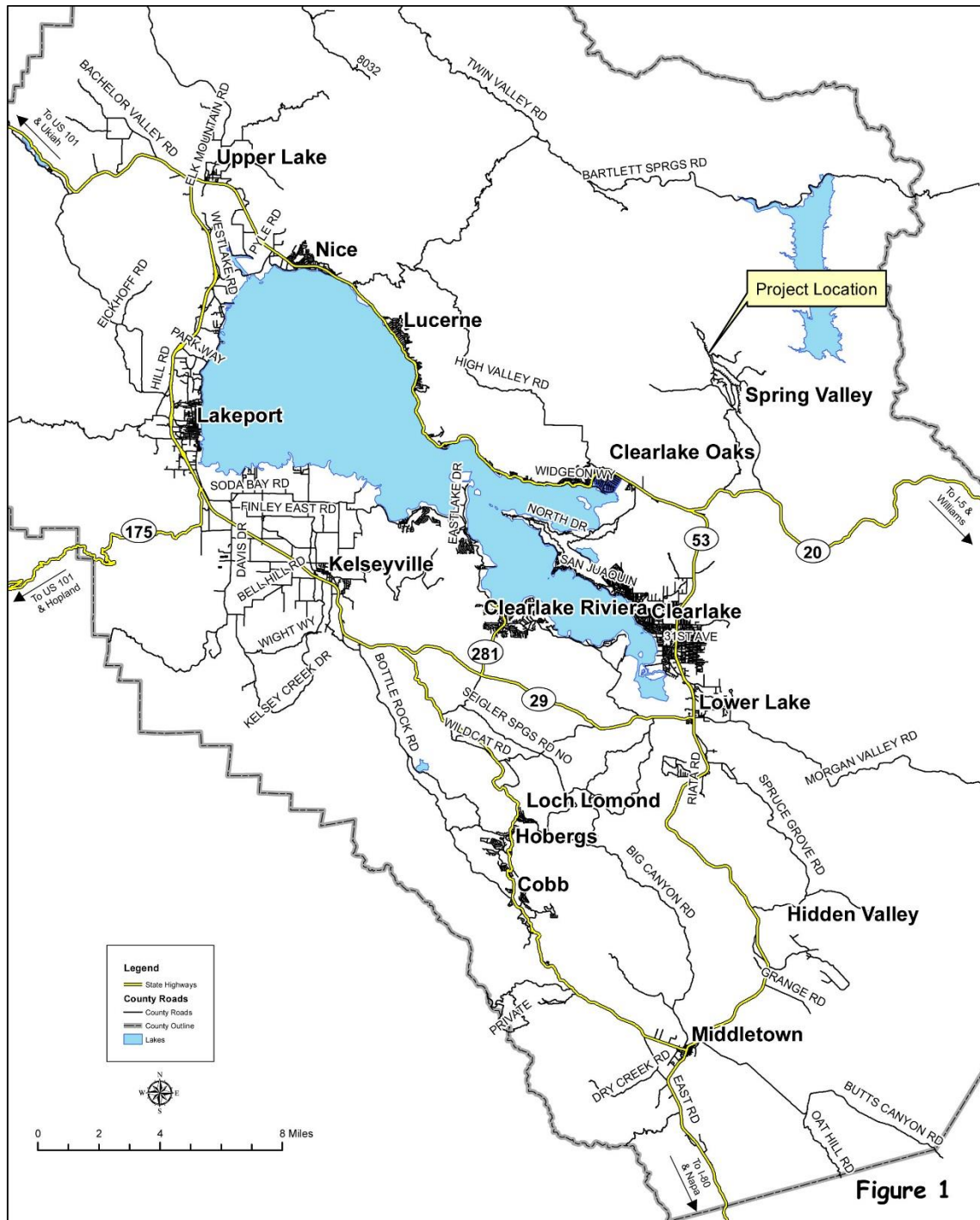
Staging Areas

The potential project staging areas are expected to be as shown in **Appendix G, Figure 3**. Staging of equipment and materials in either location will occur within the bounds of the PIA.

Construction Schedule and Timing

Construction of the proposed project is anticipated to take approximately 4 months to complete for Alternative 1, and an additional 2 months to complete for Alternative 2 due to the time to construct the temporary creek crossing. The estimated construction timeframe is dependent upon the scope of the final design, the alternative selected, and the construction methodology. All work within the Upper Wolf Creek channel will be conducted in accordance with the regulatory agency permits.

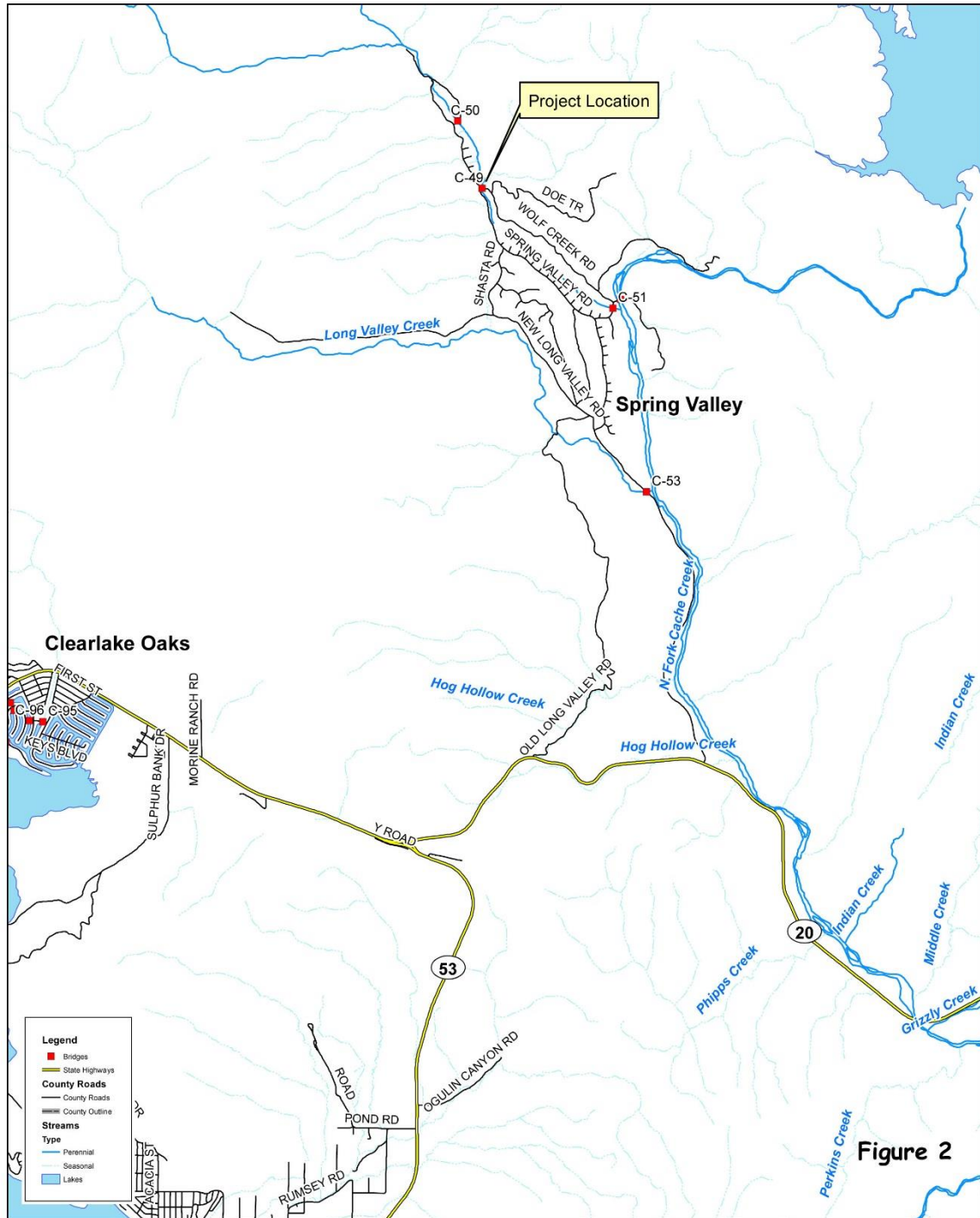
Figure 1. Location Map



**Wolf Creek Rd at Wolf Creek (14C-0049)
Bridge Replacement Project- Location Map**

Reference Scale: 1 inch = 4 miles (1:253,440)
Projection: California State Plane Zone II - NAD 83 - Feet

Figure 2. Vicinity Map



**Wolf Creek Rd at Wolf Creek (14C-0049)
Bridge Replacement Project- Vicinity Map**

Chapter 2. Study Methods

This NES includes pre-survey research, a floristic-level botanical survey, and a delineation of waters of the U.S. These studies are described below.

2.1. Regulatory Requirements

Construction may require the following permits or approvals:

- Construction General Permit 99-08-DWQ from the Regional Water Quality Control Board
- CEQA review by the Lake County Community Development Department (see below)

Any work within possible waters of the U.S. requires the following permits:

- U.S. Army Corps of Engineers 404 Permit or equivalent Nationwide Permit
- Regional Water Quality Control Board 401 Water Quality Certification
- California Department of Fish and Wildlife 1602 Streambed Alteration Agreement

While no county-initiated permits will be required for this county-initiated project by the Lake County Community Development Department, that agency will conduct an initial study and adopt a CEQA mitigated negative declaration. This CEQA review will also be required for the state agency permits listed above. This NES will also meet the National Environmental Policy Act (NEPA) review requirements of the federal agencies listed above.

2.2. Studies Required

No FESA-initiated studies were indicated based on the mandatory U.S. Fish and Wildlife Service (USFWS) species list for this location in Lake County (see **Appendix F**). The National Marine Fisheries Service does not have species within the project area and so a species list is not contained in this document. Because this document will also be used in CEQA review, pre-survey research and field studies were conducted for species with sensitive status in California: A full protocol floristic-level botanical survey and Corps of Engineers protocol delineation of waters of the U.S. were conducted during the spring and summer of 2016.

The pre-survey research consists of a comparison of existing habitat conditions within the project boundaries to the geographic range and habitat requirements of sensitive plants and

wildlife known to occur within the region. It includes all sensitive species that occupy habitats similar to those found in the project area and whose known geographic ranges encompass it. The analysis includes the following site characteristics:

- Location of the project area with regard to the geographic range of sensitive plant and wildlife species
- Location(s) of known populations of sensitive plant and wildlife species as mapped in the California Natural Diversity Database (CNDDDB) and RareFind 5
- Soils of the project area
- Elevation
- Presence or absence of special habitat features such as vernal pools and serpentine soils
- Plant communities existing within the project area

A full, in-season floristic-level survey was conducted for the project site. The survey area encompassed the project area and extended for a radius of 250 feet around the PIA. The CNDDDB report and map for the Benmore Canyon quadrangle were referenced prior to the survey. Vegetation communities were identified based on the nomenclature of *A Manual of California Vegetation* (Sawyer, et al. 2009) as modified by the California Native Plant Society (CNPS), and mapped on a 1"=100' aerial photo. Vegetation type names are based on an assessment of dominant cover species. Plants occurring on the site were identified using *The Jepson Manual of Higher Plants of California*. Where necessary, species names were updated based on the 6th edition, *CNPS Inventory of Rare and Endangered Plants of California*.

A protocol-level delineation of waters of the U.S. as outlined in the 1987 Corps of Engineers delineation manual and the 2008 Arid West Supplement is included in this assessment. The delineation and findings are provided in this report.

2.3. Personnel and Survey Dates

Personnel: The botanical field surveys, plant taxonomy, and the delineation were conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has over 30 years of experience as a biologist in the government and private sectors. He

completed his wetland delineation training under Terry Huffman of Huffman & Associates, Inc.

Field surveys, database review, and report preparation were conducted with the assistance of Danielle Zalusky, Northwest Biosurvey principal planner. Ms. Zalusky has a Bachelor of Arts Degree and has completed all course work toward an M.A. Degree in Rural and Town Planning from Chico State University. Ms. Zalusky served more than 20 years as a planner in local government and, prior to joining Northwest Biosurvey in 2002, was a senior planner for the Lake County Community Development Department.

Survey Dates: Site visits were made for botanical surveys, wildlife habitat assessments, and mapping for vegetation types and waterways on May 4, June 1, and July 15, 2016.

2.4. Agency Coordination and Professional Contacts

The initial agency contact between Caltrans and staff from the Lake County Department of Public Works was during the Caltrans field review in March 6, 2016.

Contributors include the following individuals:

Brandon Larsen	Caltrans, Senior Environmental Planner Caltrans Project Local Assistance
Mike Kelly	Caltrans, Assoc. Environmental Planner, Biologist
Steven J. Hansen	Caltrans, Assoc. Environmental Planner, Biologist
Fred Pezeshk	Lake County Dept. of Public Works, Principal Civil Eng.
Todd Mansell	Lake County Dept. of Public Works, Engineer
Mark Dellinger	Lake County Special Dist., Administrator
Tom Smythe	Lake County Water Resources Depart., Water Resources Eng.
Michael Pugh	Drake Haglan and Assoc.
Leslie Haglan	Drake Haglan and Assoc.
Steve Zalusky	Northwest Biosurvey, Principal Biologist, Document preparation (biological resources)
Danielle Zalusky	Northwest Biosurvey, Principal Planner Document preparation (planning and regulatory)

On July 26, 2018 a field visit was conducted on Upper Wolf Creek Bridge by Caltrans biologists Christa Unger, Steve Hansen, Caltrans Environmental Planner Vincent Heim, and Caltrans Archeologist, Darrel Cardiff (**Appendix H**).

2.5. Limitations That May Influence Results

All surveys were conducted following agency protocols and within the appropriate survey window. The following surveys were conducted:

- Floristic-level botanical survey pursuant to CDFW protocol
- Delineation of other waters of the U.S. (creeks and streams) pursuant to the 1987 COE Delineation Manual and 2008 Arid West Supplement

Northwest Biosurvey staff is not aware of any limitations that may influence the results of surveys conducted for this NES.

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Chapter 3. Results: Environmental Setting

Regional Setting

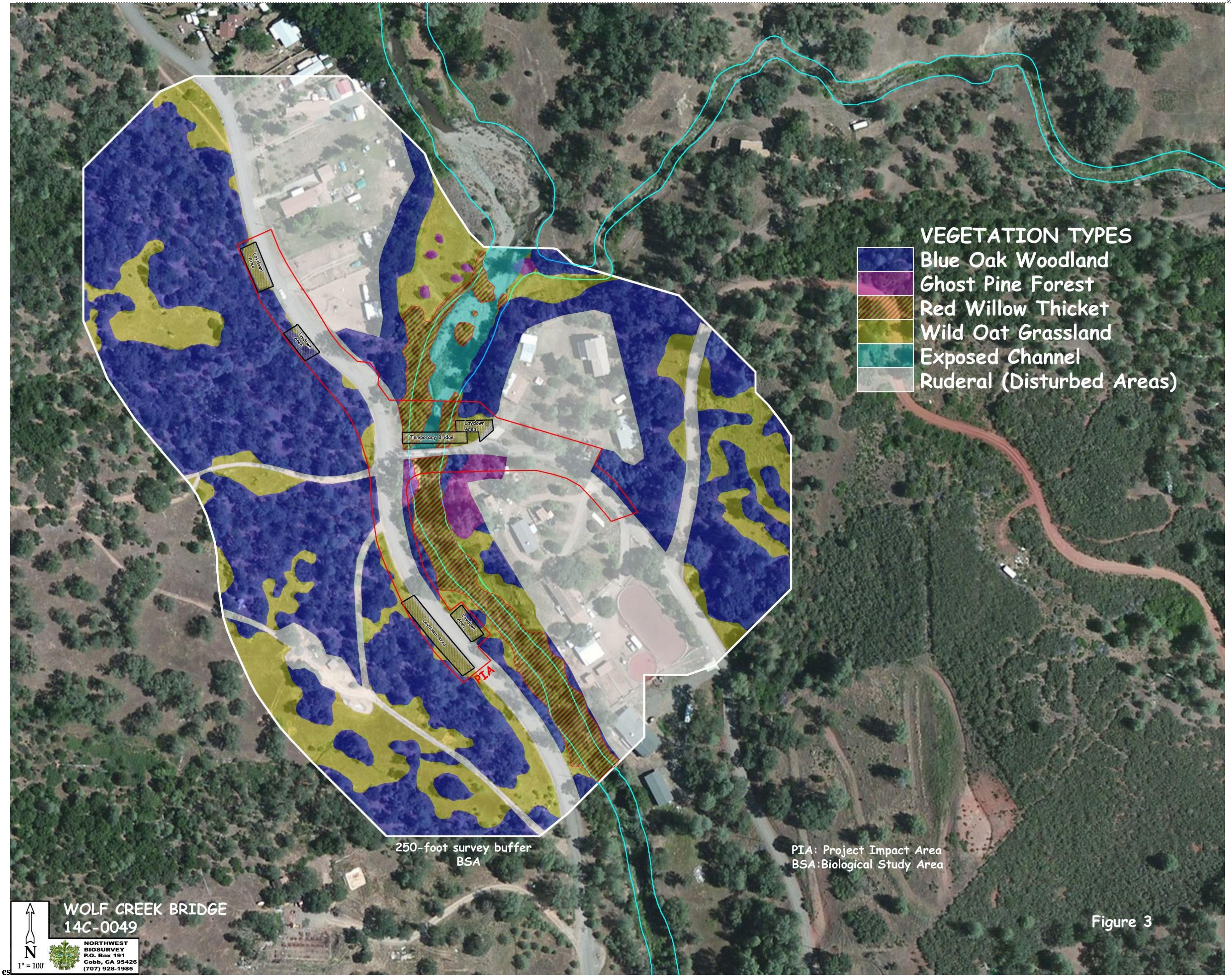
The project is located within the Interior North Coast Range of California. This is a region of steep, generally north-to-south-trending ridges and small interior valleys that eventually drain east to the Sacramento Valley and Sacramento River. The Wolf Creek Bridge crosses Wolf Creek in Long Valley, a minor alluvial plain surrounded by steep mountains and containing the confluences of Long Valley Creek, Wolf Creek, and the North Fork of Cache Creek. Wolf Creek flows 1.5 miles south to its confluence with the North Fork of Cache Creek which continues southeast for 8.6 river miles to its confluence with the main channel of Cache Creek. Cache Creek continues 25 miles to the Capay Valley reaching the Sacramento Valley near the town of Esparto approximately 50 river miles southeast of the project area.

This region of the Coast Range is typically dominated by chamise chaparral on steep slopes and blue oak woodland/savanna on the gentler hills and level valleys. Along Wolf Creek and its tributaries, the transition from narrow riparian communities to the more xeric (dry soil) chaparral and woodland is abrupt due primarily to the steep river gradient and hot, dry Mediterranean climate.

3.1. Description of the Existing Biological and Physical Conditions

3.1.1. Study Area

The BSA covers 21.79 acres including the 1.98-acre PIA surrounded by a 250-foot radius survey buffer. The BSA and PIA are shown in the aerial photo base-map provided in **Figure 3.**



3.1.2. Physical Conditions

3.1.2.1. TOPOGRAPHY AND DRAINAGE

The Wolf Creek Road Bridge crosses Wolf Creek within the narrow canyon of Wolf Creek approximately one-fourth mile north of Long Valley. Terrain rises steeply to the west up the slope of Wolf Creek Ridge to the east, up the steep slope of a series of ridges separating Wolf Creek from the Indian Valley Reservoir and the North Fork of Cache Creek.

Wolf Creek contains segments of perennial flows which in summer may be separated by stretches of sub-gravel flows connected by exposed pools.

3.1.2.2. SOILS

Soils within and around the BSA are of two types and are described as follows:

- **Millsholm-Bressa loams, 30-50% slopes (soil unit 177):** This soil unit is on hills and consists of 45% Millsholm loam and 35% Bressa loam. It occurs on a portion of Wolf Creek Road east of the bridge site. These soils formed in materials weathered from sandstone or shale. The Millsholm soil is shallow and well drained. The surface layer is typically brown loam 9 inches thick over pale brown clay loam 6 inches thick. Fractured sandstone is at 18 inches deep. Permeability is moderate, runoff is rapid and erosion hazard is severe. The Bressa soil is moderately deep and well drained. The surface layer is light brownish gray and pale brown loam 12 inches thick. Its other characteristics are similar to the Millsholm soil. Vegetation on these soils is mainly brush, oaks and annual grasses, including soft chess, wild oat and filaree.
- **Xerofluvents, very gravelly (soil unit 248):** This soil type consists of very deep, excessively drained soils on narrow flood plains adjacent to stream channels. These soils formed in alluvium derived from mixed rock sources, dominantly sandstone or shale. The soil profile varies from one location to another. Permeability is rapid and runoff is very slow. The hazard of erosion is slight except along streams that are subject to severe streambank erosion during high-intensity storms. These soils are subject to occasional periods of flooding in winter and spring. Vegetation is mostly sparse annual grasses and forbs. These soils occur east of the creek.

3.1.3. Biological Conditions in the Biological Study Area

3.1.3.1. VEGETATION TYPES

The BSA contains four vegetation types based on or derived from the "Standardized Classification" scheme described in the California Native Plant Society (CNPS) *A Manual of*

California Vegetation. These vegetation types and other cover types present are listed in **Table 1**. They are described below the table and shown in the plant communities map provided in **Figure 3**.

Table 1. Total Area of Vegetation Types and Other Land Cover

Vegetation Type	Acres	Percent of Total
Blue Oak Woodland	9.26	42.50
Ghost Pine Forest	0.24	1.10
Red Willow Thicket	1.13	5.19
Wild Oat Grassland	3.58	16.42
Exposed Channel	0.39	1.79
Ruderal (Disturbed Areas)	7.19	33.00
Total	21.79	100.00

- **Blue Oak Woodland:** This community occupies the entire west slope, west of Wolf Creek Road, and extends into the valley floor on both sides of Wolf Creek. It consists of a dominant cover of mature blue oak (*Quercus douglasii*) in a closed canopy structure. Ghost pine (*Pinus sabiniana*) is co-dominant and the community includes scattered interior live oak (*Quercus wislizeni* var. *wislizeni*). This woodland community supports a moderate shrub cover dominated by common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*); however, it also includes birch-leaf mountain mahogany (*Cercocarpus betuloides* var. *betuloides*), toyon (*Heteromeles arbutifolia*), and buckbrush (*Ceanothus cuneatus* var. *cuneatus*). The ground cover layer is wild oat grassland.

According to a discussion on July 10, 2018, between Northwest Biosurvey staff and Dr. Todd Keeler-Wolf, Senior Vegetation Ecologist of the California Department of Fish and Wildlife, and Diana Hickson of the California Natural Diversity Database (CNDDB) office, blue oaks (*Quercus douglasii*) do not have sensitive status in California. However, some blue oak communities may be considered sensitive if they retain their pristine native shrub and ground cover layers. It should be noted that the 2001 Oak Conservation Act establishes a program for funding the development of local oak preservation ordinances in California, which has not been done in Lake County. The Act does not provide specific mitigations or requirements.

If the lead agency determines that the incidental take of blue oaks within the Spring Valley Lake subdivision is significant within the context of the CEQA Guidelines, it may require compensatory mitigation. Lake County in cooperation with the California Department of

Fish and Wildlife require 3:1 preservation of oak woodland as mitigation for the loss of oak woodland when the loss is considered potentially significant. While the determination of significance is up to the lead agency, the oaks to be removed are within a subdivision and are adjacent to roads and residential lots. The native shrub and ground cover layer are not present and the blue oaks within the PIA do not constitute a sensitive plant community.

- **Ghost Pine Forest:** Ghost pine occurs as scattered individuals throughout the blue oak woodland community but generally not in a sufficiently dense cover or grouping to qualify as a separate plant community. It does occur as a separate community just south of the bridge but even this is limited to fewer than ten trees bounded by surrounding blue oak woodland (supplanted by residential development) along its eastern edge and the riparian community of Wolf Creek along its western edge. The shrub and ground cover here are the same as the surrounding blue oak woodland.
- **Red Willow Thicket:** The banks adjacent to Wolf Creek support a mature community of red willow (*Salix laevigata*). However, blue oak woodland intrudes into the community from both sides. California wild grape (*Vitis californica*) drapes the lower canopy. Scattered Oregon ash (*Fraxinus latifolia*) trees are also present.

The shrub layer appears in clumped distribution between dense red willow thicket and open wild oat grassland. It is dominated by brown dogwood (*Cornus glabrata*) but includes mulefat (*Baccharis salicifolia*) and poison oak (*Toxicodendron diversilobum*). The stream channel scour zone supports smooth scouring rush (*Equisetum laevigatum*).

While *Salix laevigata* is not a listed sensitive species, removal of willow thickets and other riparian vegetation has the potential to result in impacts to riparian animal species.

- **Wild Oat Grassland:** The community is dominated by grasses such as slender wild oat (*Avena barbata*), ripgut grass (*Bromus diandrus*), crowfoot grass (*Dactyloctenium aegyptium*), perennial ryegrass (*Festuca perennis*), and soft chess (*Bromus hordeaceus*). Forbs include a mix of rose clover (*Trifolium hirtum*), winter vetch (*Vicia villosa*), and spring vetch (*Vicia sativa ssp. sativa*), with scattered Diogenes lantern (*Calochortus amabilis*) and goose grass (*Galium aparine*).
- **Exposed Channel:** The exposed creek channels contain a gradation from sands and gravels to medium and large cobbles. At the project site, the east bank of the channel through the existing bridge has vegetative growth with some exposure of bedrock. In comparison, the right bank is concrete lined from the channel bed to the low chord of the existing bridge from 50 feet upstream to 40 feet downstream of the existing bridge

structure. Approximately 15 feet downstream of the existing bridge structure is a concrete apron with grouted boulders acting as grade control and to dissipate energy. Below the concrete apron, Wolf Creek is contained in a narrow channel with steep and thickly vegetated banks.

At the time of the late summer surveys the channel averaged 1' deep by 15' wide. Downstream flows include large scour pools to 3' deep and 15' diameter. Foothill yellow-legged frogs were previously found at this location during surveys for the Spring Valley Lake Restoration Project in 2010. Sand/cobble bars support scattered scouring rush. The channel downstream supports a thick cover of mulefat.

- **Ruderal:** These are areas where development has already occurred and consist of roadways, structures, and landscaping.

3.1.3.2. BOTANICAL FIELD SURVEY RESULTS

Appendix A presents the results of the floristic-level botanical survey for the project site. Surveys were conducted on May 4, June 1, and July 15, 2016. Each of the sensitive plant taxa potentially occurring at the site was specifically searched for during the surveys. The surveys identified a total of 47 plant taxa within the BSA. The last column in each row of **Appendix A** identifies the taxa as native or introduced. Most of the plant taxa located within the BSA are native. No plants with federal or state endangered status were identified.

This relatively low number of taxa is likely related to the small survey area, the conversion of adjacent habitats to residential use, and the continued ground clearing maintenance of roadways.

3.1.3.3. WILDLIFE COMMON TO THE HABITATS WITHIN THE BIOLOGICAL STUDY AREA

The list of native wildlife common to the riparian and other habitats of the larger geographic region is extensive and will not be reproduced here. Although the bridge is adjacent to residential neighborhoods, there is a good likelihood that, due to the undeveloped natural habitat west of Wolf Creek Road and the riparian corridor, some larger mammals such as mountain lions and bears may occasionally be present. Blacktail deer are likely to be present. Medium and small-sized mammals that are common to residential and rural areas including skunks, possums, raccoons, squirrels, and rodents are also likely to be present in higher numbers.

The list of bird species potentially present includes a range of passerines including songbirds, woodpeckers, blackbirds, doves, sparrows, and finches; warblers are potentially present during the nesting season in the willow thickets along the creek. The larger trees provide potential habitat for raptors. The current bridge structure may provide roosting habitat for bats. The aquatic habitats of Wolf Creek provide potential habitat for a number of California wildlife species of special concern, including foothill yellow-legged frogs (which have been identified here by Northwest Biosurvey) and western pond turtles. Anadromous fish are not present in this creek. This NES has focused on the potential presence of species with sensitive regulatory status within this geographic region that occur within similar habitats.

3.1.3.4. MIGRATION AND TRAVEL CORRIDORS

Wolf Creek and its riparian corridor form a natural migration and travel corridor for fish, aquatic herptiles, and riparian birds. A wide range of common fish and wildlife use riverine and riparian habitat as migration routes and daily movement corridors either seasonally, or throughout the year, depending on species. Among these are species with sensitive regulatory status including western pond turtles, which may use the slower sections of the creek as habitat.

3.1.3.5. AQUATIC RESOURCES - POSSIBLE WATERS OF THE U.S.

Purpose: A delineation of possible waters of the U.S. was conducted as prescribed in the *Corps of Engineers Wetlands Delineation Manual*, January 1987 and the *Arid West 2008 Supplement*, version 2.0.

Results: The results of the delineation are shown on the aerial photo base map provided in **Figure 4**. Based on the delineation, there are a total of 1.21-acres of possible waters of the U.S. present as “other waters of the U.S.” (creeks and streams) within the BSA, and 0.18-acre of “other waters of the U.S.” in the PIA. See **Table 2** below for the results of the delineation.

Table 2. Possible Waters of the U.S.

POSSIBLE WATERS OF THE U.S. Within the BSA			
Stream Segment	Length (ft)	Average Width (ft)	Area (acres)
A	882	57	1.15
B	121	22	0.06
Total Possible Waters of U.S. Within the Biological Study Area			1.21
POSSIBLE WATERS OF THE U.S. Within the PIA			
Stream Segment	Length (ft)	Average Width (ft)	Area (acres)
A	112	70	0.18
B	0	0	0
Total Possible Waters of the U.S. Within the Project Impact Area			0.18

Note to reviewers: This report follows U.S. Army Corps of Engineers protocol for delineations of waters of the U.S. Waters identified on this property consist of “Other Waters” including creeks and streams. There are no “wetlands” on this site and consequently no wetland delineation forms are required or included in this report. The section above comprises the entire mandatory report format for “other” jurisdictional waters of the U.S.

3.1.3.6. INVASIVE SPECIES

There are no significant invasive species affecting the banks and upper terraces of Wolf Creek. The floristic-level survey identified 47 species within the BSA, 16 of which are non-native (see **Appendix A**).

Figure 4. Possible Waters of the U.S.



3.2. Regional Species and Habitats of Concern

While this NES is intended primarily as a NEPA document focusing on species with federal sensitive status, it will also serve as a basis for the local agency CEQA review. Consequently, the list of species with sensitive status addressed in this NES will include those with sensitive status in California. As discussed below, extensive pre-survey research was conducted for both plants and wildlife prior to conducting field surveys. Due to the fact that a floristic-level botanical survey was conducted within the BSA, a definitive answer can be provided regarding the presence or absence of sensitive plant taxa. The “discussion” of presence or absence of sensitive plants is therefore limited to the tabular summary provided in **Table 3**.

Wildlife surveys were beyond the scope of the assessment. The potential for sensitive wildlife species to be present is summarized in **Table 3**; wildlife species for which habitat is potentially present are discussed in Section 4.3. The Species List produced by the U.S. Fish and Wildlife Service website (**Official Species List, Appendix F**) was consulted; threatened or endangered species in that list with a potential to occur within the BSA are included in **Table 3**, along with species, such as the delta smelt, which do not have a potential to occur but must be addressed regarding presence or absence of habitat pursuant to NES protocol.

Table 3. Taxa with Sensitive State and/or Federal Status Within the Surrounding Region

Scientific Name	Common Name	Status Calif. (CNPS/ CDFW)	Status Fed.	General Habitat Description	Habitat Present/ Absent	Rationale
PLANTS:						
<i>Astragalus clevelandii</i>	Cleveland's milk-vetch	4.3	None	Chaparral, cismontane woodland, riparian forest/serpentine seeps	A	Necessary habitats (serpentine) not present and not found during botanical survey.
<i>Clarkia gracilis ssp. tracyi</i>	Tracy's clarkia	4.2	None	Chaparral (openings, usually serpentine)	A	Necessary habitats not present and not found during botanical survey.
<i>Collomia diversifolia</i>	serpentine collomia	4.3	None	Chaparral, cismontane woodland/serpentine, rocky or gravelly	A	Necessary habitats not present and not found during botanical survey.
<i>Eriogonum tripodum</i>	tripod buckwheat	4.2	None	Serpentine chaparral	A	Necessary habitats not present and not found during botanical survey.
<i>Fritillaria purdyi</i>	Purdy's fritillary	4.3	None	Chaparral, cismontane woodland, lower montane coniferous forest; usually serpentine	A	Necessary habitats not present, not found during botanical survey.
<i>Horkelia bolanderi</i>	Bolander's horkelia	1B.2	None	Chaparral, lower montane conif. forest, meadows & seeps, valley & foothill grassland/edges	HP	Grassland habitat present but species not found during botanical survey.
<i>Layia septentrionalis</i>	Colusa layia	1B.2	None	Chaparral, cismontane woodland, valley & foothill grassland/sandy, serpentine	A	Necessary habitats not present and not found during botanical survey.
<i>Malacothamnus helleri</i>	Heller's bush-mallow	3.3	None	Chaparral (sandstone), riparian woodland (gravel)	HP	Necessary habitat (riparian woodland and gravel) present, but not found during botanical survey.

Table 3. Taxa with Sensitive State and/or Federal Status Within the Surrounding Region

Scientific Name	Common Name	Status Calif. (CNPS/CDFW)	Status Fed.	General Habitat Description	Habitat Present/Absent	Rationale
<i>Potamogeton zosteriformis</i>	eel-grass pondweed	2B.2	None	Marshes & swamps, wetlands	A	Necessary habitats not present and not found during botanical survey.
ANIMALS:						
<i>Hypomesus transpacificus</i>	Delta smelt	None	FT	Estuarine, dead-end sloughs, larger rivers.	A	Delta smelt are found in and around the San Francisco Bay and Sacramento Delta. They spawn in slightly brackish water. They are not known to migrate north of Sacramento and have not been found in Wolf Creek. This project will have no effect on this species from impacts such as noise and turbidity, which will not reach occupied waters in the San Francisco Bay, which are more than 120 miles downstream.
<i>Oncorhynchus mykiss irideus</i>	steelhead	None	FT	Small cool fast-flowing tributary streams with gravel beds. Steelhead are generally anadromous species that require streams that are contiguous with the ocean.	A	Access to the ocean and cool temperatures or deep pools required by this species are not present in Wolf Creek, and this species has not been identified at this location. This project will have no effect on this species from impacts such as noise and turbidity, which will not reach occupied waters approximately 44 miles downstream.

Table 3. Taxa with Sensitive State and/or Federal Status Within the Surrounding Region

Scientific Name	Common Name	Status Calif. (CNPS/ CDFW)	Status Fed.	General Habitat Description	Habitat Present/ Absent	Rationale
<i>Emys marmorata</i>	western pond turtle	SSC	None	Aquatic turtle found in ponds, lakes, rivers, creeks, marshes & irrigation ditches with abundant vegetation and rocky or muddy bottoms; In woodland, forest, & grasslands	HP	The stream habitat of Wolf Creek provides good seasonal habitat for this species. Surveys were not conducted for this species.
<i>Rana boylei</i>	foothill yellow-legged frog	SSC/ SCT	None	Partly-shaded, shallow streams & riffles with a rocky substrate usually in the cold upper reaches of streams.	HP	The stream habitat of Wolf Creek provides good seasonal habitat for this species and it has been found here in previous surveys by Northwest Biosurvey.
<i>Rana draytonii</i>	California red-legged frog	SSC	FT	Habitat for red-legged frogs consists of ponds or lakes, or pools in shallow water streams with riparian vegetation and shade.	A	The warm stream habitat of this section of Wolf Creek does not provide suitable habitat for this species, and the species has not been found by the authors during previous surveys on Wolf Creek.
<i>Haliaeetus leucocephalus</i>	bald eagle	SE/SFP	FD	Large bodies of water with adjacent snags	A	There is no suitable fishing or nesting habitat for this species within the BSA for this project, and large stick nests required by this species were not found during the surveys.
<i>Elanus leucurus</i>	white-tailed kite	SFP	None	Open areas near woodlands and water	HP	Grasslands adjacent to woodlands and water within the BSA may provide hunting and nesting habitat.

Table 3. Taxa with Sensitive State and/or Federal Status Within the Surrounding Region

Scientific Name	Common Name	Status Calif. (CNPS/CDFW)	Status Fed.	General Habitat Description	Habitat Present/Absent	Rationale
<i>Strix occidentalis caurina</i>	northern spotted owl	SSC	FT	Old-growth forests or mixed stands of old-growth & mature trees; occasionally in younger forests with patches of big trees	A	The cool and shaded conifer forest habitat required by this species does not occur in the project area. Project impacts related to noise will have no effect on this species.
<i>Dendroica petechia brewsteri</i>	yellow warbler	SSC	None	Riparian plant associations; prefers willows, cottonwoods, aspens, sycamores for nesting & foraging	HP	The riparian woodlands along Wolf Creek provide suitable habitat for this species.
<i>Icteria virens</i>	yellow-breasted chat	SSC	None	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses	HP	The riparian woodlands along Wolf Creek provide suitable habitat for this species.
<i>Lontra canadensis ssp. sonora</i>	North American river otter	SSC	None	Edges of freshwater bodies and coastal habitats, in dens constructed usually from other animals' burrows	HP	This section of Wolf Creek may provide suitable habitat for this species; no burrows were seen during the botanical survey.
<i>Antrozous pallidus</i>	pallid bat	SSC	None	Open, dry habitats, forest habitats, caves, tunnels, buildings, bridges; sensitive to human disturbance	HP	Woodlands within the BSA are scattered and provide poor roosting habitat for this species. The underside of the bridge contains openings that may be used for roosting by bats.

KEY FOR TABLE 3:

Absent [A] - no habitat present and no further work needed.

Habitat Present [HP] - habitat is, or may be present. The species may be present.

Present [P] - the species is present.

Status:

Federal Endangered (FE), Federal Threatened (FT), Federal Proposed (FP, FPE, FPT); Federal Candidate (FC), Federal Species of Concern (FSC), Federal Delisted (FD);

State Endangered (SE), State Threatened (ST), California Fully Protected (SFP), State Rare (SR), State Cand. End./Threatened (SCE/SCT), State Species of Special Concern (SSC); California Watch List (WL); California Native Plant Society (CNPS).

CNPS Rare Plant List: 1B.1 = *Rare, threatened, or endangered in California and elsewhere; seriously threatened in California*
 1B.2 = *Rare, threatened, or endangered in California and elsewhere; fairly threatened in California*
 1B.3 = *Rare, threatened, or endangered in California and elsewhere; not very threatened in California*
 2A = *Presumed extinct in California, but extant elsewhere*
 2B.1 = *Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.*
 2B.2 = *Rare, threatened, or endangered in Calif., but more common elsewhere; fairly threatened in Calif.*
 2B.3 = *Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.*
 3 = *Plants about which we need more information (Review List)*
 3.1 = *Plants about which we need more information (Review List); seriously threatened in California*
 3.2 = *Plants about which we need more information (Review List); fairly threatened in California*
 3.3 = *Plants about which we need more information (Review List); not very threatened in California*
 4.2 = *Plants of limited distribution (watch list); fairly threatened in California*
 4.3 = *Plants of limited distribution (watch list); not very threatened in California*

3.2.1. Regional Plant Species of Special Concern

Prior to conducting a floristic-level botanical survey of the Biological Study Area in 2016, extensive pre-survey research was conducted in order to identify plants with sensitive regulatory status with a potential to occur within the survey area. This included a review of the *California Native Plant Society (CNPS) Electronic Inventory*, and a review of the *California Natural Diversity Database (CNDDB)* for the Benmore Canyon U.S.G.S. 7½ minute topographic map as well as a CNDDB database review of the nine surrounding quadrangles. The results of the floristic-level botanical survey are provided in **Appendix A**. No sensitive plant taxa were identified.

CNPS: A California Native Plant Society (CNPS) analysis was conducted for all plants with federal and state regulatory status, and all non-status plants on the CNPS Rare Plant Ranks 1B through 4. The query included all plants within this area of Lake County occurring within the plant communities identified on the project site. The inventory lists numerous species as potentially occurring at the site. These species were included in the list of potentially sensitive species specifically searched for during field surveys. These species are included in **Table 3**. It is important to note that this list includes species for which appropriate habitat is not present within the project site (including vernal pool and serpentine soil species). The CNPS database search does not allow fine-tuning for specific soil types and many specific habitats.

CNDDB: The California Natural Diversity Database (CNDDB) maps and information for the Benmore Canyon 7½' quadrangle were reviewed for this project. **Appendix B** presents a list of sensitive plant and wildlife species, including one sensitive habitat type, known to occur within this quadrangle, including all federal, state, and CNPS listed sensitive species. In addition to listing the species present within the quadrangle, the table provides a brief descriptor of the habitat requirements and blooming season, along with an assessment of whether the project area contains the necessary habitat requirements for each species. **Appendix C** lists the species within the nine quadrangles in the vicinity of this project.

3.2.2. Regional Wildlife of Special Concern

A total of 12 animal species are listed below. These consist of the species identified as present within the Benmore Canyon quadrangle by the CNDDB, species listed in the USFWS Official Species List, and species potentially present due to suitable habitat:

- Delta smelt (*Hypomesus transpacificus*)
- Western pond turtle (*Emys marmorata*)
- Foothill yellow-legged frog (*Rana boylei*)
- California red-legged frog (*Rana draytonii*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Northern spotted owl (*Strix occidentalis caurina*)
- White-tailed kite (*Elanus leucurus*)
- Yellow warbler (*Dendroica petechia brewsteri*)
- Yellow-breasted chat (*Icteria virens*)
- North American river otter (*Lontra canadensis ssp. sonora*)
- Pallid bat (*Antrozous pallidus*)

Delta smelt, California red-legged frog, and northern spotted owl are all listed below based on standard protocol due to their presence in the region. Potential habitat for these species is not present within the BSA and project impacts such as turbidity, noise, and vibrations from the project will not impact sensitive species outside of the BSA.

Delta smelt are limited to in and around the San Francisco Bay and the Sacramento Delta.

California red-legged frogs are typically pond frogs or frogs of slow moving streams with dense bank vegetation and three or more feet of depth. The frogs may be found outside of these habitats during wet weather but nearby ponded water is necessary for this species. Ideal red-legged frog habitat contains deep water (3 feet or more) adjacent to dense bank vegetation. A protocol Red-Legged Frog survey was conducted by Northwest Biosurvey in 2010 for the Spring Valley Lake Recovery project. The surveys were conducted on Wolf Creek just upstream of Spring Valley Lake. The results for red-legged frogs were negative and additional surveys were not recommended. Suitable habitat for this species does not occur in this area and noise and other impacts from this project will not affect red-legged frogs where they are present.

Northern spotted owls are usually found in dense, multi-layered old-growth conifer, redwood, and fir forests, although they may also be found in otherwise-suitable newer-growth forests in California. They are intolerant of high temperatures and inhabit cool, moist, well-shaded habitats. They nest in tree or snag cavities, or in broken tops of large trees. Mature multi-layered forests are required for breeding. Territories for this owl are very large.

Spotted owls occur in Lake County in suitable forest or woodland habitats. They would not occur in the dry, open oak woodlands within the BSA. The closest known occurrence of spotted owls is near Long Valley more than nine miles to the northwest. Impacts from the project related to noise or dust would not have an impact on this species where it does occur.

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

4.1. Natural Communities of Special Concern

There are no natural communities of special concern listed in the Benmore Canyon quadrangle. Oak woodlands occur within the project impact area, although they are not listed as a sensitive community in the CNDDB by the CDFW.

4.1.1. Blue Oak Woodlands and Red Willow Thicket

4.1.1.1. SURVEY RESULTS

Blue oaks (*Quercus douglasii*) occur within the PIA and have a potential to be impacted by development activities. Blue oaks do not have special status but oak woodlands in general are recommended for protection by the California Oak Conservation Act of 2001.

Red willow thicket occurs within Wolf Creek and may be impacted during project construction; however, red willow thicket is not a “Natural Community of Special Concern”. Avoidance and mitigation for this community should follow the measures listed below. On July 26th, 2018 a field visit was conducted on Upper Wolf Creek Bridge by Caltrans biologists Christa Unger, Steve Hansen, Caltrans Environmental Planner Vincent Heim, and Caltrans Archeologist, Darrel Cardiff (**Appendix H**). It was noted that the surrounding trees within the BSA have either been burned or defoliated due to the recent Pawnee fire.

4.1.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

Limbing or removal of blue mature oaks should be avoided to the extent feasible. Parking and staging areas should not be located within the driplines of mature oak trees due to the possibility of root compaction.

4.1.1.3. PROJECT IMPACTS

Prior to the Pawnee fire, project activities may have had a potential to cause harm to some of the mature oak trees within the PIA; however, due to the recent Pawnee fire, no trees that would be potentially removed within the PIA are above the 10-inch diameter-at-breast height (DBH) limit of significance.

4.1.1.4. COMPENSATORY MITIGATION

If removal of mature oaks cannot be avoided, a mitigation agreement should be developed with the California Department of Fish and Wildlife for replacement of oaks at a ratio of not less than 3-to-1.

4.1.1.5. CUMULATIVE EFFECTS

No reasonably foreseeable future projects within the current proposed project's BSA are known at this time. Specific plans for oak tree removal have not been completed as of the date of this report; however, cumulative effects are not anticipated.

4.2. Special Status Plant Species

No state or federal listed plant species, or other species with sensitive regulatory status in California, occur within the BSA.

4.3. Special Status Animal Species Occurrences

No animal species with federal status occurs within the BSA or PIA.

This NES will also be used by local regulatory agencies in the CEQA review process. For this reason, species with sensitive status in California are also analyzed here. Consequently, four species are included due to their California Species of Concern or California Fully Protected status and the presence of potential habitat within the BSA:

- Western pond turtle
- Foothill yellow-legged frog (Candidate for State Threatened listing)
- Bald eagle (also California Endangered)
- White-tailed kite
- Yellow warbler
- Yellow-breasted chat
- North American river otter
- Pallid bat

A table summarizing the permitted and restricted construction dates listed as for each species in the following accounts is provided in **Appendix D**. A chart showing restriction periods if avoidance or minimization is not implemented is provided in **Appendix E**.

Additionally, the U.S. Fish and Wildlife Service Species List for the Benmore Canyon 7½' quadrangle was reviewed. The USFWS states that the purpose of these lists is to *include all*

of the sensitive species that have been found in a certain area and ones that may be affected by projects in the area... A list may include fishes hundreds of miles downstream from the project. A copy of the USFWS Official Species List of potential species within the quadrangle, and a tabular discussion of the individual species included in this Species List are attached as Appendix F.

4.3.1. Western pond turtle (*Emys marmorata*)

4.3.1.1. SURVEY RESULTS

This species is a California Species of Special Concern. Surveys for this species were not requested by the lead agency and were not conducted as part of this assessment. They prefer slow or ponded water with sheltering vegetation but will range widely through less suitable habitat in search of these sites. Eggs are laid on land in sheltered nests. In Northern California, young overwinter in the nest and emerge the following spring. Food includes aquatic insects, crustaceans, fish, and riparian vegetation. When present, pond turtles are readily observed basking along shorelines or on logs in shallow water. This part of Wolf Creek provides potentially suitable habitat for this species throughout the year: This portion of the creek may be used as a movement corridor and may contain suitable nest sites. The CNDDDB reports an occurrence of pond turtle on Wolf Creek upstream of this site in 1999. Northwest Biosurvey staff have also observed the species in Spring Valley Lake on several occasions. It should be assumed present within the BSA.

4.3.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

In order to avoid potential impacts to western pond turtles, work within the channel should occur only if avoidance and minimization efforts have been carried out as described below. Downed trees, stumps and other basking sites and refuges within these aquatic habitats should remain undisturbed.

Should any work occur within the banks or riparian habitat of the creek at times when the affected segment contains water, it should be immediately preceded by a site inspection of the channel by a qualified biologist with a valid CDFW collecting permit. Any turtles within the work area should be captured and transferred to another suitable portion of Wolf Creek. The following measures should be taken in conjunction with the measures described above:

- The flowing portion of the stream shall be diverted through culverts with cofferdams constructed of clean material such as sandbags, water bladders, etc., at the upstream and downstream ends of the proposed construction area. The Resident Engineer shall either check with the design engineer or the contractor's engineer to determine the volume of

maximum construction season stream flows, or this volume should be clearly stated on the contract plans.

- The culverts shall be no less than two feet in diameter and inset into the channel to a depth of half their diameter in order to allow downstream passage of fish and herptiles. The design engineer will need to assess the effects of the concrete apron on inseting the culverts into the channel. These structures shall be removed at the end of the project and prior to winter stream flows.
- The proposed diversion shall be reviewed and approved by a qualified biologist with a valid CDFW collecting permit prior to installation. That individual shall be present during its construction. During construction of this diversion, the qualified biologist shall inspect the diverted channel segment for sensitive herptiles and nests as described above and shall capture and release any herptiles or fish within the diversion area to a suitable segment of Wolf Creek.
- Prior to construction outside of the period when water is present in the channel, the qualified biologist shall inspect adjacent banks within the proposed stream crossing (PIA) for turtle nests and flag any nests for installation of construction fencing around a 5-foot radius. Any nests that cannot be avoided shall be moved and monitored by the qualified biologist. If nests are found a monitoring report containing photographs of the nest relocation effort and weekly inspections for a period of one (1) month shall be submitted to CDFW staff for review upon completion of the monitoring period.
- The Resident Engineer shall be responsible for assuring that the terms and conditions of the CDFW stream alteration agreement for this project are consistent with this mitigation measure.

4.3.1.3. PROJECT IMPACTS

If vegetation removal or other disturbance takes place within Upper Wolf Creek while it contains water and turtles are likely to be present, project activities have a potential to disrupt breeding and/or result in an incidental take of individuals of this species. Project activities occurring when there is water in the creek has the potential to impact young overwintering at nest sites if these are not located and either protected or moved.

4.3.1.4. COMPENSATORY MITIGATION

None required.

4.3.1.5. CUMULATIVE EFFECTS

No reasonably foreseeable future projects within the current proposed project's BSA are known at this time. The bridge replacement project will not result in a change of road use along Wolf Creek Road, and cumulative effects are not anticipated.

4.3.2. Foothill yellow-legged frog (*Rana boylei*)

4.3.2.1. SURVEY RESULTS

This species is a California Species of Special Concern and is a *candidate for State threatened status*. Surveys for this species were not requested by the lead agency and were not conducted as part of this assessment. These frogs are relatively common along the shaded banks of perennial headwater streams. They are heavily dependent on the presence of perennial water and are seldom far from pools where they can seek shelter from predation. The larvae require three to four months to mature, making most ephemeral streams unsuitable as breeding sites. These frogs tend to be distributed widely within watersheds containing suitable habitat. Perennial streams such as Wolf Creek (particularly shaded backwater areas such as those found within the BSA) provide excellent potential habitat for this species. Foothill yellow-legged frog has been known to occur in this section of Wolf Creek where it was observed by Northwest Biosurvey staff during surveys conducted in 2010.

On July 26th, 2018 a field visit was conducted on Upper Wolf Creek Bridge by Caltrans biologists Christa Unger, Steve Hansen, Caltrans Environmental Planner Vincent Heim, and Caltrans Archeologist, Darrel Cardiff (**Appendix H**). It was noted that there were isolated pools in Wolf Creek containing large numbers of squawfish (*Ptychocheilus* sp.), as well as bullfrog tadpoles (*Lithobates catesbeianus*) within the project area. No other sensitive aquatic species were seen.

Bullfrogs prey on foothill yellow-legged frogs (Crayon, 1998). In addition, although bullfrog larvae apparently do not feed on foothill yellow-legged frogs, they do compete for algal resources, and can cause a substantial reduction of survivorship and a decreased mass in post-metamorphic individuals (Kupferberg, 1997). Squawfish, including the native Sacramento squawfish (*Ptychocheilus grandis*), feed on adult frogs and eggs (Brown and Moyle, 1997).

Since large numbers of predators were observed within the BSA, it is highly unlikely that foothill yellow-legged frog would breed and reside within the BSA. At most, this species may use Wolf Creek as a dispersal corridor to more suitable, predator-free, areas upstream or downstream of the existing bridge.

4.3.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

To avoid take of FYLF during its CESA candidacy period, the following avoidance and minimization measures will be implemented:

- a. **Conduct a Pre-Project Breeding Survey.** If breeding habitat (rocks in shallow slow-moving streams) is present in or adjacent to the work area, a qualified biologist shall conduct visual encounter surveys for FYLF breeding patches every 7-10 days between April 1 and June 1 *as appropriate* in any year project work may be conducted. Pre-project breeding surveys shall be provided to CDFW no later than June 10 of each year they are conducted. If egg masses, larvae, or other signs of breeding are observed within 300 feet upstream and/or downstream of the project limits, CDFW recommends consultation to determine the need for an ITP if take of FYLF may occur during project activities.
- b. **Conduct a Pre-Construction Survey.** Within 3-5 days prior to entering or working at the Project Site, a qualified biologist shall examine the project site to determine the presence/absence of standing or flowing water, and the presence and/or the potential for presence of FYLF adults, juveniles, tadpoles or egg masses within the project area and 150 feet upstream and downstream. Prior to commencing work, the County shall provide preconstruction survey notes and observations to CDFW for review.
 1. If FYLF are found during the pre-construction survey, the County shall:
 - A. Consult CDFW immediately by either telephone or e-mail and provide a short description of observations, including a count of individuals and the life stage(s), conditions at the site, and other aquatic species observed; and
 - B. Either propose site-specific mitigation measures that will be utilized to avoid take, or obtain an ITP if take of FYLF cannot be avoided. Instream work shall not commence until CDFW has provided written approval of the proposed avoidance measures or an ITP has been issued.
 2. If no FYLFs are found during the pre-construction survey and no surface water is present in the project area, work may commence without further surveys.
 3. If no FYLFs are found but surface water is present during the pre-construction survey, *or if surface water becomes present at any time during the work period*, a qualified biologist shall survey the work site each day before commencement of work activities where equipment and/or materials may come in contact with FYLFs, streams, or riparian habitat.

4. If FYLFs are observed at any time during the construction season, work in the immediate area shall be halted, CDFW immediately consulted, and conservation measures developed and agreed to by CDFW prior to recommencing work.
- c. **Qualified Biologist.** A qualified biologist is an individual who is experienced in construction level biological monitoring, knowledgeable in the biology, natural history, habits and behaviors of the FYLF, and who is able to recognize all age classes of FYLF relative to other amphibians in the project area. A qualified biologist shall have academic and professional experience in biological sciences or resource management activities. At least 15 days prior to commencement of Project-related surveys for FYLFs, the County shall provide to CDFW for review and approval the names and qualifications of individuals requesting qualified biologist status.
- d. **Decontamination.** The County is responsible for ensuring all project personnel adhere to the latest version of the Northern Region California Department of Fish and Wildlife Aquatic Invasive Species Decontamination Protocol for all field gear and equipment that will be in contact with water or FYLFs. Heavy equipment and other motorized or mechanized equipment that comes in contact with water should generally follow watercraft decontamination protocols found in the AIS Decontamination Protocol.
- e. **Night Lighting and Water Drafting.** Night lighting and drafting of water is not authorized.

4.3.2.3. PROJECT IMPACTS

If vegetation removal or other disturbance takes place within Wolf Creek while it contains water and avoidance efforts are not implemented, project activities have a potential to disrupt breeding and/or result in an incidental take of individuals of this species.

4.3.2.4. COMPENSATORY MITIGATION

If the project results in a take of *Rana boylei*, an Incidental Take Permit must be obtained from CDFW and all required mitigations implemented, including preparation of a mitigation agreement or purchase of credits in an appropriate approved mitigation bank, if required. If CDFW concurs that the mitigation agreement is appropriate to prevent take of *Rana boylei*, a Consistency Determination may be issued instead.

4.3.2.5. CUMULATIVE EFFECTS

No reasonably foreseeable future projects within the current proposed project's BSA are known at this time. The bridge replacement project will not result in a change of road use along Wolf Creek Road, and cumulative effects are not anticipated.

4.3.3. Bald Eagle (*Haliaeetus leucocephalus*)

4.3.3.1. SURVEY RESULTS

This species is a California Endangered Species and a California Fully Protected Species. Surveys for this species were not requested by the lead agency and were not conducted as part of this assessment. These raptors require large bodies of water with abundant fish, and adjacent snags or perches. Nests are near water and consist of a stick platform on a large live tree, often the largest tree in a stand, usually with fairly open canopy. There is no suitable nesting habitat for eagles within the BSA and no nests were seen. The California Fully Protected status of these raptors pertains to nesting pairs with an emphasis on protecting nesting habitat. This species is also protected under the Migratory Bird Treaty Act.

4.3.3.2. AVOIDANCE AND MINIMIZATION EFFORTS

Should an active nest be discovered, work within a minimum of 250 feet of the nest should be avoided between February 15 and August 31 in order to avoid the potential for disrupting nesting and breeding and the species is determined to not be present.

To the extent feasible, construction-related activities within the bridge crossing area, including vegetation removal, shall occur outside of the nesting season (February 15 through August 31). If construction during the nesting season cannot be avoided, any required vegetation removal should be the minimal amount necessary for construction and should be completed prior to the nesting season. In the event that vegetation removal is necessary during the nesting season, the work shall be preceded by a pre-construction nest survey conducted by a qualified biologist within two weeks of disturbance. If an active nest of a sensitive bird species is found, a construction buffer shall be established around it in consultation with CDFW staff and shall remain in place until fledging is completed or until it is determined that the nesting effort has failed as determined by the qualified biologist.

4.3.3.3. PROJECT IMPACTS

If construction activities occur within a minimum of 250 feet mile of an active nest during the breeding season (February 15 and August 31), project activities have a potential to cause nest abandonment and disrupt breeding.

4.3.3.4. COMPENSATORY MITIGATION

None required.

4.3.3.5. CUMULATIVE EFFECTS

No reasonably foreseeable future projects within the current proposed project's BSA are known at this time. The bridge replacement project will not result in a change of road use along Wolf Creek Road, and cumulative effects are not anticipated.

4.3.4. White-tailed kite (*Elanus leucurus*)

4.3.4.1. SURVEY RESULTS

This species is a California Fully Protected Species. Surveys for this species were not requested by the lead agency and were not conducted as part of this assessment. These raptors are usually found near agricultural areas. The kite prefers open areas near woodlands and water. They hunt over open country and feed mostly on small diurnal mammals, but will sometimes eat birds, insects, amphibians and reptiles. They prefer large, deciduous trees surrounded by open land such as grassland, meadows, farmland, and wetlands for nesting and roosting sites, and dense woodlands for cover.

The oak woodlands adjacent to patches of open grassland within the BSA provide moderate potential nesting and hunting habitat for this raptor, and the larger open grasslands in the vicinity of the project provide ideal hunting habitat. The species was not observed at the time of the site visits but has the potential to be present. The California Fully Protected status of these raptors pertains to nesting pairs with an emphasis on protecting nesting habitat. This species is also protected under the Migratory Bird Treaty Act.

4.3.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

Work within a minimum of 250 feet of an active nest should be avoided between February 15 and August 31 in order to avoid the potential for disrupting nesting and breeding and the species is determined to not be present.

To the extent feasible, construction-related activities within the bridge crossing area, including vegetation removal, shall occur outside of the nesting season (February 15 through August 31). If construction during the nesting season cannot be avoided, any required vegetation removal should be the minimal amount necessary for construction and should be completed prior to the nesting season. In the event that vegetation removal is necessary during the nesting season, the work shall be preceded by a pre-construction nest survey conducted by a qualified biologist within two weeks of disturbance. If an active nest of a sensitive bird species is found, a construction buffer shall be established around it in consultation with CDFW staff and shall remain in place until fledging is completed or until it is determined that the nesting effort has failed as determined by the qualified biologist.

4.3.4.3. PROJECT IMPACTS

If construction activities occur within a minimum of 250 feet of an active nest during the breeding season (February 15 and August 31) and project activities have a potential to cause nest abandonment and disrupt breeding.

4.3.4.4. COMPENSATORY MITIGATION

None required.

4.3.4.5. CUMULATIVE EFFECTS

No reasonably foreseeable future projects within the current proposed project's BSA are known at this time. The bridge replacement project will not result in a change of road use along Wolf Creek Road, and cumulative effects are not anticipated.

4.3.5. Yellow warbler (*Dendroica petechia brewsteri*); Yellow-breasted chat (*Icteria virens*)

4.3.5.1. SURVEY RESULTS

These birds are California Species of Special Concern. Surveys for this species were not requested by the lead agency and were not conducted as part of this assessment. These two species are discussed together because their habitat requirements are nearly identical. Both warblers and chats require riparian woodland with a dense shrubby understory or dense willow thickets near water for nesting and cover. They arrive in these areas in April and are typically gone by late September or October. The nesting season typically ranges from May to August; fledging is usually completed by August. Nests are constructed in shrubs and small trees in the lower canopy of the woodland. They forage for insects in the upper canopy. The red willow thicket community along the east side of the PIA provides excellent potential nesting habitat for these species.

4.3.5.2. AVOIDANCE AND MINIMIZATION EFFORTS

Work within a minimum of 100 feet of the red willow thicket habitat along Wolf Creek should be avoided from February 15 through August 31 in order to avoid the potential for disrupting nesting and breeding for these species, unless the work is preceded by a preconstruction survey.

Any work requiring construction or vegetation clearing within 100 feet of the red willow thicket community between February 15 and August 31 of any year should be preceded by preconstruction surveys pursuant to CDFW policy. In the event that this species is determined to

be nesting within 100 feet of the proposed construction activities, construction should be delayed within 100 feet of the nest until after August 31, or until fledging is completed as determined by a qualified biologist. The construction buffer may be reduced depending on presence of screening vegetation or topography based on the recommendation of a qualified biologist.

4.3.5.3. PROJECT IMPACTS

If construction activities occur within 100 feet of the willow thicket communities during the breeding season (February 15 through August 31) and project activities have a potential to cause nest abandonment and disrupt breeding.

4.3.5.4. COMPENSATORY MITIGATION

None required.

4.3.5.5. CUMULATIVE EFFECTS

No reasonably foreseeable future projects within the current proposed project's BSA are known at this time. The bridge replacement project will not result in a change of road use along Wolf Creek Road, and cumulative effects are not anticipated.

4.3.6. North American river otter (*Lontra canadensis ssp. sonora*)

4.3.6.1. SURVEY RESULTS

This species is a California Species of Special Concern. Surveys for this species were not requested by the lead agency and were not conducted as part of this assessment. The otters inhabit a burrow close to the water's edge in freshwater and coastal habitats: they are found in river, lake, swamp, coastal shoreline, tidal flat, or estuary ecosystems. Their diet is mostly fish but includes crayfish, amphibians, aquatic insects, and occasionally small mammals. Their dens are constructed in the burrows of other animals, or in natural hollows, such as hollow trees or logs. River otters typically breed from December to April. In northern California, they are common in the north coast, Klamath, and Cascade drainages. River otters are threatened mainly by human-caused water pollution and habitat destruction. The creek provides ideal habitat for this species.

4.3.6.2. AVOIDANCE AND MINIMIZATION EFFORTS

Disturbance in and adjacent to the creek should be avoided between December 1 and April 30 to avoid the potential for disrupting denning and breeding, unless surveys and avoidance are implemented. If work requiring construction or vegetation clearing at the bridge site between these dates is performed, it should be preceded by pre-construction surveys by a qualified

biologist for active otter den sites within the proposed active disturbance area. In the event that an active den site is present within the area of active disturbance, construction should be delayed within 50 feet of the nest until young are independent as determined by a qualified biologist.

4.3.6.3. PROJECT IMPACTS

In the absence of surveys and avoidance and minimization efforts described above, disturbance within and adjacent to the creek between December 1 and April 30 has a potential to disrupt the breeding season for otters.

4.3.6.4. COMPENSATORY MITIGATION

None required.

4.3.6.5. CUMULATIVE EFFECTS

No reasonably foreseeable future projects within the current proposed project's BSA are known at this time. The bridge replacement project will not result in a change of road use along Wolf Creek Road, and cumulative effects are not anticipated.

4.3.7. Pallid bat (*Antrozous pallidus*)

4.3.7.1. SURVEY RESULTS

This species is a California Species of Special Concern. Surveys for this species were not requested by the lead agency and were not conducted as part of this assessment. Optimal habitat for these bats consists of open, dry habitats with rocky areas, but they may be found in open forest and woodlands with access to open habitats for feeding. These bats prefer the cool summer temperatures of caves, crevices, and mines as roosting sites but may also use bridges, buildings, and hollow trees. Foraging occurs over open country. Maternity colonies tend to be in the more protected, isolated locations and may consist of more than 100 individuals. These bats have a home range of 1 to 3 miles and are known to roost with other bat species. This species is extremely sensitive to human disturbance of roosting sites. The underside of the existing bridge may contain spaces used by roosting bats; however, there was no evidence of bat activity or roosting on the existing structure during the field survey conducted by Caltrans in July 2018 (**Appendix H**).

4.3.7.2. AVOIDANCE AND MINIMIZATION EFFORTS

Removal of the bridge or any trees containing hollows or peeling bark within the BSA should be completed between September 15 and October 15, or between February 15 and April 1, in order to avoid disrupting the breeding season or disturbance of hibernating bats unless the surveys and avoidance are implemented.

If work is proposed within woodland habitat (outside of the dates listed above), all trees within a 150-foot radius of the proposed work that are suitable for use by bats shall be surveyed for signs of bats no earlier than fourteen days prior to tree removal or other habitat disturbance. Suitable trees include those with hollows and/or shedding bark. If pallid bats, or other bats with sensitive regulatory status, are discovered during the surveys, a buffer of 100 to 150 feet should be established depending on recommendations of the surveying biologist. Removal of these roost trees shall be restricted to between September 15 and October 15, when young of the year are capable of flying, or between February 15 and April 1 to avoid hibernating bats and prior to formation of maternity sites.

Alternatively, exclusion netting may be installed at a time when bats are not present. The netting should exclude any openings greater than 3/8" or greater in size.

4.3.7.3. PROJECT IMPACTS

In the absence of surveys and avoidance and minimization efforts described above, removal of trees suitable for roosting or breeding conducted between April 2 and September 14 has a potential to disrupt the breeding season and/or result in an incidental take of young-of-the-year bats. Removal between October 16 and February 14 has a potential to disrupt hibernation and may result in incidental take of this species.

4.3.7.4. COMPENSATORY MITIGATION

None required.

4.3.7.5. CUMULATIVE EFFECTS

No reasonably foreseeable future projects within the current proposed project's BSA are known at this time. The bridge replacement project will not result in a change of road use along Wolf Creek Road, and cumulative effects are not anticipated.

Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions

5.1. Federal Endangered Species Act Consultation Summary

Based on this natural environmental study, there are no species with federal threatened or endangered status within the project area:

- The warm stream habitat of this section of Wolf Creek does not provide suitable habitat for California red-legged frog, and the species has not been found by the authors during previous surveys on Wolf Creek.
- Access to the ocean and cool temperatures or deep pools required by steelhead are not present on this portion of Wolf Creek and barriers approximately 44 miles downstream prohibit their passage to the project area.
- Delta smelt are found in and around the San Francisco Bay and Sacramento Delta and have not been found in Wolf Creek. Turbidity from project construction will not reach Delta Smelt where they occur in the bay and delta.
- The cool and shaded conifer forest habitat required by northern spotted owls does not occur in the project area.

The proposed project therefore will have no effect on California red-legged frogs, steelhead, Delta smelt, northern spotted owls, federally listed or proposed species.

5.2. Federal Fisheries and Essential Fish Habitat Consultation Summary

No EFH (habitat for federally-managed fish) will be impacted, so no EFH consultation is required.

5.3. California Endangered Species Act Consultation Summary

There are no California endangered species within the BSA. However, as discussed in Section 4.3, there are several wildlife species with sensitive status in California potentially present that require CEQA review and avoidance, minimization, or mitigation under Section 15380(d) of the CEQA Guidelines: western pond turtle, foothill yellow-legged frog, white-tailed kite, yellow warbler, yellow-breasted chat, North American river otter, and pallid bat. This NES

will serve as the principal biological resource assessment for local and state agency CEQA review. The NES will therefore undergo review and comment from the CDFW through that process. Consultation with CDFW regarding this species will determine whether a California Endangered Species Act Sections 2081 (b) and (c) - Incidental Take Permit or Consistency Determination will be required for the proposed Project.

5.4. Wetlands and Other Waters Coordination Summary

Other waters of the U.S. are present within the biological study area as a stream. This NES report contains a protocol delineation of other waters of the U.S. pursuant to the 1987 delineation manual and 2008 Arid West Guidelines. The delineation will be submitted to the Corps of Engineers for a Jurisdictional Determination and Nationwide Permit by the Lake County Department of Public Works. Wetlands do not occur within the BSA and therefore will not be impacted by the project

5.5. Invasive Species

There are no significant invasive species occurring within stream or the upper stream terraces of Wolf Creek within the BSA. In addition to the equipment decontamination measures described in Section 4.3.2.2 (d), the following measures shall be included in the construction contract special provisions to prevent the spread of invasive species:

- All equipment and vehicles will be thoroughly cleaned to remove dirt and weed seeds prior to being transported or driven to or from the Project site.
- Any borrow site or stockpile will be inspected for the presence of noxious weeds or invasive plants.
- If noxious weeds or invasive plants are present, the contractor will remove approximately five inches of the surface of the material from the site before transporting to the Project.
- Before removal, this material will be chemically or mechanically treated to kill the existing noxious weeds and invasive plants, and will not be used for the Project without approval.

5.6. Water Quality

See Water Quality Technical Memorandum in **Appendix G**.

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Appendix A Plant Taxa within the Biological Study Area

Habit	Species	Common Name	Family	Origin
forb	<i>Torilis arvensis</i>	field hedge parsley	Apiaceae	A
forb	<i>Centaurea melitensis</i>	totalote, Napa star thistle	Asteraceae	A
forb	<i>Cirsium brevistylum</i>	clustered thistle, Indian thistle	Asteraceae	N
forb	<i>Eriophyllum lanatum</i> var. <i>arachnoideum</i>	common woolly sunflower, spiderweb sunflower	Asteraceae	N
forb	<i>Hypochaeris radicata</i>	rough cat's-ear	Asteraceae	A
forb	<i>Madia gracilis</i>	gumweed, slender tarweed	Asteraceae	N
forb	<i>Micropus californicus</i> var. <i>californicus</i>	cottontop, slender cottonweed	Asteraceae	N
forb	<i>Cerastium glomeratum</i>	mouse-ear chickweed, sticky mouse-ear	Caryophyllaceae	A
forb	<i>Equisetum hyemale</i> ssp. <i>affine</i>	common scouring rush	Equisetaceae	N
forb	<i>Equisetum laevigatum</i>	smooth scouring rush	Equisetaceae	N
forb	<i>Lathyrus jepsonii</i> var. <i>californicus</i>	California tule pea	Fabaceae	N
forb	<i>Trifolium hirtum</i>	rose clover	Fabaceae	A
forb	<i>Vicia sativa</i> ssp. <i>sativa</i>	spring vetch	Fabaceae	A
forb	<i>Vicia villosa</i>	winter vetch	Fabaceae	A
forb	<i>Calochortus amabilis</i>	Diogenes lantern, golden fairy lantern	Liliaceae	N
forb	<i>Calochortus luteus</i>	yellow Mariposa lily	Liliaceae	N
forb	<i>Dichelostemma congestum</i>	ookow	Liliaceae	N
forb	<i>Triteleia laxa</i>	Ithuriel's spear	Liliaceae	N
forb	<i>Sidalcea hirsuta</i>	hairy checkerbloom	Malvaceae	N
forb	<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	winecup clarkia, four-spot	Onagraceae	N
forb	<i>Leptosiphon</i> (former: <i>Linanthus</i>) <i>s. ciliatus</i>	whiskerbrush	Polemoniaceae	N
forb	<i>Delphinium hansenii</i> ssp. <i>hansenii</i>	Hansen's larkspur	Ranunculaceae	N
forb	<i>Galium aparine</i>	goose grass, common bedstraw	Rubiaceae	N
grass	<i>Aira caryophyllea</i>	silver European hairgrass	Poaceae	A
grass	<i>Avena barbata</i>	slender wild oat	Poaceae	A
grass	<i>Bromus diandrus</i>	ripgut brome, ripgut grass	Poaceae	A

Habit	Species	Common Name	Family	Origin
grass	<i>Bromus hordeaceus</i>	soft chess	Poaceae	A
grass	<i>Dactyloctenium aegyptium</i>	crowfoot grass	Poaceae	A
grass	<i>Festuca perennis</i>	Italian rye grass, perennial ryegrass	Poaceae	A
grass	<i>Phalaris aquatica</i>	Harding grass	Poaceae	A
shrub	<i>Rhus trilobata</i>	basket bush, skunkbrush	Anacardiaceae	N
shrub	<i>Toxicodendron diversilobum</i>	poison oak	Anacardiaceae	N
shrub	<i>Baccharis pilularis</i>	coyote brush, chaparral broom	Asteraceae	N
shrub	<i>Baccharis salicifolia</i>	mulefat	Asteraceae	A
shrub	<i>Arctostaphylos manzanita</i> ssp. <i>manzanita</i>	common manzanita	Ericaceae	N
shrub	<i>Quercus wislizeni</i> var. <i>frutescens</i>	interior live oak	Fagaceae	N
shrub	<i>Ceanothus cuneatus</i> var. <i>cuneatus</i>	buckbrush	Rhamnaceae	N
shrub	<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	birch-leaf mountain mahogany	Rosaceae	N
shrub	<i>Heteromeles arbutifolia</i>	toyon	Rosaceae	N
tree	<i>Cornus glabrata</i>	smooth-leaf dogwood, brown dogwood	Cornaceae	N
tree	<i>Quercus douglasii</i>	blue oak	Fagaceae	N
tree	<i>Quercus wislizeni</i> var. <i>wislizeni</i>	interior live oak	Fagaceae	N
tree	<i>Fraxinus latifolia</i>	Oregon ash	Oleaceae	N
tree	<i>Pinus sabiniana</i>	ghost pine, foothill pine	Pinaceae	N
tree	<i>Salix laevigata</i>	red willow	Salicaceae	N
vine	<i>Vitis californica</i>	California wild grape	Vitaceae	N

Origin: N=Native, A=Alien

Appendix B CNDDDB Database Review: Benmore Canyon Quadrangle

Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS* Status	Blooming Season	Habitat Present
<i>Astragalus clevelandii</i>	Cleveland's milk-vetch	Chaparral, cismontane woodland, riparian forest/serpentine seeps; --/--/4.3	June-Sept. per. herb	no
<i>Clarkia gracilis ssp. tracyi</i>	Tracy's clarkia	Chaparral (openings, usually serpentine); --/--/4.2	April-June ann. herb	no
<i>Collomia diversifolia</i>	serpentine collomia	Chaparral, cismontane woodland/serpentine, rocky or gravelly; --/--/4.3	May-June ann. herb	no
<i>Eriogonum tripodum</i>	tripod buckwheat	Serpentine chaparral; --/--/4.2	May-July decid. shrub	no
<i>Fritillaria purdyi</i>	Purdy's fritillary	Chaparral, cismontane woodland, lower montane coniferous forest; usually serpentine; --/--/4.3	March-June bulb. herb	no
<i>Horkelia bolanderi</i>	Bolander's horkelia	Chaparral, lower montane conif. forest, meadows & seeps, valley & foothill grassland/edges; --/--/1B.2	June-Aug. per. herb	possible
<i>Layia septentrionalis</i>	Colusa layia	Chaparral, cismontane woodland, valley & foothill grassland/sandy, serpentine; --/--/1B.2	April-May ann. herb	no
<i>Malacothamnus helleri</i>	Heller's bush-mallow	Chaparral (sandstone), riparian woodland (gravel); --/--/3.3	May-July decid. shrub	possible
<i>Potamogeton zosteriformis</i>	eel-grass pondweed	Marshes & swamps, wetlands; --/--/2B.2	June-July ann. herb aquatic	no

Wildlife Species	Common Name	Habitat Requirements/Status	Season Present	Habitat Present
<i>Rana boylei</i>	foothill yellow-legged frog	Riparian/aquatic: partly-shaded, shallow streams & riffles with a rocky substrate in variety of habitats; SSC/SCT/G3/S3	year-round	yes
<i>Emys marmorata</i>	western pond turtle	Aquatic turtle found in ponds, lakes, rivers, creeks, marshes & irrigation ditches with abundant vegetation and rocky or muddy bottoms; In woodland, forest, & grasslands; SSC/G3G4/S3	year-round	yes
<i>Haliaeetus leucocephalus</i>	bald eagle	Large bodies of water with adjacent snags; FD/SE/SFP/G5/S2	nesting & wintering	no

*See CNPS Table for key

Key:

SE/ST/SD=State Endangered/Threatened/Delisted
 SC/SCD/SCT=State Candidate for Listing/Delisting/Threatened
 SSC=CDFW Species of Special Concern
 SFP=CDFW Fully Protected
 WL=CDFW Watch List
 FE/FT/FD=Federal Endangered/Threatened/Delisted

NatureServe Conservation Status:

G1/S1 = Global/State Critically Imperiled
 G2/S2 = Global/State Imperiled
 G3/S3 = Global/State Vulnerable
 G4/S4 = Global/State Apparently Secure
 G5/S5 = Global/State Secure
 SNR = Not yet assessed

Appendix C CNDDDB 9-Quad Species List

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CALIF	CDFG	CNPS
Bartlett Springs	<i>Rana boylei</i>	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Bartlett Springs	<i>Accipiter gentilis</i>	northern goshawk	None	None	SSC	-
Bartlett Springs	<i>Aquila chrysaetos</i>	golden eagle	None	None	FP ; WL	-
Bartlett Springs	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End	FP	-
Bartlett Springs	<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	-
Bartlett Springs	<i>Strix occidentalis caurina</i>	northern spotted owl	Thrt	Cand Thrt	SSC	-
Bartlett Springs	<i>Bombus caliginosus</i>	obscure bumble bee	None	None	-	-
Bartlett Springs	<i>Pekania pennanti</i>	fisher - West Coast DPS	Prop Thrt	Cand Thrt	SSC	-
Bartlett Springs	<i>Lasionycteris noctivagans</i>	silver-haired bat	None	None	-	-
Bartlett Springs	<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	None	None	-	1B.2
Bartlett Springs	<i>Calycadenia micrantha</i>	small-flowered calycadenia	None	None	-	1B.2
Bartlett Springs	<i>Erigeron greenei</i>	Greene's narrow-leaved daisy	None	None	-	1B.2
Bartlett Springs	<i>Calystegia collina ssp. oxyphylla</i>	Mt. Saint Helena morning-glory	None	None	-	4.2
Bartlett Springs	<i>Carex hystericina</i>	porcupine sedge	None	None	-	2B.1
Bartlett Springs	<i>Arctostaphylos manzanita ssp. elegans</i>	Konocti manzanita	None	None	-	1B.3
Bartlett Springs	<i>Astragalus clevelandii</i>	Cleveland's milk-vetch	None	None	-	4.3
Bartlett Springs	<i>Eriastrum tracyi</i>	Tracy's eriastrum	None	Rare	-	3.2
Bartlett Springs	<i>Eriogonum tripodum</i>	tripod buckwheat	None	None	-	4.2
Benmore Canyon	<i>Rana boylei</i>	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Benmore Canyon	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End	FP	-
Benmore Canyon	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	-
Benmore Canyon	<i>Layia septentrionalis</i>	Colusa layia	None	None	-	1B.2
Benmore Canyon	<i>Astragalus clevelandii</i>	Cleveland's milk-vetch	None	None	-	4.3
Benmore Canyon	<i>Fritillaria purdyi</i>	Purdy's fritillary	None	None	-	4.3
Benmore Canyon	<i>Malacothamnus helleri</i>	Heller's bush-mallow	None	None	-	3.3
Benmore Canyon	<i>Clarkia gracilis ssp. tracyi</i>	Tracy's clarkia	None	None	-	4.2
Benmore Canyon	<i>Collomia diversifolia</i>	serpentine collomia	None	None	-	4.3
Benmore Canyon	<i>Eriogonum tripodum</i>	tripod buckwheat	None	None	-	4.2
Benmore Canyon	<i>Potamogeton zosteriformis</i>	eel-grass pondweed	None	None	-	2B.2
Benmore Canyon	<i>Horkelia bolanderi</i>	Bolander's horkelia	None	None	-	1B.2
Clearlake Highlands	<i>Rana boylei</i>	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Clearlake Highlands	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End	FP	-
Clearlake Highlands	<i>Ardea alba</i>	great egret	None	None	-	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CALIF	CDFG	CNPS
Clearlake Highlands	<i>Ardea herodias</i>	great blue heron	None	None	-	-
Clearlake Highlands	<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	Thrt	End	-	-
Clearlake Highlands	<i>Archoplites interruptus</i>	Sacramento perch	None	None	SSC	-
Clearlake Highlands	<i>Lavinia exilicauda chi</i>	Clear Lake hitch	None	Thrt	-	-
Clearlake Highlands	<i>Hedychridium milleri</i>	Borax Lake cuckoo wasp	None	None	-	-
Clearlake Highlands	<i>Dubiraphia brunnescens</i>	brownish dubiraphian riffle beetle	None	None	-	-
Clearlake Highlands	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	-
Clearlake Highlands	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	Cand Thrt	SSC	-
Clearlake Highlands	<i>Myotis lucifugus</i>	little brown bat	None	None	-	-
Clearlake Highlands	<i>Myotis yumanensis</i>	Yuma myotis	None	None	-	-
Clearlake Highlands	<i>Pyrgulopsis ventricosa</i>	Clear Lake pyrg	None	None	-	-
Clearlake Highlands	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	-
Clearlake Highlands	<i>Clear Lake Drainage Resident Trout Stream</i>	Clear Lake Drainage Resident Trout Strm	None	None	-	-
Clearlake Highlands	<i>Coastal and Valley Freshwater Marsh</i>	Coastal and Valley Freshwater Marsh	None	None	-	-
Clearlake Highlands	<i>Northern Basalt Flow Vernal Pool</i>	Northern Basalt Flow Vernal Pool	None	None	-	-
Clearlake Highlands	<i>Northern Volcanic Ash Vernal Pool</i>	Northern Volcanic Ash Vernal Pool	None	None	-	-
Clearlake Highlands	<i>Eryngium constancei</i>	Loch Lomond button-celery	End	End	-	1B.1
Clearlake Highlands	<i>Harmonia hallii</i>	Hall's harmonia	None	None	-	1B.2
Clearlake Highlands	<i>Hemizonia congesta ssp. calyculata</i>	Mendocino tarplant	None	None	-	4.3
Clearlake Highlands	<i>Lasthenia burkei</i>	Burke's goldfields	End	End	-	1B.1
Clearlake Highlands	<i>Viburnum ellipticum</i>	oval-leaved viburnum	None	None	-	2B.3
Clearlake Highlands	<i>Sedella leiocarpa</i>	Lake County stonecrop	End	End	-	1B.1
Clearlake Highlands	<i>Arctostaphylos manzanita ssp. elegans</i>	Konocti manzanita	None	None	-	1B.3
Clearlake Highlands	<i>Arctostaphylos stanfordiana ssp. raichei</i>	Raiche's manzanita	None	None	-	1B.1
Clearlake Highlands	<i>Calochortus uniflorus</i>	pink star-tulip	None	None	-	4.2
Clearlake Highlands	<i>Limnanthes floccosa ssp. floccosa</i>	woolly meadowfoam	None	None	-	4.2
Clearlake Highlands	<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	None	None	-	1B.2
Clearlake Highlands	<i>Toxicoscordion fontanum</i>	marsh zigadenus	None	None	-	4.2
Clearlake Highlands	<i>Calyptridium quadripetalum</i>	four-petaled pussypaws	None	None	-	4.3
Clearlake Highlands	<i>Piperia michaelii</i>	Michael's rein orchid	None	None	-	4.2
Clearlake Highlands	<i>Cordylanthus tenuis ssp. brunneus</i>	serpentine bird's-beak	None	None	-	4.3
Clearlake Highlands	<i>Antirrhinum virga</i>	twig-like snapdragon	None	None	-	4.3
Clearlake Highlands	<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	None	End	-	1B.2
Clearlake Highlands	<i>Imperata brevifolia</i>	California satintail	None	None	-	2B.1
Clearlake Highlands	<i>Eriastrum brandegeae</i>	Brandegee's eriastrum	None	None	-	1B.1
Clearlake Highlands	<i>Leptosiphon acicularis</i>	bristly leptosiphon	None	None	-	4.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CALIF	CDFG	CNPS
Clearlake Highlands	<i>Navarretia leucocephala ssp. bakeri</i>	Baker's navarretia	None	None	-	1B.1
Clearlake Highlands	<i>Navarretia leucocephala ssp. pauciflora</i>	few-flowered navarretia	End	Thrt	-	1B.1
Clearlake Highlands	<i>Navarretia leucocephala ssp. plieantha</i>	many-flowered navarretia	End	End	-	1B.2
Clearlake Highlands	<i>Potamogeton zosteriformis</i>	eel-grass pondweed	None	None	-	2B.2
Clearlake Highlands	<i>Myosurus minimus ssp. apus</i>	little mousetail	None	None	-	3.1
Clearlake Highlands	<i>Horkelia bolanderi</i>	Bolander's horkelia	None	None	-	1B.2
Clearlake Oaks	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End	FP	-
Clearlake Oaks	<i>Pandion haliaetus</i>	osprey	None	None	WL	-
Clearlake Oaks	<i>Strix occidentalis caurina</i>	northern spotted owl	Thrt	Cand Thrt	SSC	-
Clearlake Oaks	<i>Archoplites interruptus</i>	Sacramento perch	None	None	SSC	-
Clearlake Oaks	<i>Lavinia exilicauda chi</i>	Clear Lake hitch	None	Thrt	-	-
Clearlake Oaks	<i>Dubiraphia brunnescens</i>	brownish dubiraphian riffle beetle	None	None	-	-
Clearlake Oaks	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	-
Clearlake Oaks	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	Cand Thrt	SSC	-
Clearlake Oaks	<i>Myotis yumanensis</i>	Yuma myotis	None	None	-	-
Clearlake Oaks	<i>Gonidea angulata</i>	western ridged mussel	None	None	-	-
Clearlake Oaks	<i>Great Valley Mixed Riparian Forest</i>	Great Valley Mixed Riparian Forest	None	None	-	-
Clearlake Oaks	<i>Hemizonia congesta ssp. calyculata</i>	Mendocino tarplant	None	None	-	4.3
Clearlake Oaks	<i>Layia septentrionalis</i>	Colusa layia	None	None	-	1B.2
Clearlake Oaks	<i>Arctostaphylos manzanita ssp. elegans</i>	Konocti manzanita	None	None	-	1B.3
Clearlake Oaks	<i>Erythronium helenae</i>	St. Helena fawn lily	None	None	-	4.2
Clearlake Oaks	<i>Calyptridium quadripetalum</i>	four-petaled pussypaws	None	None	-	4.3
Clearlake Oaks	<i>Potamogeton zosteriformis</i>	eel-grass pondweed	None	None	-	2B.2
Hough Springs	<i>Rana boylei</i>	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Hough Springs	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End	FP	-
Hough Springs	<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	-
Hough Springs	<i>Phalacrocorax auritus</i>	double-crested cormorant	None	None	WL	-
Hough Springs	<i>Perognathus inornatus</i>	San Joaquin Pocket Mouse	None	None	-	-
Hough Springs	<i>Asclepias solanoana</i>	serpentine milkweed	None	None	-	4.2
Hough Springs	<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	None	None	-	1B.2
Hough Springs	<i>Harmonia hallii</i>	Hall's harmonia	None	None	-	1B.2
Hough Springs	<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None	None	-	1B.2
Hough Springs	<i>Streptanthus barbiger</i>	bearded jewelflower	None	None	-	4.2
Hough Springs	<i>Calystegia collina ssp. oxyphylla</i>	Mt. Saint Helena morning-glory	None	None	-	4.2
Hough Springs	<i>Carex klamathensis</i>	Klamath sedge	None	None	-	1B.2
Hough Springs	<i>Astragalus clevelandii</i>	Cleveland's milk-vetch	None	None	-	4.3

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CALIF	CDFG	CNPS
Hough Springs	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None	-	1B.2
Hough Springs	<i>Fritillaria purdyi</i>	Purdy's fritillary	None	None	-	4.3
Hough Springs	<i>Hesperolinon drymarioides</i>	drymaria-like western flax	None	None	-	1B.2
Hough Springs	<i>Calyptridium quadripetalum</i>	four-petaled pussypaws	None	None	-	4.3
Hough Springs	<i>Clarkia gracilis</i> ssp. <i>tracyi</i>	Tracy's clarkia	None	None	-	4.2
Hough Springs	<i>Castilleja rubicundula</i> var. <i>rubicundula</i>	pink creamsacs	None	None	-	1B.2
Hough Springs	<i>Collomia diversifolia</i>	serpentine collomia	None	None	-	4.3
Hough Springs	<i>Eriogonum nervulosum</i>	Snow Mountain buckwheat	None	None	-	1B.2
Hough Springs	<i>Eriogonum tripodum</i>	tripod buckwheat	None	None	-	4.2
Hough Springs	<i>Delphinium uliginosum</i>	swamp larkspur	None	None	-	4.2
Hough Springs	<i>Horkelia bolanderi</i>	Bolander's horkelia	None	None	-	1B.2
Hough Springs	<i>Brodiaea rosea</i>	Indian Valley brodiaea	None	End	-	1B.1
Leesville	<i>Rana boylei</i>	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Leesville	<i>Falco mexicanus</i>	prairie falcon	None	None	WL	-
Leesville	<i>Trachykele hartmani</i>	serpentine cypress wood-boring beetle	None	None	-	-
Leesville	<i>Perognathus inornatus</i>	San Joaquin Pocket Mouse	None	None	-	-
Leesville	<i>Anodonta californiensis</i>	California floater	None	None	-	-
Leesville	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	-
Leesville	<i>Wildflower Field</i>	Wildflower Field	None	None	-	-
Leesville	<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	None	None	-	1B.2
Leesville	<i>Harmonia hallii</i>	Hall's harmonia	None	None	-	1B.2
Leesville	<i>Helianthus exilis</i>	serpentine sunflower	None	None	-	4.2
Leesville	<i>Layia septentrionalis</i>	Colusa layia	None	None	-	1B.2
Leesville	<i>Senecio clevelandii</i> var. <i>clevelandii</i>	Cleveland's ragwort	None	None	-	4.3
Leesville	<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None	None	-	1B.2
Leesville	<i>Streptanthus drepanoides</i>	sickle-fruit jewelflower	None	None	-	4.3
Leesville	<i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Mt. Saint Helena morning-glory	None	None	-	4.2
Leesville	<i>Calystegia collina</i> ssp. <i>tridactylosa</i>	coast range bindweed	None	None	-	1B.2
Leesville	<i>Acmispon rubriflorus</i>	red-flowered bird's-foot-trefoil	None	None	-	1B.1
Leesville	<i>Astragalus breweri</i>	Brewer's milk-vetch	None	None	-	4.2
Leesville	<i>Astragalus clevelandii</i>	Cleveland's milk-vetch	None	None	-	4.3
Leesville	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None	-	1B.2
Leesville	<i>Lupinus milo-bakeri</i>	Milo Baker's lupine	None	Thrt	-	1B.1
Leesville	<i>California macrophylla</i>	round-leaved filaree	None	None	-	1B.2
Leesville	<i>Fritillaria pluriflora</i>	adobe-lily	None	None	-	1B.2
Leesville	<i>Clarkia gracilis</i> ssp. <i>tracyi</i>	Tracy's clarkia	None	None	-	4.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CALIF	CDFG	CNPS
Leesville	<i>Castilleja rubicundula</i> var. <i>rubicundula</i>	pink creamsacs	None	None	-	1B.2
Leesville	<i>Collomia diversifolia</i>	serpentine collomia	None	None	-	4.3
Leesville	<i>Navarretia jepsonii</i>	Jepson's navarretia	None	None	-	4.3
Leesville	<i>Eriogonum nervulosum</i>	Snow Mountain buckwheat	None	None	-	1B.2
Leesville	<i>Delphinium uliginosum</i>	swamp larkspur	None	None	-	4.2
Leesville	<i>Horkelia bolanderi</i>	Bolander's horkelia	None	None	-	1B.2
Leesville	<i>Brodiaea rosea</i>	Indian Valley brodiaea	None	End	-	1B.1
Lower Lake	<i>Rana boylei</i>	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Lower Lake	<i>Aquila chrysaetos</i>	golden eagle	None	None	FP ; WL	-
Lower Lake	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End	FP	-
Lower Lake	<i>Ardea herodias</i>	great blue heron	None	None	-	-
Lower Lake	<i>Lavinia exilicauda chi</i>	Clear Lake hitch	None	Thrt	-	-
Lower Lake	<i>Saldula usingeri</i>	Wilbur Springs shorebug	None	None	-	-
Lower Lake	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	-
Lower Lake	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	Cand Thrt	SSC	-
Lower Lake	<i>Myotis lucifugus</i>	little brown bat	None	None	-	-
Lower Lake	<i>Myotis yumanensis</i>	Yuma myotis	None	None	-	-
Lower Lake	<i>Lomatium hooveri</i>	Hoover's lomatium	None	None	-	4.3
Lower Lake	<i>Harmonia hallii</i>	Hall's harmonia	None	None	-	1B.2
Lower Lake	<i>Lasthenia burkei</i>	Burke's goldfields	End	End	-	1B.1
Lower Lake	<i>Layia septentrionalis</i>	Colusa layia	None	None	-	1B.2
Lower Lake	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None	-	1B.2
Lower Lake	<i>Fritillaria pluriflora</i>	adobe-lily	None	None	-	1B.2
Lower Lake	<i>Hesperolinon sharsmithiae</i>	Sharsmith's western flax	None	None	-	1B.2
Lower Lake	<i>Malacothamnus helleri</i>	Heller's bush-mallow	None	None	-	3.3
Lower Lake	<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	None	None	-	1B.1
Lower Lake	<i>Navarretia leucocephala</i> ssp. <i>pauciflora</i>	few-flowered navarretia	End	Thrt	-	1B.1
Lower Lake	<i>Potamogeton zosteriformis</i>	eel-grass pondweed	None	None	-	2B.2
Lower Lake	<i>Delphinium uliginosum</i>	swamp larkspur	None	None	-	4.2
Wilbur Springs	<i>Rana boylei</i>	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Wilbur Springs	<i>Accipiter cooperii</i>	Cooper's hawk	None	None	WL	-
Wilbur Springs	<i>Aquila chrysaetos</i>	golden eagle	None	None	FP ; WL	-
Wilbur Springs	<i>Falco mexicanus</i>	prairie falcon	None	None	WL	-
Wilbur Springs	<i>Athene cunicularia</i>	burrowing owl	None	None	SSC	-
Wilbur Springs	<i>Paracoenia calida</i>	Wilbur Springs shore fly	None	None	-	-
Wilbur Springs	<i>Ochthebius reticulatus</i>	Wilbur Springs minute moss beetle	None	None	-	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CALIF	CDFG	CNPS
Wilbur Springs	<i>Saldula usingeri</i>	Wilbur Springs shorebug	None	None	-	-
Wilbur Springs	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	-
Wilbur Springs	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	Cand Thrt	SSC	-
Wilbur Springs	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	-
Wilbur Springs	<i>Wildflower Field</i>	Wildflower Field	None	None	-	-
Wilbur Springs	<i>Plagiobryoides vinosula</i>	wine-colored tufa moss	None	None	-	4.2
Wilbur Springs	<i>Allium fimbriatum</i> var. <i>purdyi</i>	Purdy's onion	None	None	-	4.3
Wilbur Springs	<i>Lomatium hooveri</i>	Hoover's lomatium	None	None	-	4.3
Wilbur Springs	<i>Lomatium repostum</i>	Napa lomatium	None	None	-	4.3
Wilbur Springs	<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	None	None	-	1B.2
Wilbur Springs	<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	None	None	-	1B.2
Wilbur Springs	<i>Centromadia parryi</i> ssp. <i>rudis</i>	Parry's rough tarplant	None	None	-	4.2
Wilbur Springs	<i>Erigeron greenei</i>	Greene's narrow-leaved daisy	None	None	-	1B.2
Wilbur Springs	<i>Harmonia hallii</i>	Hall's harmonia	None	None	-	1B.2
Wilbur Springs	<i>Helianthus exilis</i>	serpentine sunflower	None	None	-	4.2
Wilbur Springs	<i>Layia septentrionalis</i>	Colusa layia	None	None	-	1B.2
Wilbur Springs	<i>Senecio clevelandii</i> var. <i>clevelandii</i>	Cleveland's ragwort	None	None	-	4.3
Wilbur Springs	<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None	None	-	1B.2
Wilbur Springs	<i>Cryptantha excavata</i>	deep-scarred cryptantha	None	None	-	1B.3
Wilbur Springs	<i>Extriplex joaquinana</i>	San Joaquin spearscale	None	None	-	1B.2
Wilbur Springs	<i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Mt. Saint Helena morning-glory	None	None	-	4.2
Wilbur Springs	<i>Astragalus breweri</i>	Brewer's milk-vetch	None	None	-	4.2
Wilbur Springs	<i>Astragalus clevelandii</i>	Cleveland's milk-vetch	None	None	-	4.3
Wilbur Springs	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None	-	1B.2
Wilbur Springs	<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	None	None	-	4.3
Wilbur Springs	<i>Lupinus milo-bakeri</i>	Milo Baker's lupine	None	Thrt	-	1B.1
Wilbur Springs	<i>Lupinus sericatus</i>	Cobb Mountain lupine	None	None	-	1B.2
Wilbur Springs	<i>California macrophylla</i>	round-leaved filaree	None	None	-	1B.2
Wilbur Springs	<i>Fritillaria pluriflora</i>	adobe-lily	None	None	-	1B.2
Wilbur Springs	<i>Fritillaria purdyi</i>	Purdy's fritillary	None	None	-	4.3
Wilbur Springs	<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	None	None	-	1B.2
Wilbur Springs	<i>Hesperolinon drymarioides</i>	drymaria-like western flax	None	None	-	1B.2
Wilbur Springs	<i>Malacothamnus helleri</i>	Heller's bush-mallow	None	None	-	3.3
Wilbur Springs	<i>Clarkia gracilis</i> ssp. <i>tracyi</i>	Tracy's clarkia	None	None	-	4.2
Wilbur Springs	<i>Castilleja rubicundula</i> var. <i>rubicundula</i>	pink creamsacs	None	None	-	1B.2
Wilbur Springs	<i>Mimulus nudatus</i>	bare monkeyflower	None	None	-	4.3

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CALIF	CDFG	CNPS
Wilbur Springs	<i>Puccinellia simplex</i>	California alkali grass	None	None	-	1B.2
Wilbur Springs	<i>Collomia diversifolia</i>	serpentine collomia	None	None	-	4.3
Wilbur Springs	<i>Navarretia jepsonii</i>	Jepson's navarretia	None	None	-	4.3
Wilbur Springs	<i>Delphinium uliginosum</i>	swamp larkspur	None	None	-	4.2
Wilbur Springs	<i>Horkelia bolanderi</i>	Bolander's horkelia	None	None	-	1B.2
Wilbur Springs	<i>Brodiaea rosea</i>	Indian Valley brodiaea	None	End	-	1B.1
Wilson Valley	<i>Rana boylei</i>	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Wilson Valley	<i>Aquila chrysaetos</i>	golden eagle	None	None	FP ; WL	-
Wilson Valley	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End	FP	-
Wilson Valley	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	-
Wilson Valley	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	Cand Thrt	SSC	-
Wilson Valley	<i>Margaritifera falcata</i>	western pearlshell	None	None	-	-
Wilson Valley	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	-
Wilson Valley	<i>Lomatium hooveri</i>	Hoover's lomatium	None	None	-	4.3
Wilson Valley	<i>Harmonia hallii</i>	Hall's harmonia	None	None	-	1B.2
Wilson Valley	<i>Layia septentrionalis</i>	Colusa layia	None	None	-	1B.2
Wilson Valley	<i>Senecio clevelandii</i> var. <i>clevelandii</i>	Cleveland's ragwort	None	None	-	4.3
Wilson Valley	<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None	None	-	1B.2
Wilson Valley	<i>Streptanthus brachiatus</i> ssp. <i>hoffmanii</i>	Freed's jewelflower	None	None	-	1B.2
Wilson Valley	<i>Astragalus clevelandii</i>	Cleveland's milk-vetch	None	None	-	4.3
Wilson Valley	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None	-	1B.2
Wilson Valley	<i>California macrophylla</i>	round-leaved filaree	None	None	-	1B.2
Wilson Valley	<i>Fritillaria pluriflora</i>	adobe-lily	None	None	-	1B.2
Wilson Valley	<i>Hesperolinon drymarioides</i>	drymaria-like western flax	None	None	-	1B.2
Wilson Valley	<i>Castilleja rubicundula</i> var. <i>rubicundula</i>	pink creamsacs	None	None	-	1B.2
Wilson Valley	<i>Antirrhinum virga</i>	twig-like snapdragon	None	None	-	4.3
Wilson Valley	<i>Collomia diversifolia</i>	serpentine collomia	None	None	-	4.3
Wilson Valley	<i>Navarretia jepsonii</i>	Jepson's navarretia	None	None	-	4.3
Wilson Valley	<i>Navarretia nigelliformis</i> ssp. <i>nigelliformis</i>	adobe navarretia	None	None	-	4.2
Wilson Valley	<i>Eriogonum nervulosum</i>	Snow Mountain buckwheat	None	None	-	1B.2
Wilson Valley	<i>Delphinium uliginosum</i>	swamp larkspur	None	None	-	4.2

Key for Appendix C:

- 1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California*
- 1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly threatened in California*
- 1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California*
- 2A = Presumed extinct in California, but extant elsewhere*
- 2B.1 = Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.*
- 2B.2 = Rare, threatened, or endangered in Calif., but more common elsewhere; fairly threatened in Calif.*
- 2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.*
- 3 = Plants about which we need more information (Review List)*
- 3.1 = Plants about which we need more information (Review List); seriously threatened in California*
- 3.2 = Plants about which we need more information (Review List); fairly threatened in California*
- 3.3 = Plants about which we need more information (Review List); not very threatened in California*
- 4.2 = Plants of limited distribution (watch list); fairly threatened in California*
- 4.3 = Plants of limited distribution (watch list); not very threatened in California*

SE/ST/SD=State Endangered/Threatened/Delisted

SC/SCD=State Candidate for Listing/Delisting

SSC=CDFW Species of Special Concern

SFP=State Fully Protected

WL=CDFW Watch List

FE/FT/FD=Federal Endangered/Threatened/Delisted

FPE/FPT/FPD/FP=Federal Proposed Endangered/Threatened/Delisting

FC=Federal Candidate

Thrt=Threatened

End=Endangered

Cand=Candidate

Prop=Proposed

Appendix D Permitted Construction Dates for Mitigating Impacts to Sensitive Wildlife

Species	Project Activity	Restricted Dates	Permitted Dates
Western pond turtle; Foothill yellow-legged frog	Work at the bridge crossing of Wolf Creek. Exception: Work is permitted if avoidance and minimization efforts have been carried out as described in Sections 4.3.1.2 and 4.3.2.2.	All unless avoidance and minimization is carried out	None without avoidance and minimization (see exception)
Bald eagle; White-tailed kite	Construction or clearing work within 250 feet of an active nest within the PIA. Exception: Restriction dates do not apply if avoidance and minimization described in Section 4.3.3.2 and 4.3.4.2 provided for these species is implemented or survey results are negative.	February 15 – August 31	September 1- February 14
Yellow warbler; Yellow-breasted chat	Construction or clearing work within 100 feet of the willow thicket communities along Wolf Creek. Exception: Restriction dates do not apply if avoidance and minimization described in Section 4.3.5.2 provided for these species is implemented or survey results are negative.	February 15 – August 31	September 1- February 14
Pallid bat	Any proposed tree removal within PIA + 50-foot buffer. Exception: Restriction dates do not apply if avoidance and minimization described in Section 4.3.6.2 provided for these species is implemented or survey results are negative.	April 2- September 14; October 16- February 14	September 15- October 15, or February 15- April 1
North American river otter	Disturbance within or adjacent to creek removal within PIA + 50-foot buffer. Exception: Restriction dates do not apply if avoidance and minimization described in Section 4.3.7.2 provided for these species is implemented or survey results are negative.	December 1- April 30	May 1- November 30

Appendix E Periods During Which Construction May Not Take Place Without Surveys or Avoidance Measures

Species	PERIODS DURING WHICH CONSTRUCTION MAY NOT TAKE PLACE WITHOUT MINIMIZATION											
	January	February	March	April	May	June	July	August	September	October	November	December
Foothill yellow-legged frog	Survey for frogs		Survey for frogs and larvae				15 th Survey for frogs					
Western pond turtle	Nest and turtle Survey			Survey for Turtles				15 th Nest and turtle Survey				
Bald Eagle, White-tailed kite	15 th	Nest Survey										
Yellow warbler, Yellow-breasted chat	15 th	Nest Survey										
Pallid bat	Bat Survey				Bat Survey				15 th	15 th	Bat Survey	
North American river otter	Survey for Active Den Sites											

Appendix F USFWS Species List – Wolf Creek Road Bridge Project

Animal Scientific Name	Common Name	USFWS Status	General Habitat Description	Habitat Present/Absent	Rationale
<i>Hypomesus transpacificus</i>	Delta smelt	T	Estuarine, dead-end sloughs, larger rivers, lagoons, and larger open channels surrounding San Francisco Bay.	A	Species is limited to mixed fresh and saline waters of the San Francisco delta region.
<i>Rana draytonii</i>	California red-legged frog	T	Generally ponded water or slow-moving streams with dense bank vegetation and three or more feet of depth.	A	This portion of the creek does not contain ponded water and lacks suitable habitat for this species. Species has not been found in this region.
<i>Strix occidentalis caurina</i>	northern spotted owl	T	Old-growth forests or mixed stands of old-growth & mature trees; occasionally in younger forests with patches of big trees.	A	This site does not contain forest habitat required by this species.
No Critical Habitats occur at this location					

T = Threatened

A = Absent



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:

November 05, 2018

Consultation Code: 08ESMF00-2018-SLI-2153

Event Code: 08ESMF00-2019-E-00755

Project Name: Wolf Creek Bridge Replacement Project

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-2153

Event Code: 08ESMF00-2019-E-00755

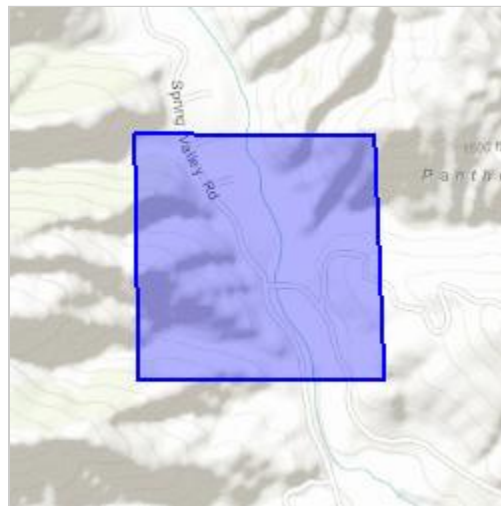
Project Name: Wolf Creek Bridge Replacement Project

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Bridge Construction/Maintenance - Wolf Creek at Wolf Creek Road, Spring Valley, Lake County CA

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/39.08298891566439N122.60467572457077W>



Counties: Lake, CA

Endangered Species Act Species

There is a total of 3 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 Fisheries¹, 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.

-
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
Northern Spotted Owl <i>Strix occidentalis caurina</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened

Amphibians

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

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Critical habitats

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

Appendix G Water Quality Technical Memo for the Wolf Creek Road Bridge Replacement Project

See following pages.



11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670 ▪ Phone: (916) 363-4210 ▪ Fax: (916) 363-4230

• M e m o r a n d u m

To: Fred Pezeshk
Lake County Department of Public Works
255 N. Forbes Street, Room 309
Lakeport, CA 95453

Date: June 21, 2017

Subject: Water Quality Technical Memorandum: Wolf Creek Road over Upper Wolf Creek Bridge
(Bridge No.14C-0048) Replacement Project

Introduction

The purpose of this Water Quality Technical Memorandum is to provide an analysis of potential water quality degradation associated with the Wolf Creek Road over upper Wolf Creek Bridge Replacement Project (Project) proposed by the County of Lake Department of Public Works (County). The project site is located near the intersection of Wolf Creek Road and Spring Valley Road in the Spring Valley Lakes community in eastern Lake County approximately 5 miles northeast of Clearlake Oaks (**Figures 1 and 2**).

Project Purpose and Need

The bridge has a sufficiency rating (SR) of 60.1 and has been designated as functionally obsolete (FO) per the Caltrans Structure Maintenance & Investigations, Local Agency Bridge List (July 2015). The functionally obsolete designation is a result of the insufficient deck width. Wolf Creek Road is a two-lane road and the clear width of the existing bridge is too narrow to support standard lane and shoulder widths for a two-lane facility. Additionally, the existing bridge fails to meet the current Caltrans design standard for freeboard requirements. Hydraulic studies indicate that the existing bridge may be overtopped during a 100-year storm event.

The purpose of the proposed project is to provide a replacement structure that is consistent with appropriate Caltrans structural design standards, is placed on a road alignment that meets the appropriate AASHTO roadway geometry standards, and is hydraulically capable of passing and clearing the design storm events (50-year storm plus 2 feet of freeboard and 100-year storm).

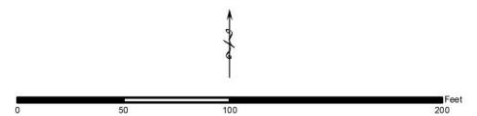
June 21, 2017

Wolf Creek Road Bridge Replacement Project
Memo – Water Quality Resources





★ Project Location - Wolf Creek Road Bridge



Project Description

The replacement bridge will be wider to comply with current AASHTO standards for local rural roads, including 9-foot travel lanes and 2-foot shoulders, plus crash-tested vehicular barriers. The replacement bridge will be approximately 84 feet long. This length is appropriate for a two-span bridge, which matches the existing bridge configuration, or a single span bridge, which would reduce the construction duration and increase the hydraulic capacity of the channel.

It is anticipated that deep foundations will be needed to support the replacement bridge. The underlying formation of the soil is rock overlaid by alluvial fan deposits which have washed down from the mountains. The upper material is subject to scour; this is often best suited for concrete piles, as they can be designed to act as columns if the soil material scours away. The most feasible pile type will be determined during the type selection process, when further geotechnical information is available.

Alternative 1: Constructing the Replacement Bridge by Fully Closing Wolf Creek Road

The replacement bridge may be constructed by fully closing Wolf Creek Road at the Upper Wolf Creek Bridge location and using a temporary detour to route public traffic around the project site. Closing the road will avoid the need to construct a temporary creek crossing. Due to the close proximity of the intersection with Spring Valley Road, staging the construction of the replacement bridge is not a viable option. For residents directly adjacent to the bridge location the temporary detour would take about 10 minutes and would be approximately 3 miles in length.

Alternative 2: Constructing the Replacement Bridge Using a Temporary Creek Crossing

If closing the road is determined to be unacceptable, a temporary creek crossing will be built upstream (north) of the existing bridge to handle public traffic through the site during project construction. The installation of the temporary creek crossing will increase the field construction time over the time needed to construct the project using a full road closure. More extensive temporary construction easements will also be required from the private properties north of the bridge.

Demolition

Demolition of the existing bridge will be performed in accordance with the Caltrans Standard Specifications modified to meet environmental permit requirements. The following specifications will apply:

13-4.03D(3) Concrete Waste: Prevent the discharge of concrete and asphalt concrete waste into storm drain systems and receiving waters. Collect concrete waste, including grout, dust and debris from demolition, saw cutting, coring, grinding, or grooving, simultaneously with the waste-producing activity.

13-4.03E(6) Structure Removal Over or Adjacent to Water: Do not allow demolished material to enter storm drain systems and receiving waters. Use authorized covers and platforms to collect debris. Use attachments on equipment to catch debris during small demolition activities. Empty debris-catching devices daily and handle debris under section 13-4.03D.

All concrete and other debris resulting from the bridge demolition will be removed from the project site and disposed of by the contractor. The construction contractor will prepare a bridge demolition plan.

Right-of-Way

Temporary construction easements will be needed for all seven of the adjacent properties to construct the project. If the construction of a temporary creek crossing is determined to be necessary, more extensive temporary construction easements will be needed from the two adjacent properties north of the existing bridge. Additional permanent right-of-way takes are not anticipated. Detailed easements have not been determined at this point.

Utilities

There are several utilities at the site, both overhead and underground. Overhead electric and communication lines run parallel to the bridge on the north side of Wolf Creek Road. These lines may need to be temporarily relocated or de-energized during the construction of the replacement bridge; to be determined as the design of the project progresses.

A 6-inch waterline, owned and operated by the Special Districts Administration, runs along the south side of Wolf Creek Road, and is attached to the superstructure of the existing bridge. This waterline will need to be relocated to the new structure.

Construction Activities

Project construction will consist of the following activities:

- Removing trees
- Clearing and grubbing
- Earthwork grading
- Installing a temporary creek diversion system using temporary coffer dams and pipe culverts
- Removing the existing bridge
- Excavating for the replacement bridge abutment and pier wall foundations
- Constructing the new abutments in the creek bank
- Constructing new pier walls within the creek channel
- Placing temporary falsework within the creek channel
- Constructing the replacement bridge superstructure
- Placing rock slope protection along the creek banks in the vicinity of the new bridge abutments
- Reconstructing the road approaches
- Placing post construction erosion control native grass seeds and mulch

The project will include the removal and replacement of a portion of the existing concrete slope pavement on the west bank of Wolf Creek and the placement of new Rock Slope Protection (RSP) on the east bank. The concrete sloped pavement is anticipated to be 6 inches thick and will extend approximately 125 feet long (measured along the creek alignment) centered with the bridge by 55 feet wide (measured along the slope of the bank) for a total rough coverage area of 6,875 square feet and a volume of approximately

130 cubic yards. The RSP size will be 1 Ton Rock (D50) with a total blanket thickness of 4 feet-6 inches and at 6-foot by 6-foot key at the base of the slope. The RSP will extend approximately 125 feet along the bank of Wolf Creek centered with the bridge and 30 feet up the bank of the creek for a total rough coverage area of 4,500 square feet and a volume of approximately 306 cubic yards.

Creek Diversion and Dewatering

The anticipated flow range in the Wolf Creek during the construction period for the project is 6 to 25 cubic feet per second (cfs). A creek diversion system will be used to divert flow through the construction zone and dewater the site during construction. The creek diversion system will consist of placing coffer dams upstream and downstream of the construction site and conveying the water from the Upper Wolf Creek through temporary culverts. The coffer dams may consist of sheet piles, clean gravel bags, water filled bladder dams, or another agency approved method. The approximate length of the diversion system will be 112 feet and impact approximately 7,850 square feet of waters of the U.S. Any temporary fill associated with the dewatering system will be removed at the end of construction returning the creek to its original condition. The temporary cofferdams and culverts will be completely removed after the removal of the existing bridge, completion of replacement bridge construction, the placement of RSP, and placement of the concrete sloped pavement. Any temporary fill associated with the dewatering system will be removed at the end of construction returning the creek to its original condition. Groundwater pumping, will most likely be required to construct the foundation of the west abutment and pier foundation. The pumped ground water would be treated and returned to the creek downstream of the project site.

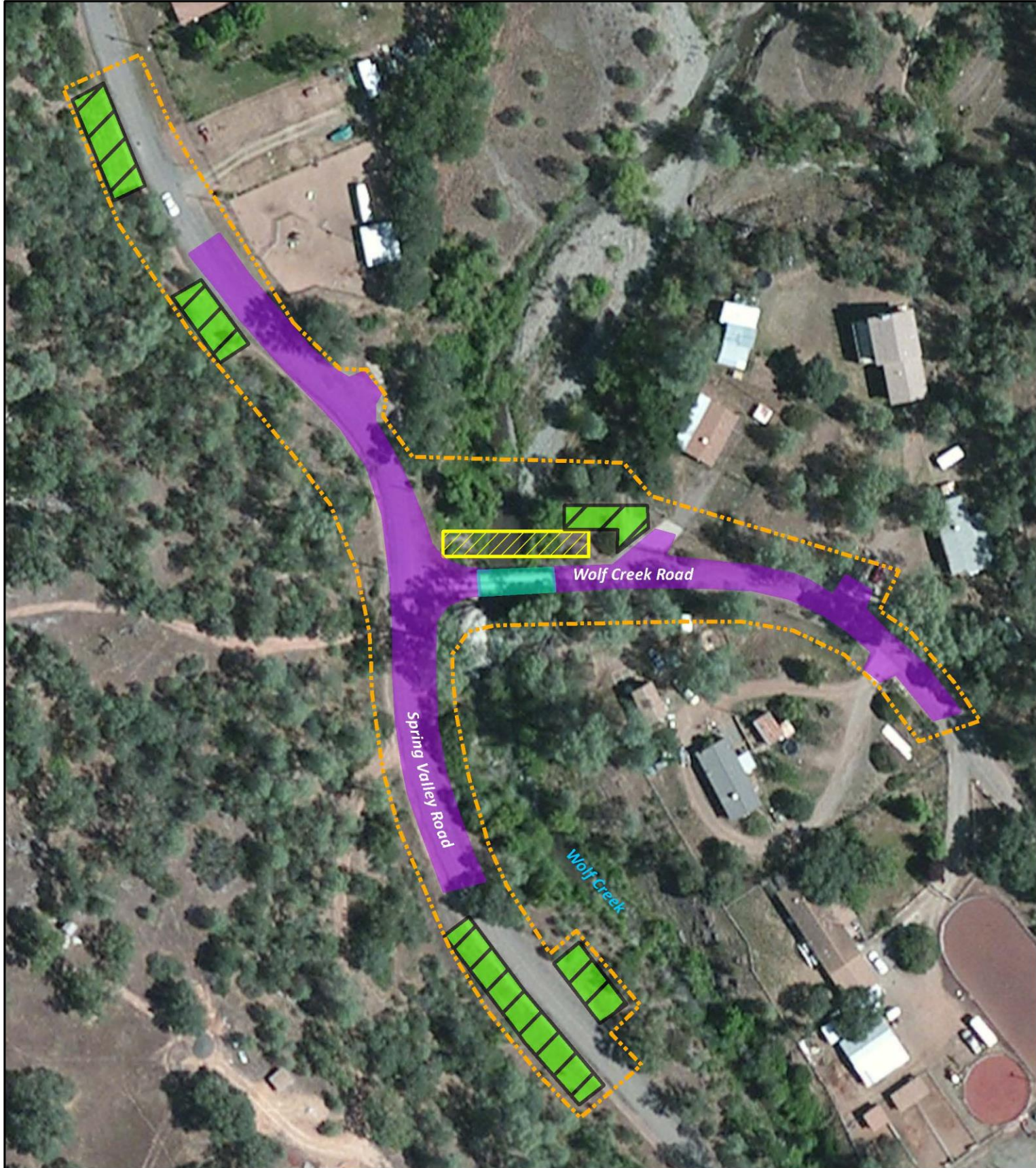
The creek diversion system will be designed in conformance with County specifications and regulations as required by the California Department of Fish and Game. Site dewatering will occur in conformance with County specifications, and regulations as required by the RWQCB, California Department of Fish and Wildlife, and US Fish and Wildlife Service.

Staging Areas

The potential project staging areas are expected to be as shown in **Figure 3**. Staging of equipment and materials in either location will occur within the bounds of the Project Impact Area.

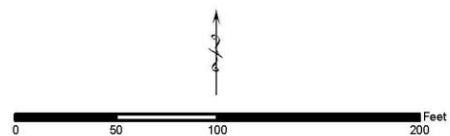
Construction Schedule and Timing

Construction of the proposed project is anticipated to take between 4 to 6 months to complete, pending the scope of the final design and the construction methodology. Construction is anticipated for the spring of 2020 or 2021. All work within the Upper Wolf Creek channel will be conducted in accordance with the regulatory agency permits.



Legend

- Project Impact Area
- Existing Bridge
- Proposed Bridge and Roadway
- Construction Staging
- Temporary Creek Crossing



Regulatory Setting

Federal Laws and Requirements

- **Clean Water Act**

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into “waters of the United States.” The act specifies a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.

- Section 401 requires every applicant for a federal permit or license for any activity that may result in a discharge to a water body to obtain a water quality certification that the proposed activity will comply with applicable water quality standards.
- Section 402 regulates point- and nonpoint-source discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program. In California, the State Water Resources Control Board (SWRCB) oversees the NPDES program, which is administered by the RWQCBs. The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits. Anti-backsliding requirements provided for under CWA Sections 402(o)(2) and 303(d)(4) prohibit slackening of discharge requirements and regulations under revised NPDES permits. With isolated/limited exceptions, these regulations require effluent limitations in a reissued permit to be at least as stringent as those contained in the previous permit.
- Section 404 of the CWA establishes a program to regulate the discharge of dredged and fill material into waters of the U.S., including some wetlands. Activities in waters of the U.S. that are regulated under this program include fills for development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and airports), and conversion of wetlands to uplands for farming and forestry.

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The Corps issues two types of 404 permits: Standard permits and General permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the Corps’ Standard permits. For Standard permits, the Corps decision to approve is based on compliance with US Environmental Protection Agency’s (EPA) Section 404 (b) (1) Guidelines (US EPA CFR 40 Part 230), and whether permit approval is in the public interest. The Section 404(b) (1) Guidelines were developed by

the US EPA in conjunction with the Corps, and allow the discharge of dredged or fill material into the aquatic system (waters of the US) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the Corps may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA), to the proposed discharge that would have lesser effects on waters of the US, and not have any other adverse environmental consequences. Per Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the US. In addition, every permit from the Corps, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements (see 33 CFR 320.4).

- **Clean Water Act Section 303(d) Impaired Waters List**

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a Total Maximum Daily Load (TMDL) for each of the listed pollutants. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated. In California, preparation and management of the Section 303(d) list is administered by the RWQCBs.

- **National Pollutant Discharge Elimination System Permit Program**

The NPDES permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify the following:

- effluent and receiving-water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge;
- prohibitions on discharges not specifically allowed under the permit; and
- provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

State Laws and Requirements

- **Porter-Cologne Water Quality Control Act**

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. It predates the CWA and regulates discharges to Waters of the State. Waters of the State include more than Waters of the US, such as groundwater and surface waters not considered Waters

of the US. Additionally, the Porter-Cologne Act prohibits discharges of “waste” as defined and this definition is broader than the CWA definition of “pollutant”. Discharges under the Porter-Cologne Act must be regulated by the Waste Discharge Requirements (WDRs) Program, which may regulate the project even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCB 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 a study area are contained in the applicable RWQCB Basin Plan. States designate beneficial uses for all water body segments, 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, each state 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 for one or more components and the standards cannot be met through point source controls, the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

- **State Water Resources Control Board and Regional Water Quality Control Board**

The State Water Resources Control Board (SWRCB) and RWQCB 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 a study area are contained in the applicable RWQCB Basin Plan. States designate beneficial uses for all water body segments, 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, each state 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 for one or more components and the standards cannot be met through point source controls, the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

Central Valley Regional Water Quality Control Board

The project lies within Central Valley RWQCB Region 5. Region 5 has two Basin Plans covering the Region: one for the Tulare Lake Basin and one for the Sacramento River and San Joaquin River Basins. The Region 5 Basin Plans, like those in other regions, were originally adopted in 1975 and have been updated and revised since that time. The Basin plan currently applicable to the proposed Project is the Sacramento River and San Joaquin River Basin Plan updated in September of 1998 (fourth edition) and revised in October of 2011 (RWQCB 2011).

- **NPDES - Construction General Permit**

Construction General Permit Order No. 2009-0009-DWQ (as amended by 2010-0014-DWQ and 2012-006-DWQ) (CGP) became effective on July 17, 2012. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre

must comply with the provisions of the Construction General Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the SWRCB or RWQCB. A Notice of Intent (NOI) must be submitted to the SWRCB for approval before construction activities may commence. A completed Notice of Termination Form must be submitted to the SWRCB after the permitted construction is complete. For projects subject to the CGP, contractors are required to file a Notice of Intent (NOI) to be covered under the permit and discharges are required to:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) with BMPs that prevent construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off-site into receiving waters;
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the U.S.; and
- Perform inspections of all BMPs.

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows.

One primary factor considered when determining Risk Level is the water quality of receiving water bodies. High risk receiving water bodies are listed on the 303(d) list for water bodies impaired for sediment, have a USEPA approved sediment-related TMDL or have beneficial uses of SPAWN, MIGRATORY and COLD.

Projects that include dewatering must comply with the General Waste Discharge Requirements/NPDES Permit for Dewatering and Other Low Threat Discharges to Surface Waters (Order No. R5-2008-0081 and NPDES Permit No. CAG995001). An NOI must be submitted to the CVRWQCB for approval before dewatering may commence. After dewatering is completed, a Notice of Termination Form must be submitted to the CVRWQCB.

- **Lake and Streambed Alteration Program**

Fish and Game Code section 1602 requires an entity to notify DFW prior to commencing any activity that may do one or more of the following:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
- Deposit debris, waste or other materials that could pass into any river, stream or lake.

Please note that "any river, stream or lake" includes those that are episodic (they are dry for periods of time) as well as those that are perennial (they flow year-round). This includes ephemeral streams, desert

washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

DFW requires an LSA Agreement when it determines that the activity, as described in a complete LSA Notification, may substantially adversely affect existing fish or wildlife resources. An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. DFW may suggest ways to modify your project that would eliminate or reduce harmful impacts to fish and wildlife resources. Before issuing an LSA Agreement, DFW must comply with the California Environmental Quality Act (CEQA).

Regional and Local Requirements

In recent years Lake County has taken a more collaborative approach to watershed management, understanding the relationship between each incorporated or unincorporated community within the County's watersheds. Storm water runoff, wastewater discharge, and ground and surface water contamination and supply are interconnected within the watersheds. To address the need to coordinate water related activities, cities and unincorporated communities within Lake County have partnered to draft regional, countywide plans and programs for watershed management. As provided in the Lake County General Plan Background Report (2008, p.11-11) the following is a description of the goals and policies established to protect water quality within Lake County.

Goal WR-2 To protect the quality of surface and groundwater resources to meet the needs of all beneficial users.

Policy WR-2.1 Protect Surface & Ground Water Quality.

All proposed land use and development plans should be evaluated as to their potential to create surface and groundwater contamination hazards from point and non-point sources. Effects include, but are not limited to: soil erosion; direct discharge of potentially harmful substances; ground leaching from storage of raw materials, petroleum products, or wastes; floating debris by runoff from the site.

Policy WR-2.2 NPDES Enforcement.

The County shall continue to monitor and enforce provisions to control non- point source water pollution contained in the United States Environmental Protection Agency NPDES program.

Policy WR-2.3 Construction Site Sediment Control

The County shall continue to enforce provisions to control erosion and sediment from construction sites.

Policy WR-2.4 Best Management Practices

The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect surface water and groundwater from the adverse effects of construction activities and urban runoff.

Policy WR-2.5 Storm Water Runoff

The County shall ensure the design of facilities and management of storm water runoff in a safe and environmentally sustainable manner. This will be accomplished through the proper siting, design and

operation and maintenance of storm drainage collection and drainage facilities so as to protect the people, property and environment including the quality of runoff water and receiving water.

Policy WR-2.6 TMDL Implementation

The County shall evaluate land use and development plans for their potential to cause an exceedance of the municipal waste load allocation for any TMDL under implementation, and to the maximum extent possible shall ensure that projects do not cause or contribute to water quality impairment.

Affected Environment

Topography

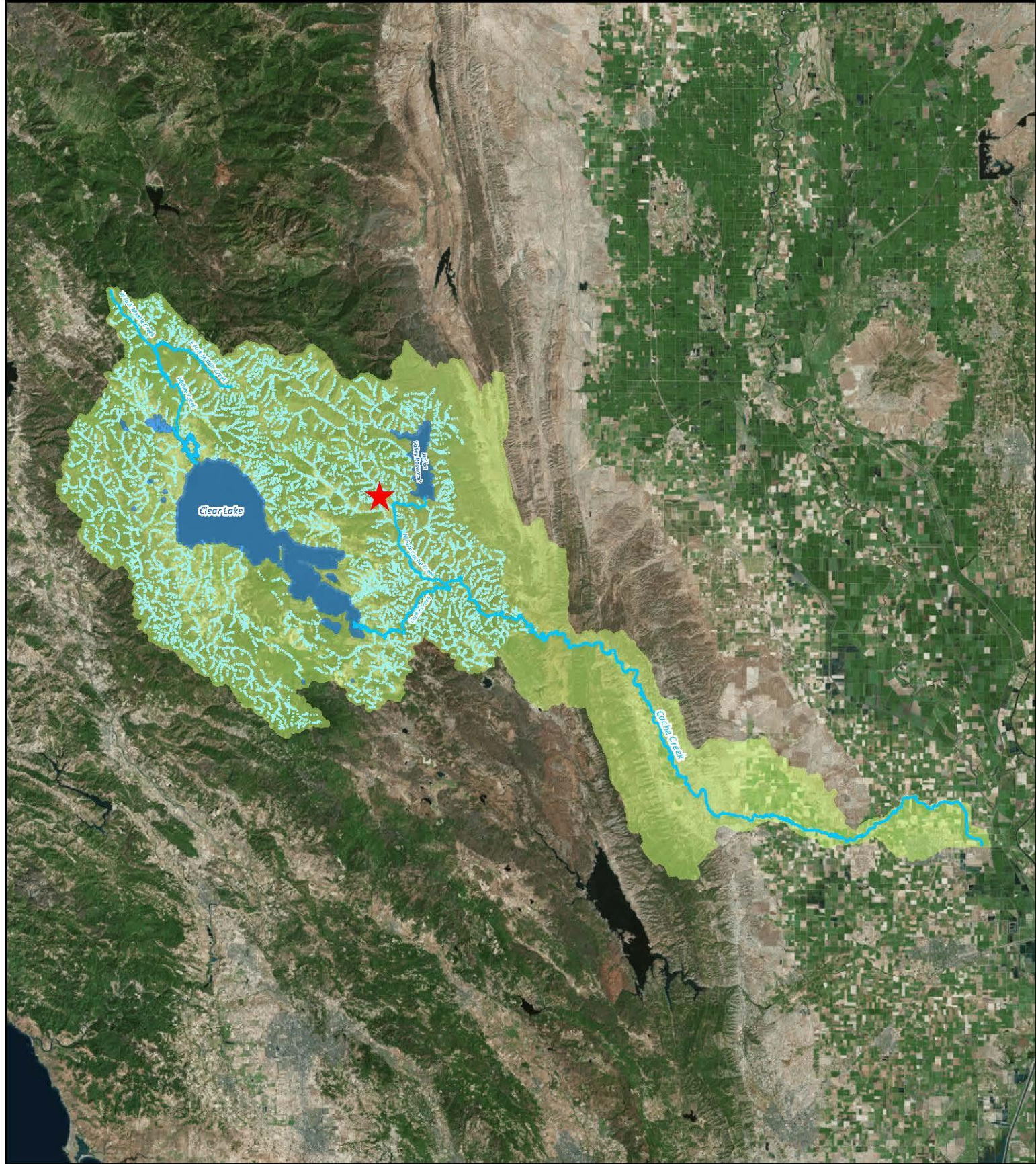
Lake County encompasses roughly 1,261 square miles (807,000 acres) of varied topography in the Coastal Range (USDA 1989). Clear Lake is the largest water body in the county, and has an approximate elevation of 1,320 feet above mean sea level (msl). The highest point in Lake County is Snow Mountain with an elevation of 7,038 feet, and the lowest elevation is 500 feet above msl in the southeastern portion of the county in the Cache Creek drainage. The project site lies at an elevation of approximately 1,137 feet above msl.

Hydrology

- **Regional Hydrology**

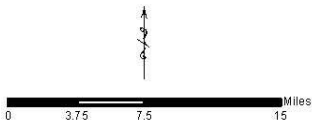
The project site is located within the Upper Cache Watershed (18020116) which is approximately 1,300 square miles with an average annual precipitation of 60 inches. There are numerous lakes, rivers, and streams within the watershed (**Figure 4**). For the purposes of this document only Cache Creek, to which Upper Wolf Creek is a tributary to, is discussed further.

Cache Creek originates from and is the sole outlet of Clear Lake, the largest natural freshwater lake located entirely in California and among the world's oldest lakes (SWRP, 2010). The creek winds its way through a predominantly agricultural setting before entering the Cache Creek Settling Basin, designed to



Legend

-  Project Location - Wolf Creek Road Bridge
-  Upper Cache Watershed
-  Lakes
-  Major Creeks
-  Minor Creeks



capture sediment and enhance groundwater recharge before ultimately releasing water into the Yolo Bypass of the Sacramento River. The Cache Creek Dam on the main fork, located 5 miles downstream from Clear Lake, was built to increase Clear Lake's capacity and to regulate outflow for downstream users of Cache Creek water (SWRP, 2010). The dam later was modified to include a hydroelectric plant. The stream has a relatively small capacity—less than a quarter of the amount the dam is able to release.

Additionally, a rock ledge 1.5 miles downstream of Clear Lake called the Grigsby Riffle restricts the flow at that point, making it difficult for excess flows to drain from Clear Lake and increasing the chance of flooding for lakeside communities (SWRP, 2010). The Capay Diversion Dam, 49 miles downstream from the Cache Creek Dam, diverts water for distribution to agricultural users throughout Yolo County using a 200-mile network of canals. No minimum flow requirements have been set for Cache Creek below Capay Dam. Levees confine the stream channel in the lower 8 miles of Cache Creek until its terminus at the Cache Creek Settling Basin (SWRP, 2010).

- **Local Hydrology**

Within the project site, the primary aquatic feature is Upper Wolf Creek. Upper Wolf Creek is a perennial creek and flows in a southerly direction through the project site. Wolf Creek originates at Evans Peak in the Mendocino National Forest and runs 10 miles before flowing into North Fork Cache Creek near the intersection of Chalk Mountain Road and Wolf Creek Road.

- **Groundwater**

The project site lies within the Clear Lake Cache Formation Groundwater Basin. The Clear Lake Cache Formation Groundwater Basin is east of Clear Lake and shares a boundary with the Burns Valley Groundwater Basin in the southwest (DWR, 2006). Lower Cretaceous marine and Mesozoic ultrabasic intrusive rocks line the southern portion of the basin, with the Franciscan Formation located to the north and west of the basin. The Cache Formation ranges in age from 1.6 to 1.8 million years old and is over 13,000 feet thick. The Cache Formation overlies the Franciscan Formation and Serpentine Ultramafic Rocks, and is the result of seismic and subsidence activity (DWR, 2006). There is only one water-bearing formation in the Clear Lake Cache Formation Groundwater Basin, the Cache Formation. The Cache Formation, generally of low porosity, is over 13,000 feet thick, and made up of sandstone, conglomerate, and gray sandstone. While groundwater levels have not been monitored in this formation, average-year agricultural demand is approximately 90 acre-feet per year (DWR, 2006).

Existing Water Quality

According to the Sacramento River Watershed Program (SRWP), the Cache Creek Watershed was a primary source of mercury used for gold mining in the Sierra and one half of all the mercury entering the Sacramento River system flows from the watershed. It is estimated that over 40 abandoned mines are found in the drainage (SRWP, 2010). The Sulphur Bank mine at Clearlake is a Superfund site undergoing clean-up and the Turkey Run-Abbott mine tailings have been restored. The BLM is currently working to clean up the Rathburn-Petrey Mine. In October 2005, the Central Valley RWQCB adopted a TMDL for

mercury in Cache Creek (and tributaries Bear Creek, Sulphur Creek, and Harley Gulch) (SWRP, 2010). Wolf Creek is not listed on the Clean Water Act Section 303(d) list as impaired for mercury toxicity.

Water Quality Objectives/Standards and Beneficial Uses

Beneficial uses are not set in the Basin Plan explicitly for Wolf Creek, but standards are established for Cache Creek, which Wolf Creek is a tributary to. The Basin Plan states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. Therefore, beneficial uses applied to Cache Creek would also apply to Wolf Creek. Beneficial uses are set in the Basin Plan for Cache Creek and include municipal and domestic supply; agricultural irrigation and stock watering; water contact recreation, and other noncontact recreation; warm and cold freshwater habitat; warm spawning habitat; and wildlife habitat (CVRWQCB, 2012).

Water quality objectives for surface waters in the region have been set for bacteria, bioaccumulation, biostimulatory substances, chemical components, mercury and methyl mercury, color, dissolved oxygen (DO), floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, sulfide, tastes and odors, temperature, toxicity, and turbidity.

Water Quality Impacts

Construction-Related Impacts

Construction of the entire project is anticipated to occur in one in-water construction season. In-water work would occur over a three to four-month period dependent on the replacement bridge type and construction alternative chosen.

Construction activities would include the series of activities described above, under the *Project Description*, that would result in disturbance within and adjacent to Upper Wolf Creek. Proposed channel disturbance during construction, including grubbing and clearing, would result in a temporary increase in turbidity in and around the area of the in-channel construction footprint. In addition, the use of construction equipment and other vehicles could result in spills of oil, grease, gasoline, brake fluid, antifreeze, or other vehicle-related fluids and pollutants. Improper handling, storage, or disposal of fuels and materials or improper cleaning of machinery could cause surface water and groundwater quality degradation.

If dewatering is necessary, a temporary diversion system (described above) would be used to dewater the channel so that the proposed construction activities can occur. Short-term increases in turbidity are anticipated to occur during water diversion and dewatering activities, during the first flush of the stream channel when it is re-watered, and during the first rainstorms which may mobilize disturbed sediments within the project area. Turbidity increases could affect water quality up to 350-feet downstream of the diversion (NOAA Fisheries, 2014). Additionally, dewatering discharge could result in an adverse effect to water quality if the effluent contains chemical pollutants or high levels of sediment. While sediment is the primary pollutant of concern, all dewatering effluents such as nitrogen, oil and grease, total petroleum hydrocarbons, and sulfides could potentially impact water quality.

Large pieces of construction equipment may compress soil within the project work area, which could lead to a reduction in permeability and an increase in site runoff. In addition, there is the potential for some erosion to occur from the portions of the project site outside of the channel during project construction.

Potential impacts to water quality are limited to those discussed above and the proposed project would not otherwise substantially degrade water quality.

Operation-Related Impacts

Implementation of the proposed bridge replacement would not substantially modify the character of the project site in terms of sources of water pollutants. Vehicles traveling on Wolf Creek Road would remain the primary sources of water pollutants at the project site. The project would not change the number of vehicles traveling on Wolf Creek Road or alter other nearby land uses in the watershed.

Cumulative Impacts

NEPA and CEQA require that the direct, indirect, and cumulative impacts of proposed actions be assessed and disclosed. A cumulative impact includes the total effect on a natural resource, ecosystem, or human community due to past, present, and future activities or actions. In the case of this Memorandum, water quality is the natural resource of primary concern. With preparation and implementation of BMPs as required under the SWPPP or WPCP and the avoidance and minimization measures discussed below, the proposed Project would not adversely affect water quality. There are no known concurrent projects within the vicinity of the project that would also contribute to water quality impacts to Upper Wolf Creek. In regards to future projects, small-scale recreation and rural residential are the types of projects that are most likely to occur in the vicinity of the Project. While future development within the watershed could result in water quality, erosion, and drainage impacts to Upper Wolf Creek and surrounding waterways, the incremental effects of the proposed Project are not considerable when viewed in the context of effects from past projects and probable future projects. Future development within the watershed is subject to the federal, state, and local regulations described herein and would be required to implement BMPs to reduce water quality impacts to the extent practicable. Therefore, no adverse cumulative impacts are expected.

Avoidance and Minimization Measures

The proposed project is subject to Construction General Permit (Order No. 2009-0009-DWQ [as amended by Order No. 2010-0014-DWQ and 2012-006-DWQ]) requirements, which requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The proposed project would comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit including preparing and implementing a SWPPP that identifies project specific Best Management Practices (BMPs) to protect water quality during project construction. These BMPs must meet the technical standards established by the permit related to conventional (e.g., sediment) and non-conventional (e.g., toxics) pollutants and must be designed and implemented to ensure the proposed project does not cause or contribute to a violation of water quality standards. The Caltrans Storm Water Quality Handbook has published a set of BMPs, which the proposed project must utilize in drafting the SWPPP. Through compliance with the NPDES program requirements and implementation of a SWPPP, water quality standards would not be violated during project construction. In addition, these measures shall conform

to the provisions in Section 20-2 and 20-3 of the Caltrans Standard Specifications and the special provisions included in the contract for the Project. Erosion control measures to be included in the SWPPP or to be implemented by the County include the following:

Measure 1: Return Temporarily Disturbed Areas to Pre-Project Conditions

All temporarily disturbed areas will be returned to pre-Project conditions upon completion of construction. These areas will be properly protected from washout and erosion using appropriate erosion control devices including coir netting, hydroseeding, and revegetation. In sloped areas, additional erosion control measures would be applied including erosion control blankets and fiber rolls. If woody species (i.e., trees and large shrubs) are removed, these areas would be replanted with comparable native vegetation.

Measure 2: Develop and Implement Dewatering Plan

If dewatering is necessary, the contractor shall develop a dewatering plan describing the methods, materials, quantities, and locations of dewatering activities. All discharges from dewatering will adhere to the requirements of the General Waste Discharge Requirements/NPDES Permit for Dewatering and Other Low Threat Discharges to Surface Waters (Order No. R5-2008-0081/NPDES Permit No. CAG995001). A NOI shall be submitted to the CVRWQCB for approval before dewatering may commence. A completed Notice of Termination Form shall be submitted to the CVRWQCB after the permitted discharge is complete.

Measure 3: Develop Stormwater Pollution Prevention Plan and Implement Water Quality Best Management Practices

Before any ground-disturbing activities, the County shall prepare and implement a SWPPP (as required under the SWRCB's General Construction Permit Order 2009-0009-DWQ [and as amended by most current order(s)]) or a WPCP, as applicable, that includes erosion control measures and construction waste containment measures to ensure that waters of the state are protected during and after Project construction. The Plan (a SWPPP or WPCP) shall follow guidance in the current version of the Caltrans Stormwater Pollution Prevention Plan and the California Stormwater Quality Association (CASQA) BMP Handbook. The SWPPP shall include site design to minimize offsite storm water runoff that might otherwise affect adjacent lake or stream habitat.

The Plan (a SWPPP or WPCP) shall be prepared with the following objectives: (a) to identify pollutant sources, including sources of sediment, that may affect the quality of storm water discharges from the construction of the proposed Project; (b) to identify BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the Project during construction; (c) to outline and provide guidance for BMP monitoring; (d) to identify proposed Project discharge points and receiving waters; to address post-construction BMP implementation and monitoring; and (f) to address sedimentation, siltation, and turbidity.

The SWPPP shall require that the construction contractor implement BMPs to protect water quality within Wolf Creek. Caltrans and CASQA have developed resources for preventing water pollution during construction activities. Based on review of the Project, the following or similar BMPs may be used by the construction contractor when developing the SWPPP:

- Silt fence
- Hydraulic mulch
- Hydroseeding
- Fiber rolls
- Street sweeping
- Clear water diversion
- Dewatering operations
- Pile driving operations (including CIDH piles)
- Material and equipment use over water
- Other spill control and prevention measures

Information on each proposed BMP is provided next, as excerpted from the Caltrans stormwater construction site BMP fact sheets (Caltrans 2003). In addition to the measures described below, the SWPPP will require that the Contractor cover or otherwise stabilize all exposed soil 48 hours prior to potential precipitation events of greater than 0.5 inch.

Best Management Practices

SC-1 and SC-5 Silt Fence and Fiber Rolls

The Contractor would install silt fencing, fiber rolls, or other equivalent erosion and sediment control measures between the designated work area and Upper Wolf Creek, as necessary, to ensure that construction debris and sediment does not inadvertently enter the waterway. Storage and stockpiling of earth materials near Wolf Creek will be avoided if possible.

A silt fence is a temporary linear sediment barrier of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff. Silt fences allow sediment to settle from runoff before water leaves the construction site. For the Project, reinforced silt fencing anchored to keep the fence in place may be used to prevent debris and materials falling toward Upper Wolf Creek during demolition.

A fiber roll consists of wood excelsior, rice or wheat straw, or coconut fibers that is rolled or bonded into a tight tubular roll and placed on the toe and face slopes to intercept runoff, reduce its flow velocity, release the runoff as sheet flow; and provide removal of sediment from the runoff. For the Project, fiber rolls may be used at intervals on exposed slopes.

To ensure that wildlife is not trapped, tightly woven fiber netting (no monofilament netting) or similar material shall be used for erosion control or other purposes within the Project work limits. Coconut coir matting and burlap-contained fiber rolls are an example of acceptable erosion control materials.

SS-3 and SS-4 Hydraulic Mulch and Hydroseeding

Immediately after bridge construction is complete, all exposed soil shall be stabilized. Soil stabilization may include, but is not limited to, seeding with a native grass seed mix, planting native plants and placement of rock. Hydraulic mulch consists of applying a mixture of shredded wood fiber or a hydraulic matrix and a stabilizing emulsion or tackifier with hydroseeding equipment, which temporarily protects exposed soil from erosion by raindrop impact or wind. Hydroseeding typically consists of applying a mixture of wood-fiber, seed, fertilizer, and stabilizing emulsion with hydro-mulch equipment, which temporarily protects exposed soils from erosion by water and wind. Hydroseeding is applied on disturbed

soil areas requiring temporary protection until permanent vegetation is established; or disturbed soil areas that must be re-disturbed following an extended period of inactivity.

The hydraulic mulch should be used in conjunction with a native seed mix applied to the disturbed soil. Disturbed soil areas and areas where existing pavement is removed would be reseeded using a California native plant seed blend. An erosion control seed mix (hydroseed) would be applied in disturbed soil area and on slopes flatter than 1:1. Erosion control (e.g., Bonded Fiber Matrix with a native plant seed blend) would be applied on all disturbed or cut slopes steeper than 1:1.

SC-7 Street Sweeping

Street sweeping and vacuuming is used to remove tracked sediment to prevent the sediment from entering a storm drain or watercourse. These practices would be implemented anywhere sediment is tracked from the Project area and staging area onto public or private paved roads, typically at points of ingress/egress. For the Project, street sweeping may be used along Wolf Creek Road and Spring Valley Road.

NS-2 Dewatering Operations

Dewatering Operations are practices that manage the discharge of pollutants when non-stormwater and accumulated precipitation (stormwater) must be removed from a work location so that construction work may be accomplished. Dewatering operations are used to manage removal of water from excavations, cofferdams, diversions, barges, and areas of ponding (accumulated precipitation). Proper dewatering management prevents discharge of pollutants from these operations to a storm drain or receiving waters. These practices are implemented for discharges of non-stormwater and stormwater (accumulated rain water) from construction sites. Non-stormwater includes groundwater, dewatering of piles, water from cofferdams, water diversions, and water used during construction activities that must be removed from a work area. Dewatering may be required during pile construction. Dewatering during pile construction activities will need to account for changes in pH associated with concrete contact water. High pH water (pH > 8.5) must be managed to prevent any discharges to receiving waters. Discharges of high pH water to land (upland disposal) must be approved by the RWQCB prior to disposal. These measures would be incorporated into the dewatering plan; see **Measure 2** above.

NS-5 Clear Water Diversion

Clear water diversion consists of a system of structures and measures that intercept clear surface water runoff upstream from a project site, transport it around the work area, and discharge it downstream with minimal water quality degradation for either the project construction operations or the construction of the diversion. Clear water diversions are used in a waterway to enclose a construction area and reduce sediment pollution from construction work occurring in or adjacent to water. Structures commonly used as part of this system include diversion ditches, berms, dikes, slope drains, rock, gravel bags, wood, sheet piles, aqua barriers, cofferdams, filter fabric or turbidity curtains, drainage and interceptor swales, pipes, or flumes. Clear water diversion may be used in Wolf Creek, if necessary. These measures would be incorporated into the dewatering plan; see **Measure 2** above.

NS-11 Pile Driving Operations (including CIDH Piles)

Proper control and use of equipment, materials, and waste products from pile driving operations reduces the discharge of potential pollutants to the storm drain system or watercourses. Caltrans has identified procedures which apply to construction sites near or adjacent to a watercourse or groundwater where permanent and temporary pile driving operations (impact and vibratory) take place, including operations using pile shells for construction of cast-in-steel-shell and cast-in-drilled-hole piles. These procedures would be used during Project construction to address CIDH operations.

NS-13 Material and Equipment Use over Water

Caltrans has established procedures for the proper use, storage, and disposal of materials and equipment on barges, boats, temporary construction pads, or similar locations over or adjacent to a watercourse. These measures minimize or eliminate the discharge of potential pollutants to a watercourse.

NS-15 Structural Demolition/Removal Over or Adjacent to Water

During bridge demolition and removal, measures will be used to protect Upper Wolf Creek from debris and waste associated with the demolition. These measures include using attachments on construction equipment, platforms, or other means to catch debris.

Other Spill Prevention and Control Measures

The SWPPP will include a waste management section that provides procedural and structural BMPs for collecting, handling, storing, and disposing of wastes generated by the construction project to prevent the accidental release of pollutants during construction. For example, no refueling, storage, servicing, or maintenance of equipment shall take place within 100 feet of aquatic habitat, and all machinery used during construction of the Project shall be properly maintained and cleaned to prevent spills and leaks that could contaminate soil or water. The SWPPP also includes measures to report, contain, and mitigate for any accidental spills during construction. Any spills or leaks from construction equipment (i.e., fuel, oil, hydraulic fluid, and grease) shall be cleaned up in accordance with applicable local, state, and/or federal regulations.

Conclusion

Construction of the Project has the potential to impact water quality on a short-term, temporary basis. In order to protect the water quality of Upper Wolf Creek from construction-related impacts, the following agency coordination and regulatory permits are anticipated for the proposed project. All BMP's and other avoidance/minimization measures will be prepared in consultation with the project engineer, County of Lake, Central Valley RWQCB, and other appropriate agencies.

- The proposed project would require a NPDES General Construction Permit for Discharges of storm water associated with construction activities (Construction General Permit (Order No. 2009-0009-DWQ [as amended by Order No. 2010-0014-DWQ and 2012-006-DWQ])). A SWPPP would also be developed and implemented as part of the Construction General Permit. In addition, the following NPDES permits may also be required:

- State Water Resources Control Board Water Quality Order No. 2003-003-DWQ General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality
- CVRWQCB Waiver of Reports of Waste Discharge within the Central Valley Region (Resolution R5-2013-0145).
- U.S. Army Corps of Engineers – Clean Water Act, Section 404, Nationwide Permit #14 (Linear Transportation Projects).
- California Department of Fish and Wildlife – California Endangered Species Act Section 1600-1602 Streambed Alteration Agreement.
- Regional Water Quality Control Board - Clean Water Act, Section 401 Water Quality Certification.

Should you need additional information or have any questions, please do not hesitate to contact me at (916) 363-4210.

Very truly yours,

Drake Haglan & Associates



Lindsay Tisch, CPSWQ, QSD
Environmental Planner – Biologist

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Appendix H: Field Visit Summary for Upper Wolf Creek Bridge Replacement Project

Memorandum

*Making Conservation
a California Way of Life.*

To: Vincent Heim
Environmental Planner

Date: July 27, 2018

File: BRLO-5914(095)
Bridge #: 14C-0049
Wolf Creek Road
Lake County

From: Christa Unger
Biologist
District 1 Local Assistance

Subject: FIELD VISIT SUMMARY FOR UPPER WOLF CREEK BRIDGE REPLACEMENT PROJECT

On July 26th, 2018 a field visit was conducted on Upper Wolf Creek Bridge by Caltrans biologists Christa Unger, Steve Hansen, Caltrans Environmental Planner Vincent Heim, and Caltrans Archeologist, Darrel Cardiff. Photographs were taken and are in the project biology file.

Fire damage is evident on the corner of the bridge as well as the bridge deck where cinders smoldered in the wooden portions of the deck. The surrounding forest lands and residential areas were extensively burned by the recent Pawnee Fire. A large pine was cut down due to extensive fire damage at the southwest corner of the bridge along Wolf Creek Road.

Two bird's nests (Brewer's blackbird) were seen on the pier caps of the bridge, with no sign of the nests currently being used. No evidence of bat activity or roosting was seen on the bridge.

Isolated pools in Wolf Creek have large numbers of squawfish as well as bull frog tadpoles within the project area. No other sensitive aquatic species were seen.

The surrounding trees within the project area have either been burned or defoliated due to the recent Pawnee fire. No trees that would be potentially removed within the project area are above the 10" DBH limit of significance.

One staging area north east of the bridge along Spring Valley Road seems to be planned along a slope bordering a roadside ditch. This potential staging area is problematic as it would require considerable earth work to build a level pad and will most likely create erosion and sediment runoff issues. Multiple gray pine and manzanita would also have to be removed in this proposed staging area. All other staging areas were surveyed with no issues apparent.