PROPOSED
MITIGATED NEGATIVE DECLARATION
AND INITIAL STUDY

Old 44 Drive at Oak Run Creek Bridge Replacement Project
Shasta County, California

Prepared for:

Shasta County Department of Public Works

February 2016
20-65

ENPLAN
3179 Bechelli Lane Suite 100
Redding, CA 96002

PROPOSED
MITIGATED NEGATIVE DECLARATION
and
INITIAL STUDY

OLD 44 DRIVE AT OAK RUN CREEK BRIDGE REPLACEMENT PROJECT
SHASTA COUNTY, CALIFORNIA

February 2016

Prepared for:
Shasta County Department of Public Works
1855 Placer Street
Redding, CA 96001

Prepared by:
ENPLAN
3179 Bechelli Lane, Suite 100
Redding, CA 96002
(530) 221-0440

PROPOSED MITIGATED NEGATIVE DECLARATION

LEAD AGENCY: Shasta County Department of Public Works
1855 Placer Street
Redding, CA 96001

PROJECT: The Shasta County Department of Public Works is proposing to replace the existing bridge (06C-0098) over Oak Run Creek on Old 44 Drive with a new bridge on the same alignment. The purpose of the project is to provide a safe stream crossing for the traveling public by replacing the structurally deficient bridge. The project is needed because the existing bridge, constructed in 1943, has only nine-foot-wide lanes and a damaged superstructure.

LOCATION: The project site is located approximately 2.5 miles east of Palo Cedro, and is situated in Township 31 North, Range 3 West, Section 3, of the U.S. Geological Survey's Palo Cedro 7.5-minute quadrangle (see Figure 1 of the Initial Study).

PROJECT PROPONENT: Shasta County Department of Public Works

PROJECT NAME: Old 44 Drive at Oak Run Creek Bridge Replacement Project

---

FINDINGS

As documented in the Initial Study, project implementation could affect special-status species, riparian habitat, and nesting migratory birds; and result in fill of jurisdictional waters, disturbance of subsurface paleontological and cultural resources, increased soil erosion and water quality degradation, temporarily increased noise levels during construction, and possible exposure of the public or environment to hazardous materials (asbestos-containing materials, lead-containing materials, and treated wood wastes). Design features incorporated into the project would avoid or reduce certain potential environmental impacts, as would compliance with existing regulations and permit conditions. Remaining impacts can be reduced to levels that are less than significant through implementation of the mitigation measures presented in the Initial Study. Because Shasta County will adopt mitigation measures as conditions of project approval and will be responsible for ensuring their implementation, it has been determined that the project will not have a significant adverse impact on the environment.

Signature _____ Date _____

Name _____ Title _____

TABLE OF CONTENTS

TABLE OF CONTENTS - continued

INITIAL STUDY

OLD 44 DRIVE AT OAK RUN CREEK BRIDGE REPLACEMENT PROJECT

I. THE PROJECT

A. Introduction

The Shasta County Department of Public Works is proposing to replace the existing bridge (06C-0098) over Oak Run Creek on Old 44 Drive with a new bridge on the same alignment. As shown in Figure 1, the bridge is located approximately 2 miles northwest of Millville and 2.5 miles east of Palo Cedro, and is situated in Township 31 North, Range 3 West, Section 3, of the U.S. Geological Survey's Palo Cedro 7.5-minute quadrangle. An aerial photograph of the project site is provided in Figure 2.

B. Project Need

The purpose of the project is to provide a safe stream crossing for the traveling public by replacing the structurally deficient bridge. The project is needed because the existing bridge, constructed in 1943, has only 9-foot-wide lanes and a damaged superstructure. The bridge is structurally deficient due to general structure deterioration and inadequate strength.

C. Project Description

The Shasta County Department of Public Works is proposing to replace the existing single-span, 82.6-foot-long by 20-foot-wide reinforced concrete deck/steel girder bridge with a new single-span, 122-foot-long by 32.33-foot-wide reinforced concrete box girder bridge installed at the same location and along the same alignment over Oak Run Creek as the existing bridge. The new bridge abutments would be located approximately 16 feet north and 28 feet south of the existing bridge abutments, which would be removed. A geotechnical investigation has been completed for the project. Based on this work, it is anticipated that the bridge foundation would consist of driven steel H-piles and pile caps although the exact details of the dimensions and number of piles are unknown at this time.

Both approaches to the bridge would require ±200 feet of roadwork. The approach work would include extending an existing 60-inch-diameter culvert conveying an unnamed intermittent stream under Old 44 Drive (north of the bridge) by 10 feet on each side of the road. A site plan is provided in Figure 3.

<u>Water Diversion and Dewatering</u>

Any flow in Oak Run Creek would be conveyed through the work area by temporarily placing a water diversion pipe in the middle of the stream channel between the upper and lower limits of work. The maximum length for the pipe would be 110 feet. The water diversion pipe would then be overtopped with gravel, which would extend across the entire channel to create a temporary access road on the east side of the bridge. Gravel would also be extended downstream beneath the bridge to provide a work pad. The gravel would be between one and four inches in diameter, and would consist of clean, uncrushed, rounded river rock with no sharp edges. The upstream side of the gravel work pad and access road would be lined with sandbags and overtopped with a waterproof membrane.

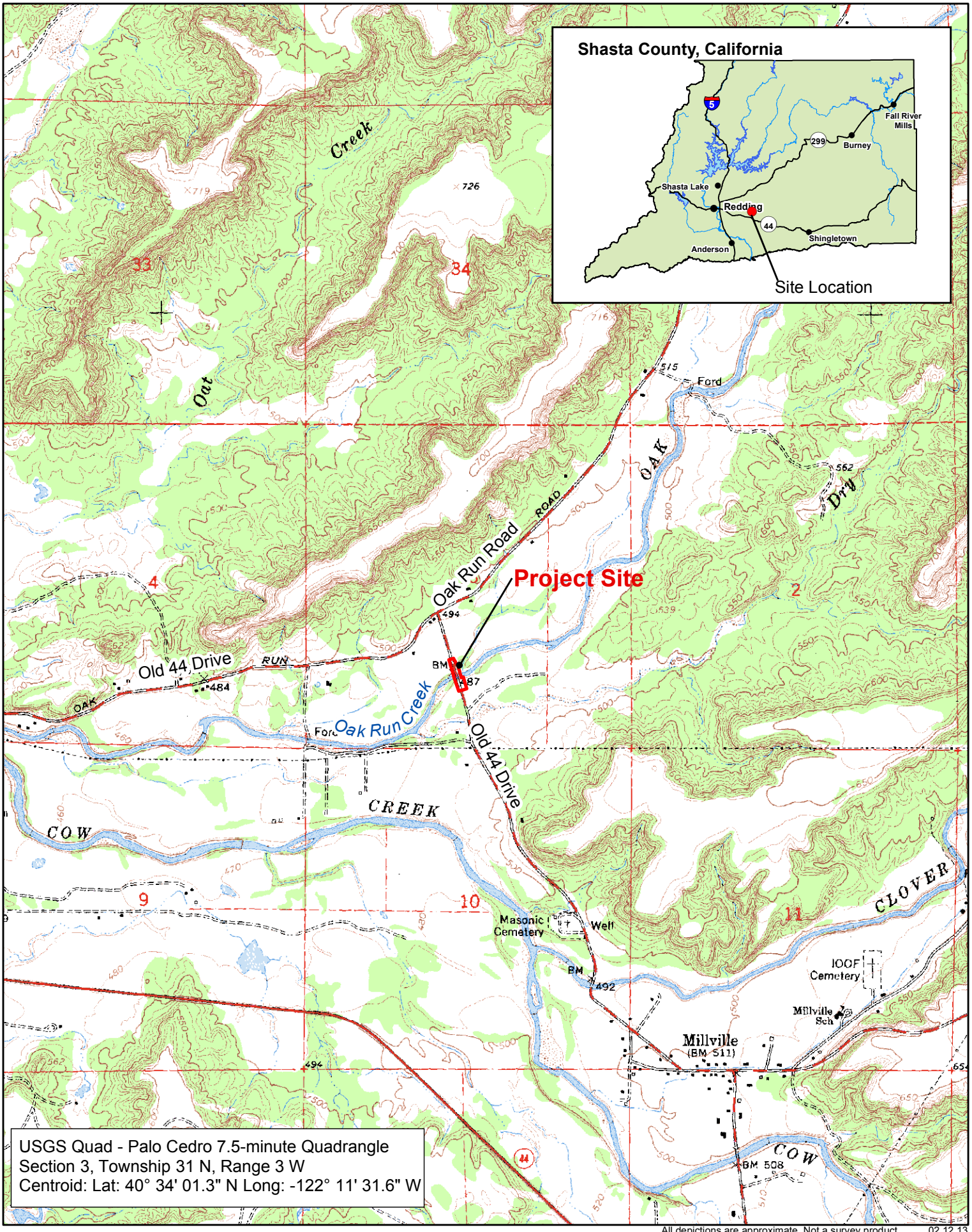


Figure 1

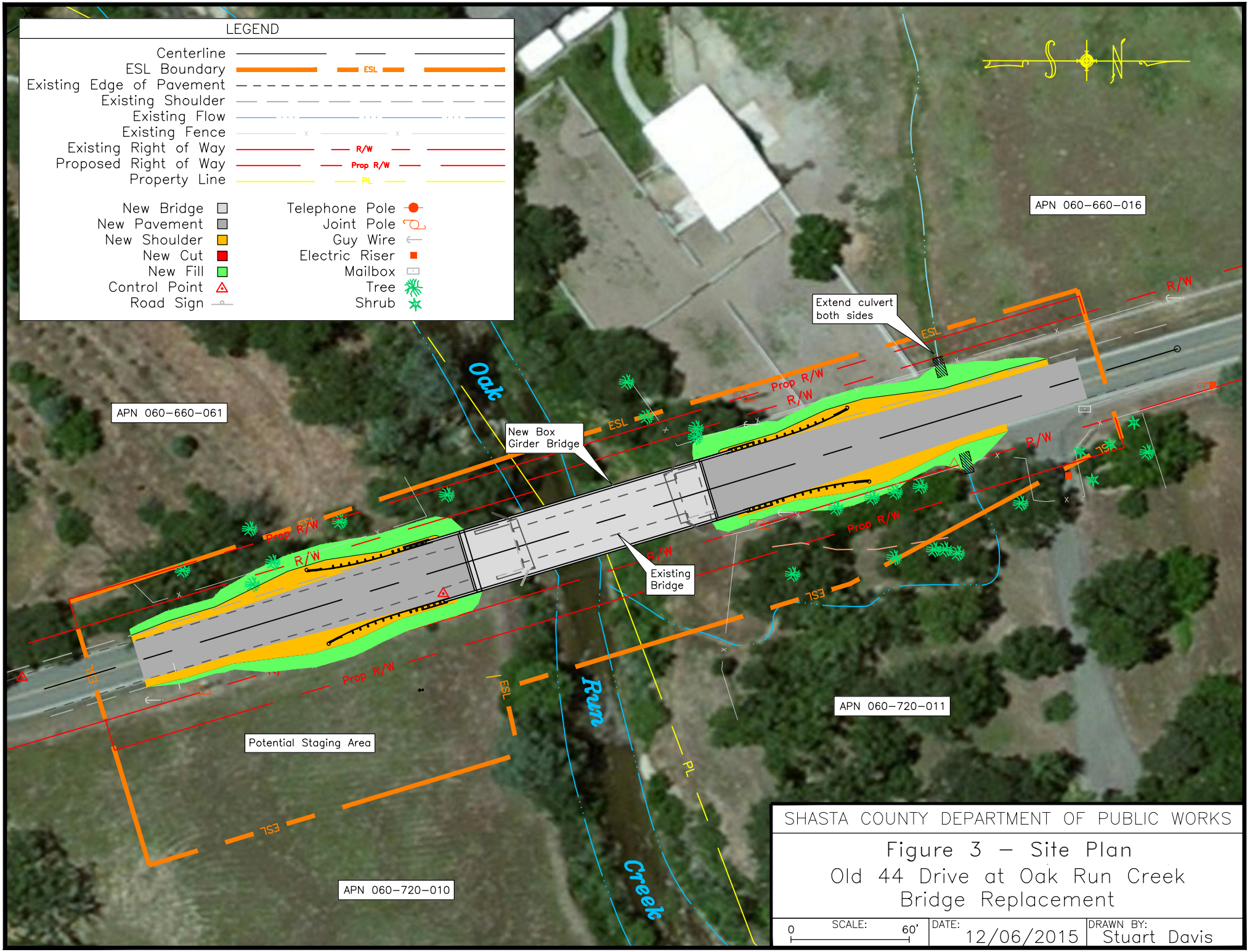
Project Vicinity

All depictions are approximate. Not a survey product. 04.17.15

Figure 2

Project Site

ENPLAN



SHASTA COUNTY DEPARTMENT OF PUBLIC WORKS

Figure 3 – Site Plan
Old 44 Drive at Oak Run Creek Bridge Replacement

SCALE:	DATE:	DRAWN BY:
0 60'	12/06/2015	Stuart Davis

If needed, a similar diversion may be constructed to convey flow from the unnamed intermittent stream through the work area. The diversion pipe for the unnamed stream would extend to the downstream end of the work area or discharge into the Oak Run Creek diversion pipe.

Dewatering may be necessary to facilitate construction of the bridge abutments. Cofferdams would be created around the abutments by installing sheet-piles into the streambed. Any water that seeps into the abutment work area would be pumped to nearby uplands on the project site (with no potential to return to the stream via surface flow) or be pumped into a water storage truck and discharged in an off-site upland location. Upon completion of work, the water diversion pipe and gravel work pad/access road would be removed and the streambed would be returned to its preconstruction contours.

Bridge Removal

Following construction of the access road and gravel pad, the existing bridge would be dismantled in pieces. The reinforced concrete deck would be broken with a hydraulic breaker affixed to an excavator and peeled off for disposal. The cross bracing between steel girders would be cut and removed. A crane would lift the steel girders off of the abutments; the girders would become the property of the contractor and would be disposed of offsite. The gravel pad beneath the bridge would catch concrete and steel debris during the dismantling. The existing abutments would then be removed and replaced with new abutments located outside of the ordinary high water mark, as well as the 100-year floodplain of Oak Run Creek (presently, the southern abutment is located within the ordinary high water mark of Oak Run Creek). Upon completion of work, any debris on the gravel work pad or in the stream channel would be removed.

Pile Driving

Two types of pile driving may be employed during bridge construction: (1) for installation of sheet piles to create cofferdams around the bridge abutments and (2) for installation of steel H-piles serving as abutment supports. The contractor would need to excavate down 10 to 15 feet to each footing base elevation. Approximately 25 sheet piles would be installed around the footing excavation area at each abutment for dewatering purposes and as temporary retaining walls. A vibratory hammer would be used to install and remove sheet piles. Pre-drilling of holes may be required to drive the sheet piles in some soil conditions. Each sheet pile would require approximately 45 minutes to install; installation of 50 sheet piles would require nearly 40 hours of work.

Approximately 16 to 20 steel H-piles would be required per bridge support. The steel H-piles could be as large as 14.7 inches wide, 13.8 inches deep, and as long as 75 feet. A diesel hammer-type pile driver similar to the Delmag D19-42 would most likely be used to install the H-piles. Each H-pile would require approximately 45 minutes to install. Pile driving is likely to last eight hours a day, for a total of approximately 30 hours. Temporary falsework bents would be supported on the gravel work pad and would not require pile driving.

Other Improvements

Both approaches to the bridge would require ±200 feet of roadwork, which would include minor widening of the roadway near the bridge to match the width of the new bridge deck. Fills for the approach roadway work near Oak Run Creek would be up to 10 feet in depth to accommodate road widening. Some fill material would be obtained from roadway excavation and the rest would be furnished by the contractor. Cuts of approximately 9 inches would be required to place the new structural section of the roadway at both ends of the project to match the existing grade. Crash-tested terminal end systems and approach guardrail would be placed at all

corners of the new bridge. Boring for guardrail timber posts would penetrate up to 4 feet into the ground at some locations.

As part of the proposed work, an existing 60-inch-diameter culvert conveying an unnamed intermittent stream under Old 44 Drive would be extended by 10 feet on each side of the road. Old 44 Drive would be closed during construction of the new bridge. A detour would not be provided, since alternate routes exist. The project would require acquisition of approximately 0.31 acres of additional right-of-way by Shasta County. Additionally, Shasta County would need to obtain approximately 0.44 acres of temporary construction easements for construction access and staging.

Construction Activities, Hours, and Labor Force

Construction would involve activities such as site preparation, grading, excavation, pile driving, demolishment of the existing bridge and placement of the new bridge. Construction staging would occur in a disturbed grassland area to the south of the bridge and east of Old 44 Drive. All project-related construction activities would be conducted during daylight hours of 7:00 AM to 7:00 PM. Construction is planned for summer of 2016, and should be completed in one construction season, between July 1 and October 15. Typical construction equipment necessary to implement the bridge replacement project would include backhoes, graders, cranes, haul trucks, water trucks, compactors, excavators, and pile drivers. The proposed project would require multiple professionals to operate this heavy equipment. While the source of the construction labor force is unknown at this time, workers would likely come from the local labor pool and union hiring halls.

D. Permits and Approvals

The permits and approvals identified below would or may be needed prior to implementation of the proposed project.

- Consideration and adoption of a Mitigated Negative Declaration by Shasta County.
- Adoption of a Mitigation Monitoring and Reporting Program by Shasta County.
- Water Quality Certification from the Central Valley Regional Water Quality Control Board (RWQCB), including approval a dewatering plan (if dewatering is conducted).
- A Department of the Army Nationwide Permit 14 (or other applicable Department of the Army permit) from the U.S. Army Corps of Engineers (USACE).
- A Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW).
- A State Water Resources Control Board General Permit for Discharges of Storm Water Associated with Construction Activity, including a Storm Water Pollution Prevention Plan (SWPPP).

II. ENVIRONMENTAL SETTING

General Plan Designation: The Shasta County General Plan designates the project site and surrounding lands as Rural Residential A (RA).

Zoning: Shasta County classifies uplands in the project site as Limited Residential (R-L) and Oak Run Creek as Designated Floodway (F-1). The construction of bridges is listed as a permitted use allowed on lands classified as Designated Floodway. Surrounding uplands are zoned as R-L and Oak Run Creek upstream and downstream of the project site is classified as F-1.

Surrounding Land Uses: The project site is situated in a rural part of Shasta County. Surrounding land uses include agriculture and farming. Numerous residences are also present in the project vicinity. The nearest residences are located approximately 225 feet from the bridge site and 150 feet from the construction staging area.

Topography: Elevations in the project site range between approximately 470 and 490 feet above sea level. Lands to the north and south of the bridge are relatively flat. The north bank of Oak Run Creek is gently sloped whereas the south bank has a moderately steep slope.

Soils: According to the U.S. Department of Agriculture, Natural Resources Conservation Service, two soil units have been mapped within the project site: Vina loam, 0-3 percent slopes, and riverwash. Riverwash is identified as a hydric soil (i.e., a soil that formed under conditions of saturation, flooding, or ponding during the growing season and has the potential to support wetlands), and Vina loam may contain inclusions of hydric soils.

Habitat: Terrestrial habitats in the project site consist of oak/pine woodland, annual grassland, and riparian scrub. The oak/pine woodland is present in places along Old 44 Drive, just beyond the road shoulders, and is part of the broader oak/pine woodland that encompasses the project site. The non-native annual grassland occurs in road shoulders, the proposed staging area, and in other areas where trees have been previously cleared. The riparian scrub habitat occurs along Oak Run Creek.

Water Features: No wetlands are present on the project site. However, Oak Run Creek and an unnamed intermittent stream that is tributary to Oak Run Creek are present in the project site.

Documentation

ENPLAN. Field evaluation. January 29, April 12, and May 17, 2013.
Shasta County. 2014. Shasta County Internet Zoning Viewer. Accessed October 2014. http://gis.co.shasta.ca.us/Zoning/.
Shasta County Planning Division. David Schlegel, Associate Planner, pers. comm. January 2015.
U.S. Department of Agriculture, Natural Resources Conservation Service. 2013. Web Soil Survey, Print-Out Dated January 18, 2013. http://websoilsurvey.nrcs.usda.gov/app/.
U.S. Geological Survey. 1965. Palo Cedro, Calif. 7.5-minute Quadrangle.

III. ENVIRONMENTAL CHECKLIST FORM

A. Environmental Factors Potentially Affected

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

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

B. Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

■ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION has been prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a significant effect(s) on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Stuart G. Davis — Signature

2/3/16 — Date

Stuart Davis — Name

Associate Engineer — Title

C. Evaluation of Environmental Impacts

This section analyzes the potential environmental impacts associated with the proposed project. The issue areas evaluated in this Initial Study include:

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

The environmental analysis in this section is patterned after the Initial Study Checklist recommended in the State CEQA Guidelines. For the preliminary environmental assessment undertaken as part of this Initial Study's preparation, a determination that there is a potential for significant effects indicates the need to more fully analyze the project's impacts and to identify mitigation.

For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and an answer is provided according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the project. To each question, there are four possible responses:

- **No Impact.** The development will not have any measurable environmental impact on the environment.

- **Less-Than-Significant Impact.** The project will have the potential for impacting the environment, although this impact will be below established thresholds that are considered to be significant.

- **Potentially Significant Impact Unless Mitigation Incorporated.** The project will have the potential to generate impacts which may be considered as a significant effect on the environment, although mitigation measures (or MM) or changes to the project's physical or operational characteristics can reduce these impacts to levels that are less than significant.

- **Potentially Significant Impact**. The project will have impacts which are considered significant, and additional analysis is required to identify mitigation measures that could reduce these impacts to less than significant levels.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

1. AESTHETICS. Would the project:

a. Have a substantial adverse effect on a scenic vista?	❑	❑	❑	X
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	❑	❑	❑	X
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	❑	❑	X	❑
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	❑	❑	X	❑

Discussion

a, c.

Views of the project site include trees, Oak Run Creek, and some open grassland. Viewers of the project site would primarily include local residents. The proposed project consists of the replacement of a bridge in an area supporting predominantly rural residential land uses.

The project site is not located in a sensitive viewshed and the existing bridge has no special scenic qualities. Project implementation would result in replacement of a bridge and vegetation removal. The resulting visual character of the site will be consistent with that of the project vicinity. As such, the proposed project would not have a substantial adverse effect on a scenic vista, nor would it result in substantial degradation of the existing visual character and quality of the site and its surroundings. Potential visual impacts resulting from the project implementation would be less than significant.

b.

No designated State Scenic Highways are present in the project vicinity; thus, project implementation would not damage scenic resources within a designated State Scenic Highway. State Route 44, located approximately one mile to the south, is eligible for listing as a State Scenic Highway, but is not visible from the project site.

d.

The new bridge would not require exterior lighting. Although new guard rail and signage may be sources of glare, the potential for glare would be similar to that of the other rural roadways, and would not be substantial. Potential adverse effects on day or nighttime views in the area as a result of glare would be less than significant.

Mitigation

None necessary

Documentation

Caltrans. Scenic Highway Program. Eligible and Officially Designated Routes. Accessed October 2014. http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm.

ENPLAN. Field evaluation. January 29, April 12, and May 17, 2013.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

2. AGRICULTURAL AND FORESTRY RESOURCES.

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	❑	❑	❑	X
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	❑	❑	❑	X
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	❑	❑	❑	X
d. Result in the loss of forest land or conversion of forest land to non-forest use?	❑	❑	❑	X
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	❑	❑	❑	X

Discussion

a.

According to data maintained by the Farmland Mapping and Monitoring Program, no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance occur in or adjacent to the project site. Thus, no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would be converted to a non-agricultural use as a result of project implementation.

b, e.

No lands in or adjacent to the project site are used for commercial agricultural production, zoned for agricultural use, or subject to a Williamson Act contract. Therefore, the proposed project would not directly or indirectly affect farmland or agricultural uses.

c, d.

As discussed in Section II, "Environmental Setting," Shasta County classifies uplands on the project site as R-L (Limited Residential) and Oak Run Creek as F-1 (Designated Floodway). Surrounding lands are also zoned as R-L and Oak Run Creek upstream and downstream of the project site is also classified as F-1. Although the project site supports commercial timber species such as ponderosa pine, knobcone pine, grey pine, and white alder, these trees are sparse and the project site does not constitute forest land. Further, the largest tree to be

removed is a grey pine approximately five inches in diameter at breast height (dbh). The proposed project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.

Mitigation
None necessary

Documentation
CAL FIRE. 2014. California Forest Practice Rules 2014. Accessed October 2014. http://calfire.ca.gov/resource_mgt/downloads/2014_FP_Rulebook_w_TRA_No.1.pdf.
Shasta County. 2014. Shasta County Internet Zoning Viewer. Accessed October 2014. http://gis.co.shasta.ca.us/Zoning/.
State of California, Department of Conservation. 2014. California Important Farmland Finder. Accessed October 2014. http://maps.conservation.ca.gov/ciff/ciff.html.
_____. 2014. Shasta County Williamson Act FY 2006/2007. Sheet 2 of 2. Accessed October 2014. ftp://ftp.consrv.ca.gov/pub/dlrp/wa/shasta_e_06_07_WA.pdf.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

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

a. Conflict with or obstruct implementation of the applicable air quality plan?	❑	❑	❑	X
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	❑	❑	X	❑
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	❑	❑	X	❑
d. Expose sensitive receptors to substantial pollutant concentrations?	❑	❑	X	❑
e. Create objectionable odors affecting a substantial number of people?	❑	❑	X	❑

Discussion

a-d.

Replacement of the bridge would not result in long-term operational emissions because it would not result in an increase in traffic volume. However, the proposed project would result in short-term emissions during project construction. For the purposes of environmental review, SCAQMD has developed a tiered approach for determining the significance of air emissions and appropriate control measures. Significance thresholds are shown in Table 1.

Table 1
Thresholds of Significance for Criteria Pollutants of Concern (lbs/day)

Pollutants	Level A	Level B
NOx	>25	>137
ROG	>25	>137
PM_{10}	>80	>137

Source: Shasta County General Plan, Air Quality 2004

Project implementation would result in temporarily increased air emissions during construction due to equipment emissions and earthwork. To estimate emissions resulting from project construction, an air emissions modeling program (CalEEMod 2011.2.2) was employed. As shown in Table 2, construction emissions would not exceed the Level "A" thresholds listed in Table 1. Therefore, implementation of Standard Mitigation Measures as defined by the SCAQMD, such as fugitive dust suppression, would provide appropriate air quality controls during project construction.

Table 2
Projected Construction Emissions (lbs/day)

CO	NO_X	ROG	SO_2	PM_{10}	$PM_{2.5}$	CO_2
4.99	6.3	1.0	0.007	0.52	0.004	674.08

To minimize potential impacts to air quality, the project would be constructed in accordance with guidelines established by SCAQMD and the California Air Resources Board (CARB). A basic requirement for projects occurring in the SCAQMD is dust control. Dust control measures that would be implemented as part of the proposed project may include: covering, watering, and treating excavated, graded, or stockpiled areas; establishing speed limits for construction vehicles; restricting construction activities when winds exceed 20 mph;

covering inactive areas; managing dust during material transport; street sweeping; and re-establishing groundcover. Further, in accordance with CARB regulations, additional measures to minimize impacts to air quality may include: maintaining all construction equipment in proper tune according to manufacturer's specifications, using diesel construction equipment meeting the CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines, registering in the CARB Diesel Off-road On-line Reporting System program, and registering certain portable equipment in the Portable Equipment Registration Program or directly with the SCAQMD. With resulting construction emissions below the "Level A" threshold, implementation of dust control measures, and compliance with CARB regulations, impacts to air quality would be less than significant.

e.
The proposed project may result in the release of diesel fumes, paint fumes, or other potentially objectionable odors during construction. Overall, the potential for odor generation is minimal. The surrounding area is comprised of large rural residential lots, with the closest residence located approximately 150 feet away. Given this separation, and the low potential for odor generation, the potential for area residents to be affected by objectionable fumes associated bridge replacement (e.g., primarily diesel exhaust) would be less than significant.

Mitigation
None necessary

Documentation
California Air Resources Board. Control Fugitive Dust Rule 3.16. Fugitive, Indirect, or Non-Traditional Sources. http://www.arb.ca.gov/drdb/sha/curhtml/r3-16.pdf.
Shasta County. 2004. *Shasta County General Plan As Amended Through September 2004.* 6.5 Air Quality. http://www.co.shasta.ca.us/index/drm_index/planning_index/plng_general_plan.aspx.

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

Discussion

a.

Special-Status Plant Species

Botanical surveys of the site were conducted by ENPLAN biologists on April 12 and May 17, 2013. The surveys addressed the entirety of the project site, and where accessible, land within 100 feet of the project site. Prior to conducting the fieldwork, U.S. Fish and Wildlife Service (USFWS) and California Natural Diversity Database (CNDDB) records were reviewed to determine if any designated critical habitats or special-status species had previously been reported on the project site or in the vicinity. The records showed that no critical habitat for federally listed plant species has been designated in or adjacent to the project site and no special-status plant species have been previously reported on the project site. However, as described in Appendix A, nine special-status plant species have been reported within ten miles of the project site: Ahart's paronychia, Bellinger's meadowfoam, dubious pea, Henderson's bent grass, legenere, Red Bluff dwarf rush, Sanford's arrowhead, silky cryptantha, slender Orcutt grass, and woolly meadowfoam. The project site has potentially suitable habitat for one special-status plant species, the dubious pea. However, no special-status plant species were observed on or adjacent to the project site during the botanical surveys, nor are any expected to be present.

Special-Status Wildlife Species

A general wildlife survey of the site was conducted by ENPLAN biologists on January 29, 2013. Additional wildlife observations were made during the botanical surveys, wetland delineation, and other site visits. The surveys addressed entirety of the project site, and where accessible, land within 100 feet of the project site. Prior to conducting the fieldwork, USFWS and CNDDB records were reviewed to determine if any designated critical habitats or special-status animal species had previously been reported on the project site or in the vicinity. The records showed that designated critical habitat for Central Valley steelhead is present in the on-site reach of Oak Run Creek. No special-status wildlife species have been previously reported on the project

site. However, as described in Appendix A, 20 special-status wildlife species have been reported within ten miles of the project site. One special-status species, western pond turtle, was observed in Oak Run Creek within the project site during the field inspections. The following special-status animal species could also potentially be present: Central Valley fall-run Chinook salmon, Central Valley late-fall-run Chinook salmon, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, foothill yellow-legged frog, western spadefoot, and western red bat.

Because the proposed project could potentially affect salmonids, and critical habitat designated for Central Valley steelhead, the National Marine Fisheries Service (NMFS) reviewed the biological assessment prepared for the proposed project in response to a request by Caltrans for consultation. NMFS excluded Sacramento River winter-run Chinook salmon and Central Valley spring-run Chinook salmon from the consultation as the agency determined that these two species would not be present in the onsite reach of Oak Run Creek. However, the CDFW confirmed that juveniles of all four runs of Chinook could be potentially present in the stream. Thus, for the purposes of this Initial Study, the potential to directly or indirectly affect all four runs of Chinook salmon, in addition to Central Valley steelhead, has been evaluated.

Work in Oak Run Creek and along the banks, has the potential to directly and/or indirectly affect anadromous salmonids, foothill yellow-legged frog, western spadefoot, western pond turtle, and western red bat. Potential effects on these species are discussed below.

Salmonids

The proposed project has the potential to impact critical habitat for Central Valley steelhead (i.e., freshwater rearing sites and freshwater migration corridors) and habitat for Chinook salmon. These impacts could occur as a result of installation of the temporary construction access road/gravel work pad and associated riparian vegetation removal, removal of the existing bridge, and pile driving for the new bridge, and increased turbidity and sedimentation in the stream. Although an existing culvert in the unnamed intermittent stream would be extended, the affected streambed and corresponding water column do not provide suitable spawning or rearing habitat for salmonids.

The streambed and corresponding water column in Oak Run Creek, including potential freshwater rearing sites and freshwater migration corridors for Central Valley steelhead and habitat for Chinook salmon, would be subject to temporary disturbance by construction activities during the bridge replacement work (e.g., placement of a gravel work pad beneath the bridge). However, work within Oak Run Creek would be temporary and the new bridge abutments would be located approximately 16 feet north and 28 feet south of the existing bridge abutments, or ±44 feet farther apart than the current abutments. The increased separation of the abutments would allow the stream channel to widen considerably, which is a beneficial impact. Further, as described in Mitigation Measure 4.1, riparian floodplain/salmonid credits would be purchased to offset any loss of anadromous salmonid habitat.

Construction of the temporary access road, gravel pad, and new bridge would result in removal of approximately 0.03 acres of riparian scrub vegetation along the banks of Oak Run Creek. This vegetation consists primarily of willows and young trees. The largest tree to be removed is a grey pine approximately five inches in dbh. Although shade from riparian scrub provides cool stream temperatures for salmonids, the proposed project is not expected to result in an increase in stream temperatures because: (1) all of the trees to be removed are young and provide little to no shade to Oak Run Creek, and (2) construction of the new, wider bridge would more than offset the loss of shading provided by the streamside vegetation. The new bridge would add ±1,500 square feet of shading structure over the stream channel. Because the bridge would provide shading even in mid-day, when the sun is directly overhead, it would be more effective than the existing streamside vegetation in keeping water temperatures cool. In addition, implementation of Mitigation Measure 4.2 would further avoid/minimize and offset the loss of riparian habitat along Oak Run Creek.

Potential impacts on salmonids could occur if salmonids are present in Oak Run Creek during in-water work periods. If present, salmonids could be trapped, injured, or killed (e.g., fish could be crushed by construction equipment or by placement of construction-related materials into the in-water work area; isolation of the in-water work area could eliminate water circulation and cause fish death by increasing water temperatures and lowering dissolved oxygen levels; pile driving could generate sound levels that cause physical harm and/or mortality to salmon and developing embryos).

Pile driving could cause tissue damage (such as rupture of swim bladders), disorient fish and make them susceptible to predation, and harm developing embryos. The currently accepted standard for salmonid

protection is that the sound pressure level should not exceed 206 dB peak or 187 dB accumulated sound exposure (SEL); if the fish are less than 2 grams, the acceptable accumulated SEL drops to 183 dB. According to Caltrans' *Compendium of Pile Driving Sound Data*, the unattenuated sound pressure level for driving a 14-inch in-water steel H-pile using an impact hammer is estimated at 208 dB peak and 177 dB SEL, as measured at a distance of six meters. Because the proposed work would be conducted behind dewatered cofferdams, an approximate 10 dB reduction in noise levels would be achieved. Use of a vibratory hammer to drive steel sheet piles is expected to generate a sound pressure level of 182 dB peak and 165 dB SEL. Mitigation Measure 4.3 calls for pile driving to occur between July 1 and October 15 (under certain conditions), when water temperatures in Oak Run Creek would be lethal to salmonids. With implementation of this measure, pile driving would have no effect on salmonids.

Disturbance to soils and the streambed may increase turbidity and sedimentation in Oak Run Creek, which can be detrimental to all life stage of salmonids. However, turbidity from project activities is anticipated to occur during periods when salmonids are extremely unlikely to be present. Further, any increase in turbidity and sedimentation resulting from project activities would be temporary and limited to a very small portion of the creek during construction activities. The potential for increased sedimentation and turbidity would be minimized through the implementation of Best Management Practices (BMPs) to prevent sediment from leaving the project site (Mitigation Measure 4.4), as well as measures to avoid/minimize the loss of riparian habitat along Oak Run Creek (Mitigation Measure 4.2). For sediment traveling within the work area, the proposed project would adhere to the monitoring requirements of both the RWQCB and National Pollutant Discharge Elimination System (NPDES) permits and employ further corrective action if needed, including the implementation of additional soil stabilization and sediment control measures (Mitigation Measure 4.5).

The NMFS concurred that with implementation of Mitigation Measures 4.1 through 4.5, project implementation is not likely to adversely impact Central Valley steelhead, or designated critical habitat for the species. Similarly, CDFW has concurred that potential impacts to Central Valley steelhead and all four runs of Chinook salmon would be less than significant with implementation of these mitigation measures.

Foothill Yellow-Legged Frog, Western Spadefoot, and Western Pond Turtle

Potential direct effects on foothill yellow-legged frog and western spadefoot (including their tadpoles and egg masses), and western pond turtle could occur if present in Oak Run Creek during in-water work periods. If present, foothill yellow-legged frog, western spadefoot, and western pond turtle could be trapped within the in-water work areas or injured/killed as a result of being crushed by construction equipment or by placement of construction-related materials into the in-water work area. Potential indirect effects include habitat degradation if sediment-laden water enters Oak Run Creek and downstream waters. As called for in Mitigation Measure 4.6, potential direct impacts on foothill yellow-legged frog, western spadefoot, and western pond turtle would be avoided/minimized by having a qualified biologist conduct a pre-construction survey for these species immediately prior to the start of in-water work each day that in-water work would occur and relocating adults, tadpoles, and egg masses to a safe location upstream or downstream of the work area. Potential indirect impacts on foothill yellow-legged frog, western spadefoot, and western pond turtle would also be minimized through use of erosion controls, which would minimize sediments discharged into drainages (Mitigation Measure 4.4).

Western Red Bat

Western red bat roosts primarily in riparian vegetation. Specifically, this species roosts on the foliage of large trees, and less often on the foliage of shrubs and vines. Such roosting usually occurs on the underside of overhanging leaves. Roosting bats often hang from one foot on the leaf petiole but may occasionally hang from a twig or branch and may resemble a fruit or dead leaf. Removal of riparian scrub along Oak Run Creek would result in a minor loss of potential roosting habitat for the western red bat. Although western red bat is a tree roosting species and is not known to roost on bridges, several other species of bats in Shasta County (e.g., pallid bat, silver-haired bat, Townsend's big-eared bat, long-eared myotis, long-legged myotis, fringed myotis, and Yuma myotis) are known to roost on bridges. The existing bridge was inspected on several occasions to determine the presence of roosting bats. No bats or evidence of roosting bats was observed on the bridge during the inspections. Nonetheless, CDFW has requested that surveys for bats be conducted prior to bridge removal. If bats are found to be roosting on the bridge, appropriate measures shall be prescribed by a bat biologist to ensure that bridge demolition and riparian vegetation removal do not result in take of bats. Specifically, as called for in Mitigation Measure 4.7, prior to dismantling the existing bridge, a qualified bat biologist would inspect the bridge to determine the presence of roosting bats. If roosting bats are present, (1) proper exclusion devices shall be installed to prevent bats from roosting on the bridge during bridge removal

(bats shall not be disturbed without specific notice to and consultation with the CDFW) and (2) the new bridge shall be designed to provide roosting habitat for bats.

b, c.
The project site includes a portion of Oak Run Creek and an unnamed intermittent stream that is tributary to Oak Run Creek; no wetlands are present in the project site. Oak Run Creek drains the foothills to the east (the stream is ±23.5 miles in length, has a drainage area that encompasses ±30,138 acres, and ranges between 450 and 3,200 feet in elevation) and conveys flow during winter and spring ±1.7 miles downstream to Cow Creek, a perennial stream that is tributary to the Sacramento River another ±8.2 miles downstream. Oak Run Creek and the unnamed intermittent stream are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). In the project site, Oak Run Creek supports a riparian community along its banks. Species present include arroyo willow (*Salix lasiolepis*), white alder (*Alnus rhombifolia*), valley oak (*Quercus lobata*), Himalayan blackberry (*Rubus armeniacus*), and wild grape (*Vitis californica*). No riparian vegetation is present along the unnamed intermittent stream due to its brief duration of flow.

The project site includes ±0.137 acres/±112 lineal feet of Oak Run Creek and ±0.007 acres/±93 lineal feet of an unnamed intermittent stream that is tributary to Oak Run Creek. Project implementation would directly affect approximately 0.001 acres (±70 square feet) of the intermittent stream with fill, and up to ±0.137 acres (±5,958 square feet) of Oak Run Creek would be subject to temporary disturbance. If required, mitigation for the permanent loss of jurisdictional streambed would be achieved through payment of in-lieu fees to the USACE, purchase of mitigation credits, or onsite/offsite habitat restoration (see Mitigation Measure 4.8).

As described previously, construction of the temporary access road, gravel pad, and new bridge would result in removal of approximately 0.03 acres of riparian scrub vegetation along the banks of Oak Run Creek. This vegetation consists primarily of willows and young trees. As called for in Mitigation Measure 4.2, the loss of riparian habitat along Oak Run Creek would be avoided/minimized by careful pre-construction planning, installation of temporary protective fencing along the outer edges of the construction zone, stockpiling equipment and materials outside of riparian habitat, and pruning riparian plants at ground level. In addition, the loss of riparian habitat would be offset by replanting disturbed riparian areas in accordance with the *Old 44 Drive Bridge Replacement Project at Oak Run Creek Planting Plan* prepared for the project and purchasing riparian habitat credits at a 1:1 ratio at Stillwater Plains Mitigation Bank (see Appendix B).

d.
Numerous fish species and wildlife species inhabit the Cow Creek watershed. Most notable among the migratory species are anadromous salmonids, black-tailed deer, and various species of migratory birds. The project site includes a portion of Oak Run Creek and an unnamed intermittent stream that is tributary to Oak Run Creek. In the project site, Oak Run Creek has cold, variable flows during winter and spring, ponds water by early summer, and is expected to be dry by late summer. Construction of the temporary access road and gravel work pad in Oak Run Creek could potentially disrupt stream flow and fish migration corridor connectivity. Installation of culverts to maintain flow would ensure that upstream and downstream migration of fish and other aquatic life is not affected (with implementation of Mitigation Measure 4.3, special-status anadromous salmonids would not be present during in-water work). The black-tailed deer is not designated a special-status species by the CDFW, but is of concern to the CDFW. Review of the Shasta County General Plan found that the project site and surrounding lands are not designated as winter range or fawning ground for the black-tailed deer herd. Project implementation would thus not reduce the amount of habitat available as deer winter range or fawning habitat, or adversely affect deer migration.

The federal Migratory Bird Treaty Act (MBTA) and related international treaties and domestic laws provide protection for migratory birds. The MBTA established that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected. The MBTA is the domestic law that affirms, or implements, the United States' commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. Each of the conventions protects selected species of birds that are common to each country (i.e., they occur in each country at some point during their annual life cycle). While CDFW is the state agency responsible for protection of migratory birds, USFWS is also responsible as the federal agency.

Numerous active cliff swallow nests were observed on the bridge during the spring field inspections, and the swallows return annually to net at this location. As part of Mitigation Measure 4.9, the County may install temporary exclusionary materials on the bridge in winter to prevent cliff swallows from nesting on the bridge in spring and summer. Other migratory bird species could also establish nests on the bridge and/or in vegetation

in and adjacent to the project site in future nesting seasons. To avoid impacts on nesting birds, vegetation removal and/or construction activities should occur outside of the nesting season, if possible. In the local area, most birds nest between February 1 and August 31. Accordingly, the potential for adversely affecting nesting birds can be greatly minimized by removing vegetation either before February 1 or after August 31. If this is not possible, a nesting survey should be conducted no more than three days prior to the start of construction. If active nests are found, work would need to be postponed in the vicinity of the nests until after the young have fledged. Further, to prevent nest abandonment and mortality of chicks and eggs, vegetation removal and construction activities in the vicinity would need to be terminated or restricted, as described in Mitigation Measure 4.9.

e.
The Shasta County General Plan includes a resource protection strategy for the protection of oak woodlands from large-scale firewood cutting and other clearing. Although voluntary guidelines were established as a result, there are no county ordinances related to the protection of oak trees. The proposed project is consistent with the General Plan land use designations and zoning classifications, and would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f.
No adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans are applicable to the propose project.

Mitigation
MM 4.1. To offset the loss of anadromous salmonid habitat, Shasta County shall purchase 0.03 riparian floodplain/salmonid credits at Fremont Landing Conservation Bank. Proof of purchase of mitigation credits shall be provided to the U.S. Army Corps of Engineers/National Marine Fisheries Services prior to the start of groundbreaking activities.

MM 4.2. The loss of riparian habitat along Oak Run Creek shall be avoided/minimized and offset through implementation of the following:

- Minimize the construction disturbance to riparian habitat along Oak Run Creek through careful pre-construction planning.
- Erect construction fencing along the outer edges of the construction zone where needed to prevent accidental entry into riparian habitat.
- Stockpile equipment and materials outside of riparian habitat, in the designated staging area.
- In areas planned for temporary disturbance, prune riparian plants at ground level (as opposed to mechanically removing the entire plant and root system) to promote regeneration from the root systems.
- Upon completion of construction, the bed and banks of jurisdictional waters subject to temporary disturbance shall be restored to their pre-construction topography.
- Shasta County shall offset the loss of riparian vegetation through on-site plantings in accordance with the *Old 44 Drive Bridge Replacement Project at Oak Run Creek Planting Plan* (Appendix B). Shasta County shall conduct the on-site riparian planting on a one-time basis, with no annual monitoring or remediation.
- Shasta County shall purchase 0.03 riparian habitat credits (a 1:1 ratio) at Stillwater Plains Mitigation Bank. Proof of purchase of mitigation credits shall be provided to the California Department of Fish and Wildlife prior to the start of ground-breaking activities.
- Temporarily disturbed soils in grasslands and oak/pine woodlands shall be re-planted as part of the erosion control requirements of the project, and in accordance with the *Old 44 Drive Bridge Replacement Project at Oak Run Creek Planting Plan* (Appendix B).

MM 4.3. All construction work, including pile driving activities, that will take place in the creek channel shall occur between July 1 and October 15 to minimize potential effects on salmonids. If water is present, in-water work shall be conducted only when the average maximum water temperature is in excess of 25 degrees Celsius (77 degrees Fahrenheit). If the average maximum water temperature has not exceeded 25ºC by the start of the in-water work period, Shasta County shall notify the National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW) prior to conducting work.

If the stream is dry or not flowing and no salmonids are present, the County may start in-water work by June 15 provided the aforementioned temperature condition is met and the National Weather Service forecast for precipitation at the project site is less than or equal to 30 percent on all work days leading up to July 1. If work is proposed outside of the specified periods or before the average maximum water temperature reaches 25ºC, the County shall obtain approval from NMFS and CDFW prior to conducting such work.

MM 4.4. Best Management Practices (BMPs) for soil stabilization, sediment control, and spill prevention shall be implemented throughout the duration of the project to ensure that sediment/pollutant transport into Oak Run Creek is avoided or minimized. These BMPs may include covering disturbed areas with mulch, temporary seeding, use of soil binders, installation of soil blankets, and increasing the number and/or effectiveness of existing straw wattles and silt fences. These BMPs shall be specified in the Storm Water Pollution Prevention Plan to be prepared for the project.

MM 4.5. In accordance with Section 401 Water Quality Certification requirements of the Regional Water Quality Control Board, water sampling shall be conducted: (a) when performing any in-water work, (b) in the event that project activities result in any materials reaching surface waters, or (c) when any activities result in the creation of a visible plume in surface waters. Monitoring shall be conducted immediately upstream out of the influence of the project and 300 feet downstream of the active work area. In addition, pursuant to the requirements of the National Pollutant Discharge Elimination System (NPDES) and the State Water Resources Control Board, water quality sampling shall be conducted a minimum of once per day during each “qualifying rain event” (defined as 0.5” of rain). Sampling must be conducted where storm water discharges from the site. If there are fewer than three discharge points (which is likely the case for this site), sampling shall be conducted three times per day.

If the impact thresholds of either permit are exceeded, corrective actions shall immediately be implemented to ensure compliance. Corrective actions shall include implementation of additional soil stabilization and sediment control measures. These measures could include covering disturbed areas with mulch, temporary seeding, use of soil binders, installation of soil blankets, and increasing the number and/or effectiveness of straw wattles and silt fences.

MM 4.6. The potential for direct impacts on foothill yellow-legged frogs, western spadefoot, and western pond turtles that may be present in Oak Run Creek shall be avoided by having a qualified biologist conduct a pre-construction survey for foothill yellow-legged frogs, western spadefoot, and western pond turtles immediately prior to the start of in-water work each day that in-water work would occur. Any foothill yellow-legged frog adults, tadpoles, and egg masses, western spadefoot adults, tadpoles, and egg masses, and/or western pond turtles that may be found shall be relocated to a safe location upstream or downstream of the work area. Potential indirect impacts on foothill yellow-legged frogs, western spadefoot, and western pond turtles shall be minimized through use of erosion controls, which would minimize sediments discharged into drainages.

MM 4.7. Prior to dismantling of the existing bridge, a qualified bat biologist shall inspect the bridge to determine the presence of roosting bats. If roosting bats are present, (1) proper exclusion devices shall be installed to prevent bats from roosting on the bridge during bridge removal (bats shall not be disturbed without specific notice to and consultation with the California Department of Fish and Wildlife) and (2) the new bridge shall be designed to provide roosting habitat for bats.

MM 4.8. If required by the U.S. Army Corps of Engineers (USACE), mitigation for the permanent loss of jurisdictional streambed shall be achieved through payment of in-lieu fees to the USACE, purchase of mitigation credits, or onsite/offsite habitat restoration.

MM 4.9. To ensure that active nests of migratory birds are not disturbed, vegetation removal and construction activities shall occur before February 1 or after August 31 to avoid impacts on nesting migratory birds. If vegetation removal and construction must occur during the nesting season, a nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area. The survey shall be conducted no more than three days prior to the beginning of vegetation removal or construction. If nesting birds are found, the nest site shall not be disturbed until after the young have fledged. Further, to prevent nest abandonment and mortality of chicks and eggs, no vegetation removal or construction activities shall occur within 500 feet of an active nest, unless a smaller buffer zone is authorized by the California Department of Fish and Wildlife and the United States Fish and Wildlife Service (the size of the construction buffer zone may vary depending on the species of nesting birds present). Shasta County may install temporary exclusionary materials on the bridge in the winter to prevent cliff swallows from nesting on the bridge in spring and summer.

Documentation

California Department of Fish and Wildlife. 2013. California Natural Diversity Data Base, RareFind Printout, July 2013 Data.

Caltrans. 2012. Technical Guidance for Assessment and Mitigation of Hydroacoustic Effects of Pile Driving on Fish. Appendix I: Compendium of Pile Driving Sound Data (Updated 2012). http://www.dot.ca.gov/hq/env/bio/files/hydroacstc_compendium.pdf.

_____. 2009. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. http://www.dot.ca.gov/hq/env/bio/fisheries_bioacoustics.htm.

ENPLAN. Field evaluation. January 29, April 12, and May 17, 2013.

National Marine Fisheries Service. 2013. Essential Fish Habitat Mapper. http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html.

Erickson, Gregg A., et al. 2002. Bat and Bridges Technical Bulletin (Hitchhiker Guide to Bat Roosts), California Department of Transportation, Sacramento, CA.

Rocky Mountain Power. 2009. Sigurd to Red Butte No. 2 345kV Transmission Project: Geotechnical Investigations Standard Form 299 Applications for Transportation and Utility Systems and Facilities on Federal Lands. Submitted to Bureau of Land Management. https://www.blm.gov/ut/enbb/files/Geotech_SF_299_Application_BLM.pdf.

Shasta County. 2004. *Shasta County General Plan as Amended Through September 2004*. 6.7 Fish and Wildlife Habitat. http://www.co.shasta.ca.us/docs/Resource_Management/docs/67fish.pdf?sfvrsn=0. Accessed April 2015.

U.S. Fish and Wildlife Service. 2013. Critical Habitat GIS Data. http://criticalhabitat.fws.gov/crithab/flex/crithabMapper.jsp.

_____. September 18, 2011. Species List for the Palo Cedro Quadrangle. Obtained December 19, 2012.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
5. CULTURAL RESOURCES. Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?	❑	❑	X	❑
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?	❑	❑	X	❑
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	❑	X	❑	❑
d. Disturb any human remains, including those interred outside of formal cemeteries?	❑	X	❑	❑

Discussion

a, b, d.

ENPLAN archaeologists conducted a cultural survey that included a record and literature search and field survey. The record and literature search revealed that three archaeological surveys have previously been conducted within a half-mile of the project site area, but none within the project site; no historic properties have been previously recorded within the project site.

Letters were sent to the Native American Heritage Commission (NAHC) requesting a Sacred Lands Search and to local Native American organizations and individuals, as well as to the Shasta Historical Society, requesting information on sensitive sites. The NAHC responded indicating that their files did not identify the presence of Native American sacred sites or cultural resources in the immediate project vicinity. Neither the Shasta Historical Society nor the Native Americans expressed concerns with regard to the project.

Archaeological fieldwork took place on January 31, 2013. The entire project site was surveyed. One previously recorded resource, the existing bridge itself, was identified within the project site during this survey. Caltrans, in consultation with the State Historic Preservation Office (SHPO), determined that the bridge is ineligible for listing in the National Register as a historic structure. The resource includes the abutments and deck from the previous bridge over Oak Run Creek (circa 1917 to 1943), which are also ineligible for listing.

Given the above findings, project implementation would not cause a substantial adverse change in the significance of a historical resource or archaeological resource. However, as called for in Mitigation Measure 5.1, if buried cultural materials or paleontological deposits are encountered during construction, all work would stop in that area until a qualified archaeologist can evaluate the nature and significance of the find.

c.

According to the Digital Geologic Map of the Redding 1° x 2° Quadrangle, Shasta, Tehama, Humboldt, and Trinity Counties, California, the project site is sited on Late Cretaceous deposits that comprise the Chico Formation. In general, the Chico Formation is composed of thick deposits of shallow-water marine siltstone, sandstone, and conglomerate. This geologic unit is reported to contain paleontological deposits. However, as mentioned above, implementation of Mitigation Measure 5.1 would reduce potential impacts to less than significant.

Mitigation

MM 5.1. If any cultural or paleontological resources (i.e., human bone or burnt animal bone, midden soils, projectile points, humanly-modified lithics, historic artifacts, fossils, etc.) are encountered during any phase of construction, all earth-disturbing work shall stop within 100 feet of the find until a qualified archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary. If human remains are encountered, the County Coroner shall be contacted (California Health and Safety Code 7050.5). If the remains are recognized as Native American, measures described in California Public Resources Code Section 5097.9 shall be implemented.

Documentation

ENPLAN. 2013. Archeological Survey Report for the Old 44 at Oak Run Creek Bridge Replacement Project. Prepared for California Department of Transportation District 2, North Region. Redding, California.

Fraticelli, Luis A.; Albers, John P.; Irwin, William P.; Blake, Milton C. Jr.; Wentworth, Carl M. November 13, 2012.

Digital Geologic Map of the Redding 1° x 2° Quadrangle, Shasta, Tehama, Humboldt, and Trinity Counties, California. United States Geologic Survey Open File Report 2012-2028. Accessed October 2014. http://pubs.usgs.gov/of/2012/1228/of2012-1228_map.pdf.

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

Discussion

a.

The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

1) Rupture of a known earthquake fault:
According to the Alquist-Priolo Earthquake Fault Zone Map for Shasta County, there are no known Alquist-Priolo Special Study Zones in the project vicinity. The nearest Alquist-Priolo Special Study Zones, which identify fault areas considered to be of greatest risk in the state, occur approximately 30 miles to the northeast near Burney, Hat Creek, and Old Station. Review of the Shasta County General Plan and the Shasta County and City of Anderson Multi-Jurisdictional Hazard Mitigation Plan found that no earthquake faults have been mapped in the project site. Numerous earthquake faults have been mapped to the east of the project site. The Shasta County General Plan shows that the nearest mapped fault occurs approximately two to three miles east of the project site. By designing the new bridge to meet the California Building Code, the exposure of people and structures to potential substantial adverse effects, including the risk of loss, injury, or death from the rupture of a known earthquake fault would be less than significant.

2, 3) Strong seismic ground-shaking or seismic-related ground failure, including liquefaction:
According to the Shasta County General Plan and the Shasta County and City of Anderson Multi-Jurisdictional Hazard Mitigation Plan, Shasta County has a low level of historic seismic activity. In the past 120 years, there has been no significant property damage or loss of life due to earthquakes occurring within or near the County. Maximum recorded intensities have reached an intensity of VII (very strong) on the Modified Mercalli Intensity Scale, with possibly one instance of VIII (severe). On November 26, 1998, Shasta County experienced a local

magnitude (ML) 5.2 earthquake that was centered three miles north-northwest of Redding near Keswick Dam. This was the largest recorded earthquake since the U.S. Geological Survey began monitoring Shasta County in 1981 and thought to be the largest earthquake in the County since 1878. No structural damage was reported. Nonstructural damage that was reported consisted of broken merchandise, loss of power due to a damaged electrical panel, a fire sprinkler break in a mechanical room and two operating rooms at Mercy Medical Center, and non-structural cracks at expansion joints in a highway overpass. A four-million-gallon water tank in Bella Vista lifted about an inch off its foundation, resulting in bent anchor bolt washers; and a Pacific Gas and Electric transformer caught fire resulting in temporary power outage for approximately 7,500 customers. Only one injury attributed to the earthquake was reported.

Damage in Shasta County resulting from earthquakes would most likely be from ground shaking, and less likely from related ground failure. The effects of ground shaking are best mitigated by adequate design for the maximum probable earthquake for the County. The effects of ground failure are best mitigated by adequate geotechnical investigations of specific sites. The County enforces the California Building Code, which establishes building requirements for all new structures based on predicted earthquake intensities. The risk of loss of life and property damage due to seismic activity would be minimized by adhering to the California Building Code.

Liquefaction is primarily associated with saturated, cohesionless soil layers located close to the ground surface. During liquefaction, soils lose strength and ground failure may occur. This phenomenon is most likely to occur in alluvial (geologically recent, unconsolidated sediments) and stream-channel deposits, especially when the groundwater table is high. The Shasta County and City of Anderson Multi-Jurisdictional Hazard Mitigation Plan states that areas in Shasta County with the highest potential for liquefaction are located along the Sacramento River and its tributaries. A geotechnical study conducted for the proposed project confirmed that the project is not located on an area susceptible to strong seismic ground-shaking or seismic-related ground failure, including liquefaction. Impacts would be less than significant.

4) Landslides:
According to the Shasta County General Plan, landslides occur throughout Shasta County, although they have not been considered a major problem. Review of the *Digital Geologic Map of the Redding 1° x 2° Quadrangle, Shasta, Tehama, Humboldt, and Trinity Counties, California*, found that no landslide deposits have been mapped in the project site. The nearest mapped landslide deposits occur along Clover Creek, approximately eight to ten miles northeast of the project site. Uplands in the project site are relatively flat. However, the south streambank along Oak Run Creek is moderately steep, rising 10-15 feet above the streambed. Although the south streambank is subject to erosion as a result of high scouring flows during winter and spring, landslides are unlikely to occur due to the relatively flat nature of the overall terrain. Potential effects from landslides on the project site or in the project vicinity are expected to be less than significant.

b.
Soils within the project site are mapped as Vina loam, 0-3 percent slopes; and riverwash. The on-site soils are summarized in Table 3.

Table 3
Soil Type and Characteristics

Soil Name	Soil Type	Slope (%)	Erosion Hazard	Permeability	Drainage	Runoff Rate
Vina loam, 0-3 percent slopes	Loam	0-3	None to slight	Moderate	Well drained	Slow
Riverwash	Not indicated	Nearly level to gently sloping	Very high	Rapid	Excessively drained	Very slow

As called for in Mitigation Measure 4.4, in Section III.C.4, “Biological Resources,” BMPs for erosion and sediment control would be implemented during project construction, as required by the Construction General Permit issued by the RWQCB. The permit requires preparation and implementation of a SWPPP for all projects that disturb one or more acres of soil. Measures that may be implemented to minimize erosion include limiting construction to the dry season; use of straw wattles, silt fences, and/or gravel berms to prevent sediments from discharging off-site; and revegetating temporarily disturbed sites upon completion of construction. With implementation of Mitigation Measure 4.4, the potential for soil erosion or loss of topsoil would be less than significant.

c.
As discussed in Section I.C, “Project Description,” a geotechnical study conducted for the proposed project confirmed that the project is not located on a geologic unit or soil that is unstable, or that would become unstable

as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Impacts would be less than significant.

d.
Expansive soils contain high levels of clay and present hazards for development since they expand and shrink depending on water content. According to the Shasta County General Plan, most of Shasta County is characterized by moderately expansive soils with areas of low expansiveness in the central area and southeastern corner of the County. Small scattered areas of highly expansive soils occur in several mountainous areas of the County. According to the Natural Resources Conservation Service, riverwash and Vina loam, 0 to 3 percent slopes are not expected to expand/contract due to their limited clay content. Thus, the potential for creating substantial risks to life or property as a result of expansion/contraction is less than significant.

e.
The project would not require the use of septic tanks or alternative wastewater disposal systems.

Mitigation
See Mitigation Measure 4.4 in Section III.C.4, "Biological Resources."

Documentation

Fraticelli, Luis A., Albers, John P., Irwin, William P., Blake, Milton C. Jr., Wentworth, Carl M. November 13, 2012. Digital Geologic Map of the Redding 1° x 2° Quadrangle, Shasta, Tehama, Humboldt, and Trinity Counties, California. United States Geologic Survey Open File Report 2012-2028. Accessed October 2014. http://pubs.usgs.gov/of/2012/1228/of2012-1228_map.pdf.

Shasta County. 2011. Shasta County and City of Anderson Multi-Jurisdictional Hazard Mitigation Plan. Accessed October 2014. http://www.co.shasta.ca.us/docs/Resource_Management/generalplanupdate/HazardMitigationPlan.pdf?sfvrsn=0.

_____. 2004. Shasta County General Plan as Amended Through September 2004. http://www.co.shasta.ca.us/index/drm_index/planning_index/plng_general_plan.aspx. Accessed October 2014.

State of California, Department of Conservation. "California Geological Survey—Alquist-Priolo Earthquake Fault Zone Maps." Accessed October 2014. www.quake.ca.gov/gmaps/ap/ap_maps.htm.

State of California, State Water Resources Control Board. 2009. 2009-0009-DWQ Construction General Permit. Accessed July 2014. http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2013. Web Soil Survey, Print-Out Dated January 18, 2013. http://websoilsurvey.nrcs.usda.gov/app/.

_____. 1974. Soil Survey of Shasta County Area, California. Accessed October 2014. http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA607/0/shasta.pdf.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

7. GREENHOUSE GAS EMISSIONS. Would the project:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	❑	❑	X	❑
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	❑	❑	❑	X

Discussion

a.

Bridge replacement would not result in long-term operational emissions, including greenhouse gas emissions, because it would not result in an increase in traffic volumes. However, project construction would result in a temporary increase in greenhouse gas emissions, such as carbon dioxide (CO_2) and nitrous oxide (NO_X).

SCAQMD has not adopted thresholds of significance for greenhouse gases. According to SCAQMD staff, the District's greenhouse gas policy is to quantify, minimize, and mitigate greenhouse gas emissions, as feasible. As documented in Section III.C.3, "Air Quality", project construction would result in emissions of about 6.3 lbs/day of NO_X and 674 lbs/day of CO_2; minor amounts of methane would also be present in vehicle emissions. As described in Section III.C.3, "Air Quality", construction emissions would not exceed the "Level A" thresholds of significance defined by the SCAQMD. Further, BMPs would be implemented to minimize air emissions, including greenhouse gases. Based on this information, greenhouse gas emissions resulting from project construction would be less than significant.

b.

The project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Mitigation

None necessary

Documentation

Shasta County Air Quality Management District. Ross Bell, Air Quality District Manager, pers. comm.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
8. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	❑	X	❑	❑
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	❑	X	❑	❑
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	❑	❑	❑	X
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	❑	❑	X	❑
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	❑	❑	❑	X
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	❑	❑	❑	X
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	❑	❑	X	❑
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	❑	❑	X	❑

Discussion

a, b.

ENPLAN completed an Initial Site Assessment (ISA) in January 2015 to evaluate the potential for hazardous materials to be encountered during project construction. The study identified a potential for treated wood products, asbestos-containing materials, and lead-based paints to be present in the study area. Subsequent evaluation by Guzi-West included collection of four samples of suspect asbestos-containing material from the bridge, seven paint chip samples from the bridge, and four soil samples from beneath the bridge. Laboratory analysis showed that no asbestos was present in the sampled materials, but that every paint sample is classified as lead-based paint (greater than 5,000 parts per million of lead). Additionally, three of the four soil samples contained detectable quantities of lead, but the highest lead concentration detected in the soils (373 ppm) is below the hazardous waste criterion for lead. Mitigation Measure 8.1 provides appropriate procedures to be followed if untested materials suspected of containing asbestos are encountered during bridge removal. Mitigation Measure 8.2 provides appropriate procedures to be followed with respect to lead-based paints and earth material containing lead.

Treated wood products (fence posts, guardrail posts, utility poles, etc.) contain preserving chemicals that protect against insect attack and fungal decay. These chemicals may be hazardous (carcinogenic) and include, but are not limited to, arsenic, chromium, copper, creosote, and pentachlorophenol. Mitigation Measure 8.3 provides procedures for the appropriate handling, storage, and disposal of treated wood wastes.

Construction of the proposed project would involve use of materials such as diesel, gasoline, oils, paints, treated wood products, and other potentially hazardous materials. Existing state standards govern the transport, use, and disposal of hazardous materials; because work would be conducted in accordance with these existing requirements, potential impacts would be less than significant. Potentially hazardous materials that may be used on-site during construction would include common household cleaners and small quantities of fuels and lubricants for equipment operation and maintenance. No chemicals would be stored on-site in excess of the reportable quantities established in the Comprehensive Environmental Response Compensation and Liability Act.

Compliance with state and federal regulations and implementation of the recommended mitigation measures would ensure that potential hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through accidental release of hazardous materials, would be less than significant.

c.
The proposed project would not emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The nearest school, Redding Christian School, is located approximately 2.6 miles east of the project site.

d.
Review of the State's EnviroStor and GeoTracker databases showed that the project site and adjacent lands are not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The ISA prepared for the project included a regulatory agency database review for lands within a one-mile radius of the project site. This report showed that the project site is not identified as a hazardous materials use, storage, disposal, or release site on any of the 106 databases reviewed.

e, f.
The project is not located within two miles of a public or private airstrip, nor is the project site located within an airport land use plan. The nearest airport, Redding Municipal Airport, is located approximately 6.4 miles southwest of the project site. The proposed project would thus not result in a safety hazard from aviation activities for people residing or working in the project area.

g.
Project implementation would require the temporary closure of Old 44 Drive at Oak Run Creek during construction. However, because alternate routes exist in the vicinity for crossing Oak Run Creek, the project would not involve a use or activity that could interfere with emergency-response or emergency-evacuation plans for the area; the project's impact is expected to be less than significant.

h.
The project site is located in a semi-rural area. According to data maintained by CAL FIRE, the project site is within a High Fire Hazard Severity Zone. Because most of the construction materials would be non-combustible, the proposed project would not expose people or structures to a significant risk of fire.

Mitigation
MM 8.1. If the contractor encounters materials on the project site that the contractor reasonably believes are 100 square feet or more of surface area of asbestos-containing material and the asbestos has not been rendered harmless, the contractor shall immediately cease work in the affected area and report the condition to the County engineer in writing. If warranted, the suspect material shall be sampled for the presence of asbestos; appropriate measures for worker safety and material handling and disposal shall be implemented based on the type and amount of asbestos determined to be present. The Contractor may continue work in unaffected areas reasonably believed to be safe.

MM 8.2. To minimize potential impacts from lead-containing paint (LCP), all work shall be conducted in compliance with Caltrans Standard Special Provision 15-025: Existing Paint Systems and 15-027: Earth Material Containing Lead.

MM 8.3. To minimize potential impacts from treated wood waste (TWW) all work shall be conducted in compliance with Caltrans Standard Special Provision 14-010: Treated Wood Waste.

Documentation

CAL FIRE. 2007. Shasta County Fire Hazard Severity Zone Map. Accessed October 2014. http://www.fire.ca.gov/fire_prevention/fhsz_maps_shasta.php.

ENPLAN. 2015. Hazards Materials Analysis Initial Site Assessment. Prepared for Shasta County Department of Public Works.

Guzi-West Inspection and consulting. 2015. Old 44 Bridge at Oak Run Creek – Asbestos and Lead paint Sampling Results. Prepared for ENPLAN and Shasta County Department of Public Works.

State of California, Department of Toxic Substances Control. EnviroStor. Accessed October 2014. http://www.envirostor.dtsc.ca.gov/public/mapfull.asp?global_id=&x=119&y=37&zl=18&ms=640,480&mt=m&findaddress=True&city=oak%20creek%20drive%20millville&zip=&county=&federal_superfund=true&state_response=true&voluntary_cleanup=true&school_cleanup=true&ca_site=true&tiered_permit=true&evaluation=true&military_evaluation=true&school_investigation=true&operating=true&post_closure=true&non_operating=true

State of California Department of Transportation. 2006. 2006 Standard Special Provisions Index. *http://www.dot.ca.gov/hq/esc/oe/construction_standards.html*.

State of California, State Water Resources Control Board. GeoTracker. Accessed October 2014. http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=oak+creek+drive+millville.

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

Discussion

a.

The proposed project has the potential to temporarily degrade water quality due to increased erosion during project construction. However, as previously described in Mitigation Measure 4.4, in Section III.C.4, "Biological Resources," BMPs for erosion and sediment control associated with the SWPPP would be implemented. Therefore, impacts of project construction and operation with respect to water quality standards and waste-discharge requirements are expected to be less than significant.

b.

The proposed project would not entail the use of groundwater. Although work would include minor road widening and a reduction in permeability, this would not substantially interfere with groundwater recharge. Impacts on groundwater supplies would be less than significant.

c.
Project implementation would not alter existing drainage patterns, alter the course of a stream or river, or result in substantial erosion or siltation on- or off-site. As previously described, BMPs for erosion and sediment control would be implemented through the SWPPP to be prepared for the project (Mitigation Measure 4.4). Therefore, no significant impacts with respect to erosion, or siltation are expected as a result of project construction or operation.

d.
Project implementation would not alter existing drainage patterns, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The bridge would be designed to pass 100-year flood flows. Further, the proposed project would comply with RWQCB and NPDES permit requirements to ensure that the post-construction peak runoff does not exceed the pre-construction peak runoff volume. By managing post-construction peak flow rates, the potential for flooding would be less than significant.

e.
Implementing the proposed project would not create or contribute runoff that would exceed the capacity of the stormwater drainage systems, because no such systems are present at the project site. Minor amounts of erosion could occur during project construction, and in the long term, the bridge would collect oil drips and other contaminants associated with vehicle use, which would ultimately enter Oak Run Creek. However, as noted above, a SWPPP would be prepared for the project that would contain measures to adequately handle on-site drainage associated with the bridge replacement, as well as require BMPs for pollutant control. The project would not constitute a substantial additional source of polluted runoff.

f.
Project implementation could potentially degrade water quality through increased erosion and sedimentation or through the release of petroleum products, paints, or other potentially hazardous materials used during construction. Implementation of Mitigation Measure 4.4, combined with compliance with existing requirements governing the transport, use, and disposal of fuels and other potentially hazardous materials that may be used during construction, would reduce the potential for water quality degradation to a less than significant level.

g.
The proposed project does not involve the construction of new housing. Project implementation would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

h.
The new bridge would be built within a 100-year flood-hazard area. However, the bridge would be designed to accommodate 100-year flood flows. The potential for the new abutments to impede or redirect flows is expected to be less than significant.

i.
As mentioned above, because the new bridge would be designed to accommodate 100-year flood flows, the bridge would not expose people and/or structures to a significant risk of loss, injury or death involving flooding. No impact would occur.

j.
The project site is located within the interior of California where there is no threat of a tsunami. Although Whiskeytown and Shasta Lake could experience seiches as a result of very strong ground-shaking, these water bodies are approximately 18 and 15 miles respectively, from the project site, and any spillover from these lakes would not inundate the lower reaches of Cow Creek. Therefore, there is no risk for inundation of the project site resulting from seiches. According to the *Shasta County and City of Anderson Multi-Jurisdictional Hazard Mitigation Plan*, the potential for mudflows would be limited to volcanic activity (Lassen Peak and Mt. Shasta). The project site is located in an area whereas inundation by seiche, tsunami, or mudflow would not pose a risk to the project.

Mitigation
See Mitigation Measure 4.4 in Section III.C.4, “Biological Resources.”

Documentation

Federal Emergency Management Agency. FEMA's National Flood Hazard Layer (Official). Accessed October 2014. http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30.

Fraticelli, Luis A.; Albers, John P.; Irwin, William P.; Blake, Milton C. Jr.; Wentworth, Carl M. November 13, 2012. Digital Geologic Map of the Redding 1° x 2° Quadrangle, Shasta, Tehama, Humboldt, and Trinity Counties, California. United States Geologic Survey Open File Report 2012-2028. Accessed October 2014. http://pubs.usgs.gov/of/2012/1228/of2012-1228_map.pdf.

Shasta County. 2011. *Shasta County and City of Anderson Multi-Jurisdictional Hazard Mitigation Plan*. Accessed October 2014. http://www.co.shasta.ca.us/docs/Resource_Management/generalplanupdate/HazardMitigationPlan.pdf?sfvrsn=0.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
10. LAND USE AND PLANNING. Would the project:				
a. Physically divide an established community?	❑	❑	❑	X
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	❑	❑	❑	X
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	❑	❑	❑	X

Discussion

a.

Old 44 Drive is an important rural connector road for residents in Palo Cedro and Millville. The new bridge on Old 44 Drive would span Oak Run Creek. No established access routes would be eliminated, nor would project implementation physically divide an established community. Old 44 Drive in the project site would be closed during construction of the new bridge and a detour would not be provided since alternate routes exist.

b.

As discussed in Section II, "Environmental Setting," Shasta County classifies Oak Run Creek in the project site as a Designated Floodway; construction of a new bridge is allowed as a permitted use under this zoning classification. The project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

c.

Review of the California Regional Conservation Plans Map found no habitat conservation plans or natural community conservation plans that include the project site.

Mitigation

None necessary

Documentation

California Department of Fish and Wildlife. 2014. California Regional Conservation Plans Map. Accessed October 2014. https://www.wildlife.ca.gov/Conservation/Planning/NCCP.

Shasta County. 2014. Shasta County Internet Zoning Viewer. Accessed October 2014. http://gis.co.shasta.ca.us/Zoning/.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
11. MINERAL RESOURCES. Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	❑	❑	❑	X
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	❑	❑	❑	X

Discussion

a, b.

Neither the *Mines and Mineral Resources of Shasta County* or *Mineral Land Classification of Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, Limestone, and Diatomite, Within Shasta County, California* identify any active mining claims or important mineral resources in the immediate project vicinity. The *Mineral Land Classification of Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, Limestone, and Diatomite, Within Shasta County, California* does classify the project site as MRZ-3^{SG} (i.e., areas containing known and/or inferred occurrences of resources of undetermined quality, quantity, or significance; the SG superscript denotes sand and gravel). However, the proposed project entails replacement of a bridge and thus, would not result in a change in land use or affect the availability of mineral resources. Project implementation would not result in the loss of availability of important mineral resources that would be of value to the region and the residents of the State.

Mitigation

None necessary

Documentation

State of California, Department of Conservation. 1997. Mineral Land Classification of Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, Limestone, and Diatomite, Within Shasta County, California.

_____. 1974. Mines and Mineral Resources of Shasta County, California. Accessed October 2014. https://archive.org/details/minesandmineral06lydo.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
12. NOISE. Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	❑	X	❑	❑
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	❑	X	❑	❑
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	❑	X
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	X	❑	❑
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	X
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	X

Discussion

a-d.

Project implementation has the potential to increase noise levels in the short term during project construction, but would not result in an increase in noise levels once construction is complete. With respect to short-term noise level increases, construction activities other than pile driving typically generate maximum noise levels of about 85 dBA[1] at a distance of 50 feet. Noise from construction activities generally attenuates at a rate of 6 dBA per doubling of distance. Typical noise levels emitted from specific types of construction equipment are described in Table 4 below.

The proposed project would require pile-driving activities that could expose people to or generate groundborne vibration and noise levels during construction. A vibratory hammer would be used to install and remove sheet piles used to create cofferdams around the bridge abutments. Airborne noise levels from vibratory hammers typically range from 70 to 90 dBA at a distance of seven meters. Each sheet pile would require approximately 45 minutes to install; installation of 50 sheet piles would require nearly 40 hours of work. A diesel hammer-type pile driver similar to the Delmag D19-42 would most likely be used to install the steel H-piles. According to the manufacturer, peak sound levels in air generated by a hammer-type pile driver are not expected to exceed ±95 dBA at a distance of 150 feet, or ±90 dBA at distance of 250 feet. Work would involve installation of 16 to 20 piles per bridge support. Each H-pile would require approximately 45 minutes to install. Pile driving is likely to last eight hours a day, for a total of approximately 30 hours. Maximum noise levels from vibratory pile driving activities would be approximately 70 dBA at the nearest residence, while maximum impact-hammer noise levels would be approximately 90 dBA. Noise levels from other construction-related activities at the project site (i.e., extending an existing 60-inch-diameter culvert, water diversion and dewatering, and removal of the existing bridge) would fluctuate, depending on the number and type of construction equipment operating at any given time, but are expected to routinely exceed 65 dBA at the nearest residence. As called for in Mitigation Measure 12.1, vibration and noise levels can be reduced by using cushion blocks to lower the noise generated by impact hammering, employing shields to deflect sound, pre-drilling holes for the piles to minimize the number of hammer strikes required, and other measures. Restricting construction activities to the hours of 7 AM through 7 PM would

[1] dBA, or A-weighted decibels, is an expression of the relative loudness of sound in air as perceived by the human ear. In the A-weighted system, very low and very high frequencies area excluded from measurement because they are outside the range of the human ear.

further limit the exposure of nearby residents to noise generated by construction activities. The proposed project would not alter the local noise environment in the long term because bridge replacement would not result in additional vehicle traffic.

Table 4
Examples of Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 ft from Source
Air compressor	81
Backhoe	80
Ballast Equalizer	110
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Loader	85
Paver	89
Pile-driver (Impact)	101
Pile-driver (Sonic)	96
Pump	76
Saw	76
Truck	88

Source: FTA 2006:12-6, adapted by ENPLAN 2015

e, f.
The project is not located within two miles of a public or private airstrip, nor is the project site located within an airport land use plan. The nearest airport, Redding Municipal Airport, is located approximately 6.4 miles southwest of the project site. The proposed project would thus not expose people residing or working in the project site to excessive noise levels generated by aviation activities.

Mitigation
MM 12.1. Noise generated by pile-driving activities shall be minimized to the extent practicable. This may include the use of cushion blocks, shields, pre-drilling holes for the piles, or other effective measures. Construction activities shall occur only between the hours of 7 AM and 7 PM.

Documentation
City of Redding. Redding Municipal Airport Influence Area. Accessed October 2014. http://www.ci.redding.ca.us/transeng/airports/images/MUNI_AIA.pdf.

Chun Wo Construction and Engineering Co., Ltd. Technical Note 013: Steel Sheet Piling – Drivability vs SPT-N Values; Vibrations and Noise Level. http://www.chunwo.com/chunwoimages/files/Construction/TECHNICAL%20NOTE%20013%20Steel%20Sheet%20Piling%20%E2%80%93Drivability%20vs%20SPT-N%20Values_%20Vibrations%20and%20Noise%20Level.pdf

Federal Transit Administration. 2006 (May). *Transit Noise and Vibration Impact Assessment*. FTA-VA-90-1003-06. Washington, DC: Office of Planning and Environment. http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf.

_____. No date. Accessed October 2014. http://www.ci.redding.ca.us/transeng/airports/images/BENTON_AIA.pdf.

Shasta County. 2004. *Shasta County General Plan as Amended Through September 2004*. Accessed October 2014. http://www.co.shasta.ca.us/index/drm_index/planning_index/plng_general_plan.aspx.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
13. POPULATION AND HOUSING. Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	❑	❑	X	❑
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	X
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	X

Discussion

a.

The proposed project would not directly or indirectly induce substantial population growth in the area. Construction-related jobs may be temporarily created, but most are expected to be filled by existing Shasta County residents. Due to the short-term nature of the jobs, project construction is not likely to attract new residents to the area. The existing housing stock in the local area is more than adequate to serve any new residents that may be attracted to the area. The potential for population growth as a result of replacing the existing bridge is expected to be less than significant.

b, c.

Project implementation would not remove any existing housing, displace any people, or necessitate the construction of additional housing.

Mitigation

None necessary

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

14. PUBLIC SERVICES.

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i. Fire protection?	❑	❑	❑	X
ii. Police protection?	❑	❑	❑	X
iii. Schools?	❑	❑	❑	X
iv. Parks?	❑	❑	❑	X
v. Other public facilities?	❑	❑	❑	X

Discussion

a. i-ii

The new bridge with wider lanes would enhance public safety by reducing emergency response times. With wider lanes, police and fire vehicles would not have to wait for on-coming traffic to clear the bridge. As such, no adverse effects with respect to police and fire protection are anticipated as a result of the proposed project.

a. iii-v.

The project would not induce substantial population growth in the area, and would therefore not adversely affect schools, parks, or other public facilities.

Mitigation

None necessary

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

15. RECREATION. Would the project:

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	❑	❑	❑	X
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	❑	❑	❑	X

Discussion

a, b.

The proposed project does not include the provision of any new public recreational facilities nor would it adversely impact any existing recreational facilities.

Mitigation

None necessary

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

Discussion

a, b.

Access to the project site is provided by Old 44 Drive, with Oak Run Road as the nearest main cross road. Short-term increases in the traffic volume would occur on these roads during construction activities. This traffic would consist of construction workers traveling to and from the site, truck trips to haul materials and supplies to the project site, as well as truck trips to haul debris off-site for disposal. However, because of the small scale and temporary nature of the construction activities, the proposed project would not cause a substantial increase in the number of vehicle trips on local roadways, highways, or freeways.

Implementation of the proposed project would result in a new bridge with wider lanes. No long-term increase in traffic volume would occur as a result of bridge replacement. The proposed project would not conflict with an applicable program, plan, ordinance, or policy related to traffic.

c.

The proposed project does not involve any aviation-related uses and would not result in a change in air traffic patterns.

d.

The proposed project would not increase hazards due to a design feature nor would it introduce incompatible traffic types on local roads as a result of project construction.

e.

Project implementation would require the temporary closure of Old 44 Drive at Oak Run Creek during construction. However, because alternate routes exist in the vicinity, project construction would not substantially

interfere with emergency-response or emergency-evacuation plans for the area; any impacts would be temporary and less than significant. In the long term, project implementation would enhance emergency access through provision of a wider bridge that would reduce traffic delays.

f.
The proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Mitigation
None necessary

Documentation
Shasta County Regional Transportation Planning Agency. 2010. *Final Draft 2010 Regional Transportation Plan for Shasta County*. Accessed October 2014. http://www.srta.ca.gov/pastel/Adobe%20Files/Regional%20and%20Local%20Planning/2010%20RTP/Full%20Final%20Draft%202010%20RTP-reduced.pdf.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
17. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	❑	❑	❑	X
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	X
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	X
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	❑	❑	❑	X
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	❑	❑	❑	X
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	❑	❑	X	❑
g. Comply with federal, state, and local statutes and regulations related to solid waste?	❑	❑	❑	X

Discussion

a-e.

The proposed project would not require or result in the construction of new water system facilities or expansion of existing facilities, nor would it generate wastewater. The project would not require water supplies to serve the project nor require use of a wastewater treatment facility. Similarly, the proposed project would not require or result in the construction or expansion of stormwater drainage facilities. An existing roadside ditch runs along the edge of the road, conveying stormwater to the Oak Run Creek. The ditch would be relocated to facilitate road widening and bridge replacement, but this would not result in significant effects with respect to drainage. The project would not constitute a substantial additional source of polluted runoff.

f.

Construction of the proposed project may result in a minimal amount of debris requiring disposal at a landfill. This one-time impact is not expected to significantly affect the capacity of local landfills.

g.

The proposed project would comply with all applicable statutes and regulations as they relate to solid waste.

Mitigation

None necessary

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

18. MANDATORY FINDINGS OF SIGNIFICANCE.

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	❑	X	❑	❑
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	❑	❑	X	❑
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	❑	❑	X	❑

Discussion

a.

As documented in this Initial Study, project implementation could affect special-status species, riparian habitat, and nesting migratory birds; and could result in fill of jurisdictional waters, disturbance of subsurface paleontological and cultural resources, increased soil erosion and water quality degradation, temporarily increased noise levels during construction, and possible exposure of the public or environment to hazardous materials (asbestos-containing materials, lead-containing materials, and treated wood wastes). Design features incorporated into the project would avoid or reduce certain potential environmental impacts, as would compliance with existing regulations and permit conditions. Remaining impacts can be reduced to levels that are less than significant through implementation of the mitigation measures presented in this Initial Study. Because Shasta County will adopt mitigation measures as conditions of approval and will be responsible for ensuring their implementation, it has been determined that the project will not have a significant adverse impact on the environment.

b.

County projects that could affect Oak Run Creek and associated streamside habitats from its headwaters downstream to the confluence with Cow Creek, and Cow Creek downstream to its confluence with the Sacramento River, were reviewed for cumulative effects. Aside from the proposed project, Shasta County has not constructed and is not proposing to construct any other bridge replacements over Oak Run Creek. The County replaced the existing Swede Creek Road bridge over Cow Creek in 2011. This bridge replacement is located approximately 2.25 miles downstream of the project site. Because the proposed project will mitigate for permanent impacts to riverine habitat, there will be no net loss of riverine habitat. The permanent and temporary loss of riparian habitat associated with the current project would contribute minimally to the cumulative loss of riparian habitat in the watershed. Because the current project will mitigate the permanent and temporary loss of riparian habitat, there will be no net loss of riparian habitat. The loss of grassland and oak/pine woodland associated with the current project would contribute minimally to the loss of these habitat types in the watershed. Because the temporarily disturbed habitats would be re-planted, project implementation would not contribute to a cumulatively significant effect on the habitats. Based on the discussion and findings in all Sections above, there is no evidence to suggest that the project would have impacts that are cumulatively considerable.

c.

As discussed herein, the project does not have characteristics that could cause substantial adverse effects on human beings, either directly or indirectly.

IV. LIST OF PREPARERS FOR THIS DOCUMENT

ENPLAN

Donald Burk ..... Environmental Services Manager
Lindsay Kantor ..... Environmental Planner
John Luper ..... Environmental Scientist
Darrin Doyle ..... Environmental Scientist
Heidi Shaw ..... Archaeologist
Hazen Kazaks ..... Production Coordinator

Shasta County Department of Public Works

Stuart Davis ..... Associate Engineer

APPENDIX A

Biological Records Search Results and Presence/Absence Evaluation

- U.S. Fish and Wildlife Service Federal Endangered and Threatened Species list for the Palo Cedro Quadrangle
- Rarefind (CNDDB) Report Summary
- Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the PALO CEDRO (646C) U.S.G.S. 7 1/2 Minute Quad

Database last updated: September 18, 2011
Report Date: December 19, 2012

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Rana draytonii
California red-legged frog (T)

Birds

Strix occidentalis caurina
northern spotted owl (T)

Plants

Orcuttia tenuis
Critical habitat, slender Orcutt grass (X)
slender Orcutt grass (T)

Candidate Species

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Rarefind (CNDDB) Report Summary (July 2013 Data) Old 44 Drive at Oak Run Creek Bridge Replacement Project											
Listed Element	Quadrangle[1]										Status[2]
	PR	BE	OA	PA	RE	EN	CL	CO	BA	TU	
Animals											
Bald eagle	●							●			FD, SE, SFP
Bank swallow						●			●		ST
California linderiella				●		●		●	●		None
Sacramento River winter-run Chinook salmon					●	●		●	●		FE, SE
Foothill yellow-legged frog							●				SSSC
Hoary bat								●			None
Osprey								●	●		None
Shasta chaparral					●	●					None
Silver-haired bat								●			None
Spotted bat				●							SSSC
Tricolored blackbird								●			SSSC
Valley elderberry longhorn beetle						●		●			FT
Vernal pool fairy shrimp				●		●		●	●		FT
Vernal pool tadpole shrimp				●		●		●	●		FE
Western pearlshell					●	●					None
Western pond turtle						●	●		●		SSSC
Western red bat								●			SSSC
Yuma myotis								●			None
Plants											
Ahart's paronychia				●			●		●		1B.1
Bellinger's meadowfoam		●	●								1B.2
Dubious pea					●						3
Henderson bent grass	●	●				●					3.2
Legenere					●			●	●		1B.1
Sanford's arrowhead	●										1B.2
Red Bluff dwarf rush	●					●		●	●		1B.1
Silky cryptantha	●			●		●		●	●		1B.2
Slender Orcutt grass				●		●		●	●		FT, SE, 1B.1
Woolly meadowfoam		●	●	●			●		●		4.2
Natural Communities											
Great Valley Cottonwood Riparian Forest					●	●		●	●		Imperiled
Great Valley Mixed Riparian Forest									●		Imperiled
Great Valley Valley Oak Riparian Forest					●	●		●	●		Critically Imperiled
Great Valley Willow Scrub						●		●			Vulnerable
Northern Interior Cypress Forest							●			●	Imperiled

Highlighting denotes the quadrangle in which the project site is located. No special-status species or special-status natural communities have been reported in the ESL.

[1]Quadrangle Code

PR = Project City
BE = Bella Vista
OA = Oak Run
RE = Redding
EN = Enterprise
PA = Palo Cedro
CL = Clough Gulch
CO = Cottonwood
BA = Balls Ferry
TU = Tuscan Buttes NE

[2]Status Codes

Federal

FE = Federally Listed – Endangered
FT = Federally Listed – Threatened
FC = Federal Candidate Species
FP = Federal Proposed Species
FD = Federally Delisted
FSC = Federal Species of Concern

State

SFP = State Fully Protected
SR = State Rare
SE = State Listed – Endangered
ST = State Listed – Threatened
SD = State Delisted
SSSC = State Species of Special Concern

Rare Plant Rank

List 1A = Plants Presumed Extinct in California
List 1B = Plants Rare, Threatened or Endangered in California and Elsewhere
List 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
List 3 = Plants About Which We Need More Information – A Review List
(generally not considered special-status, unless unusual circumstances warrant)
List 4 = Plants of Limited Distribution – A Watch List
(generally not considered special-status, unless unusual circumstances warrant)

Threat Ranks

0.1 = Seriously Threatened in California
0.2 = Fairly Threatened in California
0.3 = Not Very Threatened in California

Natural Community Rank

Critically Imperiled	Critically imperiled in the state because of extreme rarity (often five or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation.
Imperiled	Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation.
Vulnerable	Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
Apparently Secure	Uncommon but not rare; some cause for long-term concern due to declines or other factors.
Secure	Common, widespread, and abundant in the state.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Plants							
Ahart's paronychia	*Paronychia ahartii*	1B.1	Ahart's paronychia is an annual herb that occurs in valley and foothill grassland, vernal pool, and cismontane woodland habitats. This plant is typically found in nearly barren clay of swales and on higher ground around vernal pools from 100 to 1,700 feet in elevation. It also occurs in rocky soils. The flowering period is March through June.	No	No	No	No suitable habitat for Ahart's paronychia is present in the ESL. The species was not observed during the botanical surveys and is not expected to be present.
Bellinger's meadowfoam	*Limnanthes floccosa* var. *bellingeriana*	1B.2	Bellinger's meadowfoam occurs around meadows, seeps, and damp stony flats below 3,300 feet in elevation in Shasta County. The flowering period is April through June.	No	No	No	No meadows, seeps, or damp stony flats occur in the ESL. Bellinger's meadowfoam was not observed during the botanical surveys and is not expected to be present.
Dubious pea	*Lathyrus sulphureus* var. *argillaceus*	3	The dubious pea is a perennial herb that occurs in cismontane woodland and montane coniferous forest. The species is reported between 500 and 1,000 feet in elevation. The flowering period is April and May.	Yes	No	No	Marginally suitable habitat for dubious pea is present in the ESL. However, the species was not observed during the botanical surveys and is not expected to be present.
Henderson's bent grass	*Agrostis hendersonii*	3.2	Henderson's bent grass is an annual herb that occurs along the edges of vernal pools and swales, typically on thin soils overlying a hard pan. Henderson's bent-grass is usually found in sparsely vegetated habitats between 200 and 1,000 feet in elevation. The flowering period is April through June.	No	No	No	No suitable habitat for Henderson's bent grass is present in the ESL. The species was not observed during the botanical surveys and is not expected to be present.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Legenere	*Legenere limosa*	1B.1	Legenere is an annual herb that occurs in moist or wet soil associated with vernal pools, vernal marshes, lakes, ponds and sloughs up to 3,000 feet in elevation. The flowering period is April through June.	No	No	No	No suitable habitat for legenere is present in the ESL. Legenere was not observed during the botanical surveys and is not expected to be present.
Red Bluff dwarf rush	*Juncus leiospermus* var. *leiospermus*	1B.1	Red Bluff dwarf rush is an annual herb that typically occurs along the edges of vernal pools and vernal drainages, or on clay-rich terrace soils. The species is found between 100 and 3,400 feet in elevation. The flowering period is March through May.	No	No	No	No vernal pools or other potentially suitable habitats for Red Bluff dwarf rush are present in the ESL. Red Bluff dwarf rush was not observed during the botanical surveys and is not expected to be present.
Slender Orcutt grass	*Orcuttia tenuis*	FT, SE, 1B.1	Slender Orcutt grass is an annual herb that occurs in vernal pools and similar habitat, occasionally on reservoir edges or stream floodplains, on clay soils with seasonal inundation in valley grassland to coniferous forest or sagebrush scrub. The species is found between 100 and 5,800 feet in elevation. The flowering period is May through September.	No	No	No	No vernal pools or other potentially suitable habitats for slender Orcutt grass are present in the ESL. Slender Orcutt grass was not observed during the botanical surveys and is not expected to be present.
Silky cryptantha	*Cryptantha crinita*	1B.2	Silky cryptantha is an annual herb that occurs along low-gradient seasonal streams with broad floodplains, usually on the valley floor, where it is found on gravelly or cobbly substrates. The species also occurs in vernally moist uplands. Less frequently, it occurs along perennial streams, including the Sacramento River. The species is found between 200 and 4,000 feet in elevation. The flowering period is April and May.	No	No	No	Broad alluvial floodplains do not occur in the ESL. Silky cryptantha was not observed during the botanical surveys and is not expected to be present.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Woolly meadowfoam	*Limnanthes floccosa* ssp. *floccosa*	4.2	Woolly meadowfoam is an annual herb that generally occurs in vernal pools, ditches, seasonal drainages, and ponds in valley foothill and grasslands, cismontane woodland, and chaparral. The species is reported between 200 and 3,600 feet in elevation. The flowering period is March through June.	No	No	No	No vernal pools or other potentially suitable habitats for woolly meadowfoam are present in the ESL. Woolly meadow was not observed during the botanical surveys and is not expected to be present.
Birds							
Bald eagle	*Haliaeetus leucocephalus*	SE, SFP	Bald eagles nest in large, old-growth trees or snags in mixed stands near open bodies of water. Adults tend to use the same breeding areas year after year and often use the same nest, though a breeding area may include one or more alternate nests. Bald eagles usually do not begin nesting if human disturbance is evident. In California, the bald eagle nesting season is from February through July.	No	No	No	Given the seasonal flow in Oak Run Creek and the moderate levels of human disturbance in and adjacent to the ESL, the bald eagle is not expected to nest in or adjacent to the ESL. No bald eagles or bald eagle nests were observed in or adjacent to the ESL during the wildlife survey, nor is the species expected to be present.
Bank swallow	*Riparia riparia*	ST	Bank swallows require vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, or the ocean for nesting.	No	No	No	No vertical cliffs with fine-textured or sandy soils occur in or adjacent to the ESL. The bank swallow would thus not nest in or adjacent to the ESL.
Northern spotted owl	*Strix occidentalis caurina*	FT, SC, SSSC	Northern spotted owls inhabit dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir forests from sea level to approximately 7,600 feet in elevation. Northern spotted owls typically nest in tree cavities, the broken tops of trees, or in snags. The nesting season is March through June.	No	No	No	Old-growth, multi-layered mixed conifer forests do not occur in or adjacent to the ESL. The northern spotted owl would thus not nest in or adjacent to the ESL.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Tricolored blackbird	*Agelaius tricolor*	SSSC	Tricolored blackbirds are colonial nesters and generally nest near open water. Nesting areas must be large enough to support a minimum colony of about 50 pairs. Tricolored blackbirds generally construct nests in dense cattails or tules, although they can also nest in thickets of willow, blackberry, wild rose and tall herbs.	No	No	No	No suitable nesting habitat for the tricolored blackbird is present in or adjacent to the ESL. The tricolored blackbird would thus nest in or adjacent to the ESL.
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FP, SE	Western yellow-billed cuckoos inhabit and nest in extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, and which abut slow-moving watercourses, backwaters, or seeps. Willows are almost always a dominant component of the vegetation. In the Sacramento Valley, the western yellow-billed cuckoo also utilizes adjacent orchards, especially of walnut, for nesting.	No	No	No	The western yellow-billed cuckoo is not reported to nest in Shasta County. In the Sacramento Valley, most reported occurrences of the western yellow-billed cuckoo are associated with large expanses of riparian habitat along the Sacramento River. No suitable nesting habitat for the western yellow-billed cuckoo is present on or adjacent to the project site. No western yellow-billed cuckoos or cuckoo nests were observed during the wildlife survey, nor is the species expected to nest on or adjacent to the project site.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Invertebrates							
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	Conservancy fairy shrimp inhabit large, cool-water vernal pools with moderately turbid water.	No	No	No	No vernal pools or other potentially suitable habitats for Conservancy fairy shrimp occur in or within 250 feet of the ESL. Conservancy fairy shrimp would thus not be present in or adjacent to the ESL.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Vernal pool fairy shrimp inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump or basalt-flow depression pools.	No	No	No	No vernal pools or other potentially suitable habitats for vernal pool fairy shrimp occur in or within 250 feet of the ESL. Vernal pool fairy shrimp would thus not be present in or adjacent to the ESL.
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Vernal pool tadpole shrimp occur in vernal pools in California's Central Valley and in the surrounding foothills.	No	No	No	No vernal pools or other potentially suitable habitats for vernal pool tadpole shrimp occur in or within 250 feet of the ESL. Vernal pool tadpole shrimp would thus not be present in or adjacent to the ESL.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	The valley elderberry longhorn beetle is found only in association with elderberry shrubs (*Sambucus* spp.). The species' elevational range extends from sea level to 3,000 feet.	No	No	No	No elderberry shrubs occur in or within 100 feet of the ESL. The valley elderberry longhorn beetle would thus not be present in or adjacent to the ESL.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Amphibians							
California red-legged frog	*Rana draytonii*	FT, SSSC	Suitable aquatic habitat for the California red-legged frog (CRLF) consists of permanent water bodies of virtually still or slow-moving fresh water, including natural and man-made ponds, backwaters within streams and creeks, marshes, lagoons, and dune ponds. The CRLF is not characteristically found in deep lacustrine habitats (e.g., deep lakes and reservoirs). Dense, shrubby riparian vegetation, e.g., willow (*Salix*) and bulrush (*Scirpus*) species, and bank overhangs are important features of CRLF breeding habitat. The CRLF tends to occur in greater numbers in deeper, cooler pools with dense emergent and shoreline vegetation.	No	No	No	Oak Run Creek and the unnamed intermittent stream in the ESL do not provide suitable breeding habitat for the CRLF due to the lack of emergent vegetation and overhanging willows/blackberries. Although the ESL is within the historic range of the CRLF, there is substantial documentation that the species has been extirpated from Shasta County for many decades*. Given that the nearest confirmed sighting of the CRLF is approximately 70 miles southeast of the ESL in mountainous terrain in eastern Butte County, and that the species is presumed to be extirpated from the project vicinity, the CRLF is not expected to be present.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Foothill yellow-legged frog	*Rana boylii*	SSSC	Foothill yellow-legged frogs are typically found in shallow, partly-shaded, perennial streams in areas with riffles and rocky substrates. This frog needs at least some cobble-sized substrate for egg-laying. Foothill yellow-legged frogs generally prefer low- to moderate-gradient streams, especially for breeding and egg-laying, although juvenile and adult frogs may utilize moderate- to steep-gradient streams during summer and early fall.	Yes	No	Potentially Present	Although foothill yellow-legged frogs were not observed during the wildlife survey, adult frogs could potentially forage in the onsite reach of Oak Run Creek or disperse through this stream reach during spring to access breeding sites upstream or downstream of the ESL. Adult and juvenile frogs could potentially forage in or disperse through this stream reach during early summer after leaving breeding sites. Foothill yellow-legged frogs would not be present in the onsite reach of the unnamed intermittent stream due to the lack of suitable habitat.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Reptiles							
Western pond turtle	*Actinemys marmorata*	SSSC	The western pond turtle associates with permanent or nearly permanent water in a variety of habitats. This turtle is typically found in quiet water environments. Pond turtles require basking sites such as partially submerged logs, rocks, or open mud banks, and suitable (sandy banks or grassy open fields) upland habitat for egg-laying. Nesting and courtship occur during spring. Nests are generally constructed within 500 feet of a waterbody, but some nests have been found up to 1,200 feet away. Pond turtles leave aquatic sites in the fall and overwinter in uplands nearby. Pond turtles return to aquatic sites in spring.	Yes	No	Present	A juvenile western pond turtle was observed in the reach of Oak Run Creek within the ESL during the field inspections. Adult and juvenile turtles likely utilize the onsite reach of Oak Run Creek for foraging and/or dispersal during spring and early summer. The western pond turtle would not be present in the onsite reach of the unnamed intermittent stream due to the lack of suitable basking, foraging, and dispersal habitat.
Fish							
Delta smelt	*Hypomesus transpacificus*	FT, SE	Delta smelt primarily inhabit the brackish waters of Sacramento-San Joaquin River Delta. Most spawning occurs in backwater sloughs and channel edgewaters.	No	No	No	The Delta smelt would not be present in the ESL because the project area is well outside the range of the species and no suitable habitat is present.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Central Valley steelhead	*Oncorhynchus mykiss*	FT	Central Valley steelhead inhabit cold-water tributaries of the Sacramento and San Joaquin rivers. Adults begin their upstream spawning migration between August and March. Spawning occurs between December and April. Spawning habitat is characterized by loose, clean gravel in cold, swiftly flowing, shallow water.	Yes	Yes	Potentially Present	Although little is known about the abundance and distribution of Central Valley steelhead in Cow Creek and its tributaries, a small number of steelhead are presumed to return annually to spawn (summer rearing is limited to mid- and high-elevation streams that have cool water temperatures). Central Valley steelhead have a moderate to high potential to rear in Oak Run Creek within the ESL during winter and spring when flows are adequate and average daily water temperature is less than 25ºC. Central Valley steelhead are not expected to utilize the unnamed intermittent stream within the ESL at any time due to its shallow depth and brief duration of flow.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Central Valley fall-run Chinook salmon	*Oncorhynchus tshawytscha*	FSC, SSSC	The Central Valley fall-run Chinook salmon spawn in the lower reaches of most rivers and streams in the Central Valley. Adults begin their spawning migration between July and December. Spawning occurs between October and December. Spawning habitat is characterized by loose, clean gravel in cold, swiftly flowing water.	Yes	No	Potentially Present	Central Valley fall-run Chinook salmon is the most abundant and widely distributed run of salmon that returns to spawn annually in the Cow Creek watershed. Adult fall-run may migrate through the ESL during winter and spring to spawn upstream of the ESL, but would not spawn in the ESL due lack of suitable spawning habitat. However, juvenile fall-run Chinook salmon have a moderate to high potential to rear in Oak Run Creek within the ESL during winter and spring when flows are adequate and average daily water temperature is less than 25ºC. Central Valley fall-run Chinook salmon are not expected to utilize the unnamed intermittent stream within the ESL at any time due to its shallow depth and brief duration of flow.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Central Valley late-fall-run Chinook salmon	*Oncorhynchus tshawytscha*	FSC	The Central Valley late-fall-run spawn in the lower reaches of most rivers and streams in the Central Valley. Adults begin their upstream spawning migration between October and April. Spawning occurs between January and April. Spawning habitat is characterized by loose, clean gravel in cold, swiftly flowing water.	Yes	No	Potentially Present	Although Central Valley late-fall-run Chinook salmon have been reported in Cow Creek and in most of its principal tributaries, little is known about the number of late-fall-run that return annually to spawn in the watershed. Adult late-fall-run may migrate through the ESL during winter and spring to spawn upstream of the ESL, but would not spawn in the ESL due lack of suitable spawning habitat. However, juvenile late-fall-run Chinook salmon have a low potential to rear in Oak Run Creek within the ESL during winter and spring when flows are adequate and average daily water temperature is less than 25ºC. Central Valley late-fall-run Chinook salmon are not expected to utilize the unnamed intermittent stream within the ESL at any time due to its shallow depth and brief duration of flow.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Central Valley spring-run Chinook salmon	*Oncorhynchus tshawytscha*	FT, ST	Central Valley spring-run Chinook salmon enter the Sacramento-San Joaquin Delta in early January, and enter natal streams between mid-March and mid-October. Upon entering fresh water, spring-run are sexually immature and must hold in cold water habitats through summer to mature. Typically, Central Valley spring-run Chinook salmon utilize mid- to high-elevation streams that provide sufficient flow, water temperature, cover, and pool depth to allow over-summering. Spawning occurs between August and mid-October.	Yes	No	Potentially Present	Aside from anecdotal reports of Central Valley spring-run Chinook salmon in the Cow Creek Watershed, little is known about the spring-run's distribution and population size in the watershed. Given that the lower reaches of Oak Run Creek are mostly dry during the summer and fall, it would not support spawning by adult spring-run. However, juvenile spring-run have a low potential to rear in Oak Run Creek within the ESL during winter and spring when flows are adequate and average daily water temperature is less than 25ºC. Central Valley spring-run Chinook salmon are not expected to utilize the unnamed intermittent stream within the ESL at any time due to its shallow depth and brief duration of flow.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Sacramento River winter-run Chinook salmon	*Oncorhynchus tshawytscha*	FE, SE	Sacramento River winter-run Chinook salmon spawn almost exclusively in the Sacramento River, and not in tributary streams. Spawning generally occurs in swift, relatively shallow riffles or along the edges of fast runs where there is an abundance of loose gravel. Juveniles may rear in tributaries of the Sacramento River.	Yes	No	Potentially Present	Sacramento River winter-run Chinook salmon are uncommon in the Cow Creek watershed and have only been reported in Old Cow Creek. Adult winter-run would not be present in Oak Run Creek because spawning occurs almost exclusively in the Sacramento River. However, juvenile winter-run have a low potential to rear in Oak Run Creek within the ESL during winter and spring when flows are adequate and average daily water temperature is less than 25ºC. Sacramento River winter-run Chinook salmon are not expected to utilize the unnamed intermittent stream within the ESL at any time due to its shallow depth and brief duration of flow.
Mammals							
Spotted bat	*Euderma maculatum*	SSSC	Spotted bats inhabit grasslands, mixed coniferous forests, and deserts. Spotted bats roost in caves, rock crevices, and buildings. Spotted bats are not known to roost on bridges.	No	No	No	No suitable roosting habitat for the spotted bat occurs in the ESL. The spotted bat would thus not be present.

Potential for Federally Listed, Proposed, and Candidate Species, Designated Critical Habitat for Federally Listed Species, and other Species Identified by the CNDDB to Occur on the Project Site

COMMON NAME	SCIENTIFIC NAME	STATUS	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Western red bat	*Lasiurus blossevellii*	SSSC	Western red bats roost in forests and woodlands, from sea level up through mixed conifer forests. This bat roosts primarily in trees, but occasionally roosts in dense riparian vines. Roost sites are often in edge habitats adjacent to streams, meadows, or urban areas.	Yes	No	Potentially Present	Although no evidence of bat roosting was observed in the ESL during the wildlife survey, large trees provide potential roosting habitat for the western red bat.

Federal Status
FE = Federally Listed – Endangered
FT = Federally Listed – Threatened
FC = Federal Candidate Species
FP = Federal Proposed Species
FD = Federally Delisted
FSC = Federal Species of Concern

State Status
SFP = State Fully Protected
SR = State Rare
SE = State Listed – Endangered
ST = State Listed – Threatened
SC = State Candidate
SD = State Delisted
SSSC = State Species of Special Concern

Rare Plant Rank
List 1A = Presumed extirpated in California and either rare or extinct elsewhere
List 1B = Rare or Endangered in California and elsewhere
List 2A = Presumed extirpated in California, but more common elsewhere
List 2B = Rare or Endangered in California, but more common elsewhere
List 3 = Plants for which we need more information - Review list (generally not considered special-status, unless unusual circumstances warrant)
List 4 = Plants of limited distribution - Watch list (generally not considered special-status, unless unusual circumstances warrant)

Threat Ranks
0.1 = Seriously Threatened in California
0.2 = Fairly Threatened in California
0.3 = Not Very Threatened in California

*U.S. Fish and Wildlife Service. 2002. Recovery Plan for the California Red-Legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon.
*U.S. Fish and Wildlife Service, Designation of Critical Habitat for the California Red-Legged Frog. Federal Register, April 13, 2006, Volume 71, No. 71.
*U.S. Fish and Wildlife Service, Determination of Threatened Status for the California Red-Legged Frog. Final Rule. Federal Register, May 23, 1996, Volume 61, No. 1

APPENDIX B

Old 44 Drive Bridge Replacement Project at Oak Run Creek Planting Plan

PLANTING PLAN
Old 44 Drive at Oak Run Creek
Bridge Replacement Project

Introduction

The Shasta County Department of Public Works is proposing to replace the existing single-span, 82.6-foot-long by 20-foot-wide reinforced concrete deck/steel girder bridge over Oak Run Creek on Old 44 Drive with a new single-span, 122-foot-long by 32.33-foot-wide reinforced concrete box girder bridge. The new bridge would be installed at the same location and along the same alignment as the existing bridge. Both approaches to the bridge would require 200 feet of roadwork, and would include minor widening of the roadway near the bridge to match the width of the new bridge deck. In addition, an existing 60-inch-diameter culvert conveying an unnamed intermittent stream under Old 44 Drive would be extended by 10 feet on each side of the road. The new bridge abutments would be located approximately 16 feet north and 28 feet south of the existing bridge abutments, which would be removed.

To facilitate project construction, a gravel access road and work pad will be constructed in Oak Run Creek. The pad will extend under the bridge and upstream (east) of the bridge, and will be accessible from both the north and south sides of the bridge. Upon completion of construction, the pad and access road will be removed.

Three terrestrial plant communities occur in the project area: grassland, oak/pine woodland, and riparian scrub. The grassland occurs along the road shoulders, in the proposed staging area, and in other areas where trees have been previously cleared. Common species in the grassland include ripgut brome, soft chess, slender wild oats, long-beaked filaree, yellow star-thistle, klamathweed, and bindweed. Most of the grassland in the study area is periodically mowed by local residents.

The oak/pine woodland is present in places along Old 44 Drive, just beyond the road shoulders, and is part of the broader oak/pine woodland that encompasses the project area. The canopy layer consists predominantly of blue oak (*Quercus douglasii*), although gray pine (*Pinus sabiniana*), and interior live oak (*Q. wislizeni*) are also present. No defined shrub layer is present, although poison oak (*Toxicodendron diversilobum*) occurs sporadically beneath the trees.

Riparian vegetation in the work area consists primarily of willows (*Salix exigua, S. gooddingii, S. laevigata,* and *S. lasiandra*). Other species present include small oaks, Oregon

ash, gray pines, coffeeberry, poison oak, and pipevine. These species are represented by a relatively few number of individuals, and none of the trees are mature individuals.

Project implementation would result in the permanent loss of ±0.2 acres of grassland and ±0.01 acres of riparian scrub (the largest tree to be removed is a gray pine with a 5.2" dbh, which is located on the outer edge of the riparian zone), and the removal of fewer than ten trees with a dbh ≥5" from upland areas. Up to ±0.4 acres of grassland could be temporarily disturbed by construction of the temporary access road and construction staging. Soils in the oak/pine woodland could be temporarily disturbed by tree removal activities. Temporary disturbance in the riparian corridor is expected to cover approximately 2,000 square feet (±0.05 acres), including some lands that do not currently support woody riparian vegetation.

No mitigation is proposed to offset the permanent loss of the grassland given that it is periodically disturbed by mowing, supports numerous non-native species, and has only marginal value to wildlife. No mitigation is proposed to offset the permanent loss of oak/pine woodland given the small number of trees to be removed and the abundance of oak/pine woodland in the vicinity. Shasta County will offset the permanent and temporary loss of riparian vegetation through onsite plantings and purchase of mitigation credits. All temporarily disturbed lands in the work area will be revegetated upon completion of construction, as described below.

Responsible Party

Shasta County is responsible for implementation of this Planting Plan. At Shasta County's discretion, some activities may be delegated to contractors.

Schedule

Construction activities are anticipated to begin in summer 2016, and be completed prior to the onset of the fall rains. Herbaceous vegetation shall be replanted in the temporarily disturbed areas at the outset of the fall/winter season immediately following completion of construction. Woody vegetation shall be planted during the fall/winter season immediately following completion of construction, after fall rains have sufficiently moistened the soil.

Planting Temporarily Disturbed Soils in Grassland and Oak/Pine Woodland

Upon completion of construction activities, temporarily disturbed soils in grassland and oak/pine woodland will be revegetated as part of the erosion control requirements for the project.

Planting Areas

The temporarily disturbed grassland is located to the south of the bridge, and east of Old 44 Drive. It is anticipated that the ±0.4-acre grassland to be used for project staging will be replanted following completion of construction. The grassland planting area is privately owned. Planting areas in the oak/pine woodland are located on privately owned land and County-owned land.

Site Preparation

Upon completion of construction activities, temporarily disturbed soils in the grassland and oak/pine woodland will be contoured and stabilized to match adjacent conditions. Appropriate erosion control measures will be implemented during this activity to avoid the discharge of disturbed soils into Oak Run Creek.

Revegetation Materials

Temporarily disturbed soils in the grassland and oak/pine woodland will be replanted with native annual grasses such as California brome (*Bromus carinatus*), blue wild rye (*Elymus glaucus* ssp. *glaucus*), small fescue (*Festuca microstachys*), six-weeks grass (*Festuca octoflora*), meadow barley (*Hordeum brachyantherum* ssp. *brachyantherum*), squirreltail grass (*Elymus elymoides*), and big squirreltail grass (*Elymus multisetus*). A mix of at least three species of native grasses will be used to maximize the potential for successful revegetation. Components of the seed mix will be determined at the time of project construction and will be based on seed availability.

Planting Techniques

Upon completion of construction activities, temporarily disturbed soils in the grassland and the oak/pine woodland will be re-seeded. Seeding should be done as soon as grading is complete and early enough to provide protection during the first rain of the season. Summer temperatures and climate will likely require some irrigation of seeded areas to initiate vegetation establishment prior to winter rains.

Riparian Planting

Planting Areas

The temporarily disturbed riparian areas are located in County-owned right-of-way along the banks of Oak Run Creek, upstream and downstream of the bridge. It is anticipated that

approximately 2,000 square feet of riparian corridor will be replanted following completion of construction. The owner of the planting areas is Shasta County.

Site Preparation

Upon completion of construction activities, temporarily disturbed riparian areas will be contoured and stabilized to match adjacent conditions along Oak Run Creek. Appropriate erosion control measures will be implemented during this activity to avoid the discharge of disturbed soils into the stream channel.

Revegetation Materials

Materials used for revegetation will consist of cuttings of native willows and acorns of valley oaks. Willow cuttings and acorns will be obtained from locations in and/or adjacent to the project area. The salvage of riparian vegetation in areas that will be impacted is infeasible because the vegetation is not expected to survive until the fall when revegetation efforts would commence.

Planting Techniques

Following site preparation, temporarily disturbed riparian areas will be planted with locally obtained native willow cuttings and oak acorns. Willows will be planted within the ordinary high-water line of Oak Run Creek; valleys oaks will be planted at higher elevations in the riparian zone.

Willow cuttings will be planted between November 1 and January 31, after fall rains have thoroughly moistened the soil. Willow cuttings will be planted in the planting areas approximately two-feet on center. The specific planting techniques for establishment of willows are as follows:

1) Cuttings will be collected from vigorously growing willows along Oak Run Creek, in the vicinity of the project area. Cuttings will be obtained when the plants are dormant (late fall or winter).
2) The cuttings will generally be approximately two feet in length. To ensure willow survival throughout the riparian zone, some cuttings may need to be harvested at a length greater than two feet. The base cut will be made at an approximately 45-degree angle to the stem. The terminal end cut will be horizontal to the stem (this will help ensure correct orientation of the cutting during planting).
3) Cuttings will be a minimum of 3/8 inches in diameter (smaller diameter cuttings may not have sufficient stored energy to sprout consistently, especially in dry conditions). The

apical bud and top several inches of the stem will be removed. All side branches will also be removed.

4) Cuttings may be planted on the same day they are collected or, alternatively, may be fully submersed in water for up to ten days prior to planting.
5) Prior to planting, each cutting may be treated with a rooting hormone and fungicide, such as hormodin powder, by dipping the basal portion of the cutting. Each cutting should then dry to minimize the loss of rooting hormone through handling and planting.
6) Cuttings will be pushed into the moist soil so that ½ to ¾ of their length is buried. Three to four buds should remain aboveground. Cuttings planted farther back from the stream shall be sufficiently long that the deepest portion remains in moist soil during the summer period.
7) The cuttings will be planted approximately two-feet on center, in staggered rows, extending from the ordinary high water level of the stream to the upper extent of the riparian zone (as evidenced by the presence of riparian vegetation outside the work area).
8) Other willow planting techniques, such as willow bundles may also be used at the toe-of-slope, closer to the water's edge.

Valley oaks will be established in disturbed riparian areas by planting acorns, which will be collected locally. Damaged acorns and those that float after being submerged in cold water will be discarded. Acorns will be planted in staggered rows to imitate natural regeneration. Three to four acorns will be planted in each hole dug to a depth of 2 inches and back-filled with soil. Acorn clusters will be planted at 6 to 8-foot spacing. Planting will be conducted between October 15 and January 15, after the first fall rains have thoroughly moistened the soil. The depth of the planting holes will be about 2 inches greater than the depth of the plant containers. A water basin approximately 18 inches in diameter will be constructed around each plant. If herbivory is expected to be a problem, the young plants will be protected with mesh cages.

Annual Monitoring

No annual monitoring or remediation is proposed following revegetation of disturbed soils in the grassland and oak/pine woodland. Because of the limited planting area at the site and the high cost of establishing riparian habitat in such a small site, Shasta County proposes to conduct the on-site riparian planting on a one-time basis, with no annual monitoring or remediation. Because the general conditions of the project site will not be altered by bridge replacement, it is fully expected that suitable riparian cover will ultimately establish on the site with or without human intervention. However, to ensure that there are no short-term effects due

to the temporary loss of riparian vegetation, the County will purchase 0.03 riparian habitat credits (a 1:1 ratio) at Stillwater Plains Mitigation Bank. In addition, to offset the loss of salmonid habitat, the County will purchase 0.03 riparian floodplain/salmonid credits at Fremont Landing Conservation Bank. Proof of purchase of mitigation credits will be provided to CDFW prior to the start of groundbreaking activities. Collectively, the on-site plantings and purchase of mitigation credits would fully mitigate the permanent and temporary loss of riparian vegetation. Although there is the potential that some of the riparian plantings may be pruned during future road and bridge maintenance activities, no removal of riparian planting is anticipated. Water quality in Oak Run Creek would not be affected by pruning activities because the root systems of the riparian plantings because would continue to provide soil stabilization.

ENPLAN

20-65
March 21, 2016

MEMORDANUM

TO: Stuart Davis, Shasta County Department of Public Works

FROM: Don Burk

SUBJECT: Old 44 Drive at Oak Run Creek Bridge Replacement Project—Response to Comments and Mitigation Monitoring and Reporting Program

In accordance with the California Environmental Quality Act (CEQA), an Initial Study/Mitigated Negative Declaration (IS/MND) for the Old 44 Drive at Oak Run Creek Bridge Replacement Project was made available to the general public and interested agencies for a 30-day review period that ended March 11, 2016. All written comments received during the public review period are attached, along with written responses to environmental issues raised by commenters on the IS/MND. A Mitigation Monitoring and Reporting Program (MMRP) prepared for the project is also attached.

Response to Comments

In addition to confirmation from the State Clearinghouse that the 30-day posting requirement had been met, two (2) comment letters were received with regard to the IS/MND. Comment letters were received from State agencies; no comments from the general public were received. Each comment letter is reproduced in its entirety and is followed by the response(s) to the letter.

The table below is a list of commenters who submitted comments during the IS/MND public review period.

List of Commenters

Commenter	Agency/Organization
Curt Babcock Habitat Conservation Program Manager	California Department of Fish and Wildlife
Dannas J. Berchtold Engineering Associate Storm Water & Water Quality Certification Unit	Central Valley Regional Water Quality Control Board

Mitigation Monitoring and Reporting Program

The MMRP presents all mitigation measures for the project and describes necessary monitoring actions to be taken, as well as the timing and frequency of the prescribed monitoring activities. CEQA requires that, when adopting a Mitigated Negative Declaration, the lead agency must also adopt a MMRP.

encl. Public Comment Letters
Responses
Mitigation Monitoring and Reporting Program
Planting Plan

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

March 9, 2016

Stuart Davis
Shasta County
1855 Placer Street
Redding, CA 96001

Subject: Old 44 Drive at Oak Run Creek Bridge Replacement Project
SCH#: 2016022029

Dear Stuart Davis:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on March 8, 2016, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2016022029
Project Title Old 44 Drive at Oak Run Creek Bridge Replacement Project
Lead Agency Shasta County

Type MND Mitigated Negative Declaration

Description The project entails replacement of the existing bridge over Oak Run Creek on Old 44 Drive with a new bridge on the same alignment. The existing single-span, 82.6 foot long by 20 foot wide reinforced concrete deck/steel girder bridge would be replaced with a new single-span, 122-foot long by 32.33-foot wide reinforced concrete box girder bridge. The new bridge abutments would be located approx. 16 feet north and 28 feet south of the existing bridge abutments, which would be removed. It is anticipated that the bridge foundation would consist of driven steel H-piles and pile caps. The purpose of the project is to provide a safe stream crossing for the travelling public by replacing the structurally deficient bridge. The project is needed because the existing bridge, constructed in 1943, has nine-foot wide lanes and a damaged superstructure.

Lead Agency Contact

Name Stuart Davis
Agency Shasta County
Phone 530-245-6808 **Fax**
email
Address 1855 Placer Street
City Redding **State** CA **Zip** 96001

Project Location

County Shasta
City
Region
Lat / Long 40° 34' 01" N / 122° 11' 31" W
Cross Streets Old 44 Drive and Manzano Way
Parcel No. Various
Township 31N **Range** 3W **Section** 3 **Base** MDMB

Proximity to:

Highways 44
Airports
Railways
Waterways Oak Run Creek
Schools Millville ES
Land Use LAnd Use: Bridge Zoning: Limited Residential and Designated Floodway ; GP designation; Rural Residential

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Growth Inducing; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Region 1; Department of Parks and Recreation; Department of Water Resources; Resources, Recycling and Recovery; California Highway Patrol; Caltrans, District 2; Air Resources Board, Transportation Projects; Regional Water Quality Control Bd., Region 5 (Redding); Native American Heritage Commission

Date Received 02/08/2016 **Start of Review** 02/08/2016 **End of Review** 03/08/2016

Note: Blanks in data fields result from insufficient information provided by lead agency.

State of California, Governor's Office of Planning and Research, State Clearinghouse and Planning Unit

The Clearinghouse submitted the Mitigated Negative Declaration to select state agencies for review. The 30-day agency review period closed on March 8, 2016; comments received by the Clearinghouse were provided to County staff.

Response: *Noted. No response necessary.*

Letter 1

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Northern Region
601 Locust Street
Redding, CA 96001
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

March 8, 2016

Mr. Stuart Davis
Associate Engineer
Shasta County Department of Public Works
1855 Placer Street
Redding, CA 96001

Subject: OLD 44 DRIVE at OAK RUN CREEK BRIDGE REPLACEMENT PROJECT, MITIGATED NEGATIVE DECLARATION, STATE CLEARINGHOUSE NUMBER 2016022029

Dear Mr. Davis:

The California Department of Fish and Wildlife (CDFW) received a Proposed Mitigated Negative Declaration (MND) from Shasta County Department of Public Works for the Old 44 Drive at Oak Run Creek Bridge Replacement Project (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1] On April 17, 2015, CDFW previously submitted comments in response to the Natural Environment Study (NES) for the Project.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources, and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802.) Similarly for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

CDFW is also submitting comments as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) As proposed, the Project will be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

PROJECT DESCRIPTION

The County is proposing to replace the existing single-span bridge (06C-0098) over Oak Run Creek on Old 44 Drive with a new bridge on the same alignment. The purpose of the project is to provide a safe stream crossing for the traveling public by replacing the structurally deficient bridge. The project is needed because the existing bridge, constructed in 1943, has only nine-foot-wide lanes and a damaged superstructure. The new bridge will be 122 feet long and 32.33 feet wide and over 12 feet wider than the old bridge. Potential temporary and/or permanent impacts may affect anadromous salmonids, special status amphibians, native bats and other mammals, migratory passerine birds, and special status plants and riparian scrub habitat, which contribute nutrients and food sources into Oak Run Creek.

PROJECT COMMENTS AND RECOMMENDATIONS

Mitigation Measure 4.6

1 -1 The measure states that to avoid impacts to foothill yellow-legged frogs (*Rana boylii)* and western spadefoot (*Spea hammondii*), adults, tadpoles, and egg masses of each species would be relocated if found during pre-construction surveys at the start of in-water work each day. CDFW does not recommend the relocation of amphibian egg masses, however, it is very unlikely that there will still be egg masses present if in-channel work does not occur prior to July 1. Preconstruction surveys should still be conducted as long as water is present, however if surveys detect egg masses, instream work should be delayed until the egg masses have developed into tadpoles and the tadpoles can safely be relocated to similar habitat nearby.

Appendix B- Planting Plan and Mitigation Measure 4.2

1 - 2 Mitigation proposed for impacts to riparian vegetation includes one-time on-site plantings of native willow stakes and acorns with no annual monitoring or remediation. Additionally, the County proposes to purchase 0.03 riparian habitat credits (1:1 ratio) at Stillwater Plains Mitigation Bank. In the comments previously submitted for the NES, CDFW proposed a higher ratio for purchase of mitigation credits due to the fact that these credits will be off-site and out-of-kind mitigation. Stillwater Plains Mitigation Bank does not have credits for the kind of riparian habitat found at the Project. The combination of planting with no maintenance, monitoring, or established success criteria

1-2 cont.

to ensure proper riparian establishment along with purchase of out-of-kind mitigation credits does not mitigate potential impacts to less than significant levels. To mitigate to less than significant levels and ensure no net loss in wetlands due to temporary and permanent impacts, the Department recommends a higher ratio of credits to purchase. A minimum value is 3:1.

FILING FEES

1 - 3

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the MND to assist the County in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Kate Grossman, Environmental Scientist at (530) 225-2239 or Katherine.grossman@wildlife.ca.gov.

Sincerely,

Curt Babcock
Habitat Conservation Program Manager

Attachment 1: April 17, 2015 Review of the NES comment letter

ec: Stuart Davis
Shasta County Department of Public Works
sdavis@co.shasta.ca.us

State Clearinghouse
State.clearinghouse@opr.ca.gov

Donna L. Cobb, Kate Grossman, Amy Henderson, Rachelle Pike
California Department of Fish and Wildlife
Donna.Cobb@wildlife.ca.gov, Katherine.Grossman@wildlife.ca.gov, Amy.Henderson@wildlife.ca.gov, Rachelle.Pike@wildlife.ca.gov

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Region 1 – Northern
601 Locust Street
Redding, CA 96001
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

April 17, 2015

Mr. Darrin Doyle
ENPLAN
3179 Bechelli Lane, Suite 100
Redding, CA 96002

Subject: Review of the Natural Environment Study for Shasta County's Proposed Old 44 Drive at Oak Run Creek Bridge Replacement.

Dear Mr. Doyle:

The California Department of Fish and Wildlife (Department) has reviewed the Natural Environment Study (NES) for Shasta County's (County) proposed Oak Run Creek Bridge Replacement project (Project) to evaluate potential effects of the Project to State-listed species, State Fully Protected Species, State Species of Special Concern, and other biological resources that may be impacted by the project. The Department offers the following comments and recommendations on the Project in our role as the State's trustee for fish and wildlife resources, and as a responsible agency under the California Environmental Quality Act, California Public Resources Codes section 21000 et seq.

Project Description

The Project proposes to replace an existing 82.6-foot long by 20-foot wide reinforced concrete deck/steel girder bridge with a new single –span 85-foot long by 32.33-foot wide reinforced concrete box girder bridge installed on the same alignment over Oak Run Creek on Old 44 Drive. Additionally, the Project will extend an existing 60-inch culvert by ten feet on each side of the road on an unnamed intermittent stream.

Project Comments and Recommendations

Anadromous fish

Anadromous salmonids that have been observed in Oak Run Creek, or have the potential to occur within the Project area, include Central Valley steelhead (*Oncorhynchus mykiss*), Central Valley fall-run Chinook salmon (*O. tshawytscha*) and late fall-run Chinook salmon (*O. tshawytscha*), but these are not State-listed species under the California Endangered Species Act. The State-listed endangered Sacramento River winter-run Chinook salmon (*O. tshawytscha*) and the State-listed threatened Central Valley spring-run Chinook salmon (*O. tshawytscha*) do not spawn in Oak Run Creek and rearing by juveniles may only occur seasonally with adequate conditions. While these various salmonids may be present in Oak Run Creek, lack of suitable spawning habitat within or near the Project reach would preclude adults from being present in the Project area. Juvenile salmonids of these species may be present at the Project location during times of adequate flow and

cool water temperature, but thermal barriers and low flow would likely preclude juveniles from being present during the proposed work period of July 1- October 15.

The Department concurs that the Project will not result in take of Sacramento River winter-run Chinook salmon and Central Valley spring-run Chinook salmon. Additionally, Central Valley steelhead and Central Valley fall-run and late fall-run Chinook salmon will not be adversely affected during Project activities, as their presence during construction would be constrained by low flow and high water temperatures. The work window for instream or percussive work should be limited to periods when the stream channel is not flowing, preferably dry, or when the average maximum water temperature is in excess of 25°C to avoid impacts to salmonids. If the average maximum water temperature has not exceeded 25°C by the start of the instream work, the County shall obtain approval from National Marine Fisheries Service, as well as the Department. Temporary construction-related instream activities such as access roads, gravel work pads, and diversion pipe in the stream channel may affect habitat for fish and aquatic wildlife in the stream channel unless imported material is clean, washed spawning gravel and the affected reach is restored to pre-Project gradient and contours at the completion of the Project and prior to the return of high flows. Adequate planning and precaution should be used in dismantling the existing bridge to ensure concrete dust and related debris does not enter the stream channel.

Amphibians

The pools that remain within the drainage and persist throughout the summer could be habitat for spadefoot toad (*Spea hammondii*), a California Species of Special Concern. The NES states that western toad tadpoles were found within one of these pools. Spadefoot toad tadpoles look very similar to western toad tadpoles at first. Gradually the spadefoot toad tadpoles turn a lighter color but remain difficult to identify while dark in color. Although not in the California Natural Diversity Data Base (CNDDB), western spadefoot toads (*Spea hammondii*) are known within the area. The Department recommends conducting surveys prior to bridge demolition to ensure that there are no tadpoles in the pool and if there are, identifying them to species. If spadefoot toad tadpoles are found, avoidance or mitigation measures for impacts should be included to avoid any significant effects to the species or its habitat.

Birds

The Department recommends that the removal of vegetation occur outside the nesting season (generally February 1 through August 31) not March 1 through July 31 as stated in the NES. If any special status bird species are found, avoidance or mitigation measures for impacts should be included to avoid any significant effects to the species or its habitat.

Bats

As Trustee Agency, the Department is also concerned that a number of bat species could be taken with the removal of the bridge. Prior to habitat removal, bat surveys should be

conducted by a qualified bat biologist familiar with the bat species potentially occupying the site and their local ecology, and excluded to prevent reoccupation. If bats are found, proper exclusion devices shall be installed to prevent roosting during bridge demolition. Bats shall not be disturbed without specific notice to and consultation with the Department. The Department reserves the right to provide additional provisions in the Streambed Alteration Agreement to protect nesting/roosting bats. If bats are found during pre-demolition surveys, new bat habitat shall be incorporated in the design of the new bridge. If any special status bat species are found, avoidance or mitigation measures for impacts should be included to avoid any significant effects to the species or its habitat.

Riparian Planting Plan

The Department has reviewed the proposed Riparian Habitat Planting Plan for the Project which also serves as mitigation requirements for temporary and permanent loss to riparian habitat. In addition to slight permanent impacts from the new bridge being over 12-feet wider, the bridge replacement Project will temporarily disturb 2,000 square feet of the riparian corridor, the current vegetative structure of which consists of several varieties of willows (*Salix* sp.), Oregon ash (*Fraxinus latifolia*), oaks (*Quercus* sp.), and herbaceous cover such as poison oak (*Toxicodendron diversilobum*), and coffeeberry (*Frangula californica* ssp. *tomentella*). The County proposes to revegetate the disturbed areas with cuttings of native willows found in the Project area planted in staggered rows from the ordinary high water level of the stream to the upper extent of the riparian zone. No annual monitoring is proposed. The Department recommends additional native species be incorporated into the planting palette. The Department also recommends not just planting willows, but acorns as well, to encourage oak regeneration and salvaging/transplantation of shrubs proposed to be impacted by the Project. If any onsite native vegetation that will be removed is salvageable, the Department encourages saving and transplanting small shrubs that are already available. The native species to be used in the re-seeding that is to take place in the disturbed grassland and oak/pine woodland should be identified in the planting plan as well.

Additionally, the proposed planting technique is not adequate to ensure willow survival throughout the riparian zone. Poles should be harvested at a length long enough so that when ¾ of the pole is buried, the deepest portion remains in moist soil conditions and desiccation does not occur. Cuttings that are all two feet in length, and only buried so that half their length is buried will likely not survive one year of dry summer conditions. Other willow planting techniques, such as willow bundles could also be incorporated at the toe of the slope, closer to the water's edge.

Finally, consideration must be given to long-term bridge maintenance activities in meeting mitigation requirements. The County must maintain the bridges they build, as well as the right-of-way, and they typically brush, masticate, or cut back any vegetation growing within the road easement or right-of-way. If willow planting occurs within areas that will eventually be cut back for maintenance purposes, those plantings may not fully mitigate the impacts from construction. The planting plan does not address how bridge maintenance activities will affect those plants that are planted within the road right-of-way. Furthermore, the available mitigation credits purchased at Stillwater Mitigation Bank may be out-of-kind (pond habitat, rather than stream habitat). Because there is no monitoring

proposed to ensure survival of plants that are planted onsite, and long-term bridge maintenance activities potentially will affect species that become established in the riparian zone, and because the purchase of off-site mitigation credits will likely be out-of-kind, the Department would like to see a higher ratio (3:1) of mitigation credits purchased.

Jurisdictional Delineation

The delineation report should include the Department's jurisdiction as well as the U.S. Army Corps of Engineers (Corps) jurisdiction. The Department's jurisdiction may extend beyond the jurisdictional limits of the Corps including the bed, bank, channel and limits of riparian vegetation.

California Natural Diversity Data Base

The Department is concerned that the CNDDB is not being utilized properly. Although these databases provide useful information for determining which species are potentially present on a site, the Department cannot and does not portray the CNDDB as an exhaustive and comprehensive inventory of all rare species and natural communities statewide or within a particular area. The Department always recommends field verification for the presence or absence of sensitive species. Likewise, contribution of data to the CNDDB by agencies, consultants, and private citizens is equally important to the maintenance of the CNDDB. With that said, just because a species is absent from the data base, does not mean it is not present onsite. The Department requests that any special status species or habitats found on the Project site be submitted to the CNDDB. The link to the online CNDDB form is http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp.

If you have any questions, please contact Kate Grossman, Environmental Scientist, at (530) 225–2239 or Amy Henderson, Environmental Scientist, at (530) 225-2779.

Sincerely,

Donna L. Cobb
Aquatic Conservation Planning Supervisor

ec: Mss. Kate Grossman, Amy Henderson and Rachelle Pike
California Department of Fish and Wildlife
Katherine.Grossman@wildlife.ca.gov, Amy.Henderson@wildlife.ca.gov,
Rachelle.Pike@wildlife.ca.gov

Mr. Darrin Doyle
ENPLAN
DDoyle@enplan.com

California Department of Fish and Wildlife

Comment 1-1
Referencing Mitigation Measure 4.6 in the IS/MND, the California Department of Fish and Wildlife (CDFW) recommended that foothill yellow-legged frog and western spadefoot egg masses not be relocated but rather that the egg masses be left in place and the project delayed until the eggs have hatched and the tadpoles can be relocated to a similar habitat nearby.

Response: *In California, foothill yellow-legged frog egg masses have been found between April 22 and July 8. Egg clusters are generally found on the downstream side of rocks in shallow, slow-moving water, and are attached to submerged rocks, pebbles, or, occasionally, vegetation. Eggs can number from 300 to 2,000, averaging 900. The eggs hatch within 5 to 37 days; the tadpoles remain near the egg mass for about a week, then move away to feed, using rocks and gravel for cover. Tadpoles transform to frogs in three to four months, typically between July and October. The newly metamorphosed juveniles then usually migrate upstream from the hatching site.*

Western spadefoot females lay 300 to 500 eggs in irregular groups of less than 50 each. Eggs are laid between late February and late May, and are attached to underwater vegetation or detritus. Eggs hatch very quickly, usually in three to four days, but possibly from a little over a half day to six days later. Tadpoles transform in four to eleven weeks, depending on food availability and water levels. The breeding pools must remain ponded for at least 30 days for the tadpoles to survive. Newly transformed juveniles leave the breeding pool a few days after metamorphosis and then seek refuge in the immediate vicinity of the natal ponds for up to several days before dispersing. Adults spend most of their life in terrestrial habitats, returning to water only to breed.

Mitigation Measure 4.6 requires daily inspections of in-water work areas by a qualified biologist. If the biologist determines that egg masses can be avoided during the in-water work, they will be left in place and avoided. Because a tight construction schedule may not allow for project delays, it may not be feasible to delay work until the eggs have hatched and the young have dispersed to other areas. In the unlikely event that egg masses are found in the project site and cannot be avoided, we find that the potential risk to foothill yellow-legged frog and/or western spadefoot would be minimized by relocating a small number of easily visible egg masses, instead of waiting until the eggs have hatched and attempting to capture several hundred or more tadpoles. Further, given that the visibility in the water beneath the bridge is typically poor in the summer, due to algal growth, allowing any eggs that may be present to hatch into tadpoles only makes the task of relocation more difficult and presents a higher probability that not all tadpoles will be successfully relocated. For these reasons, revisions to Mitigation Measure 4.6 are not warranted.

Comment 1-2

Referencing the Planting Plan and Mitigation Measure 4.2 in the IS/MND, CDFW recommended that the County purchase a higher ratio of riparian habitat credits, a minimum of a 3:1 ratio instead of a 1:1 ratio. CDFW reasoned that "the combination of planting with no maintenance, monitoring, or established success criteria to ensure proper riparian establishment along with purchase of out-of-kind mitigation credits does not mitigate potential impacts to less than significant levels."

Response: *Purchase of credits at a 1:1 ratio is appropriate if in-kind credits are available in a CDFW-approved mitigation bank. Purchase of credits at a 3:1 ratio is only appropriate for out-of-kind credits or credits not in a CDFW-approved mitigation bank. Because in-kind credits are not available at Stillwater Mitigation Bank, Mitigation Measure 4.2 is revised to require purchase of open water creation credits at a 3:1 ratio creation at an approved mitigation bank or to require funding for creation of 0.09 acres of streamside riparian habitat by the Western Shasta Resource Conservation District. See below and attached MMRP for revisions to Mitigation Measure 4.2. The attached Planting Plan has also been revised to reflect the change in mitigation credits.*

MM 4.2. The loss of riparian habitat along Oak Run Creek shall be avoided/minimized and offset through implementation of the following:

- *Minimize the construction disturbance to riparian habitat along Oak Run Creek through careful pre-construction planning.*
- *Erect construction fencing along the outer edges of the construction zone where needed to prevent accidental entry into riparian habitat.*
- *Stockpile equipment and materials outside of riparian habitat, in the designated staging area.*
- *In areas planned for temporary disturbance, prune riparian plants at ground level (as opposed to mechanically removing the entire plant and root system) to promote regeneration from the root systems.*
- *Upon completion of construction, the bed and banks of jurisdictional waters subject to temporary disturbance shall be restored to their pre-construction topography.*
- *Shasta County shall offset the loss of riparian vegetation through on-site plantings in accordance with the Old 44 Drive Bridge Replacement Project at Oak Run Creek Planting Plan (Appendix B). Shasta County shall conduct the on-site riparian planting on a one-time basis, with no annual monitoring or remediation.*
- *Shasta County shall purchase 0.09 open water creation credits (a 3:1 ratio) at a California Department of Fish and Wildlife-approved mitigation bank, or shall fund creation of 0.09 acres of streamside riparian habitat by the Western Shasta Resource Conservation District. Proof of mitigation purchase shall be provided to the California Department of Fish and Wildlife prior to the start of ground-breaking activities.*

- *Temporarily disturbed soils in grasslands and oak/pine woodlands shall be re-planted as part of the erosion control requirements of the project, and in accordance with the Old 44 Drive Bridge Replacement Project at Oak Run Creek Planting Plan (Appendix B).*

Comment 1-3

CDFW stated that because the proposed project would have impacts on fish and/or wildlife, fees to CDFW will be necessary upon filing the Notice of Determination for the project.

Response: *Comment noted. No further response is necessary.*

Letter 2

CALIFORNIA Water Boards

Edmund G. Brown Jr.
Governor

Matthew Rodriquez
Secretary for
Environmental Protection

Central Valley Regional Water Quality Control Board

8 March 2016

Mr. Stuart Davis
Shasta County
1855 Placer Street
Redding, CA 96001

COMMENTS ON THE NEGATIVE DECLARATION FOR PROPOSED OLD 44 DRIVE AT OAK RUN CREEK BRIDGE REPLACEMENT PROJECT, REDDING, SHASTA COUNTY

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) is a responsible agency for this project, as defined by the California Environmental Quality Act (CEQA). On 10 February 2016, we received your request for comments on the Mitigated Negative Declaration for the Old 44 Drive at Oak Run Creek Bridge Replacement Project.

The project entails replacement of the existing bridge over Oak Run creek on Old 44 Drive with a new bridge on the same alignment. The existing single-span, 82.6-foot-long by 20-foot-wide reinforced concrete deck/steel girder bridge would be replaced with a new single-span, 122-foot-long by 32.33-foot-wide reinforced concrete box girder bridge. The new bridge abutments would be located approximately 16 feet north and 28 feet south of the existing bridge abutments, which would be removed. It is anticipated that the bridge foundation would consist of driven steel H-piles and pile caps. The purpose of the project is to provide safe stream crossing for the traveling public by replacing the structurally deficient bridge. The project is needed because the existing bridge, constructed in 1943, has only nine-foot-wide lanes and a damaged superstructure.

Based on our review of the information submitted for the proposed project, we have the following comments:

2 -1

Clean Water Act (CWA) Section 401, Water Quality Certification

The Central Valley Water Board has regulatory authority over wetlands and waterways under both the Federal Clean Water Act (CWA) and the California Water Code, Division 7 (CWC). Discharge of dredged or fill material to waters of the United States requires a CWA Section 401 Water Quality Certification from the Central Valley Water Board. Typical activities include any modifications to these waters, such as stream crossings, stream bank modifications, filling of wetlands, etc. 401 Certifications are issued in combination with CWA Section 404 Permits issued by the Army Corps of Engineers. The proposed project must be evaluated for the presence of jurisdictional waters, including wetlands and other waters of the State. Steps must be taken to first avoid and minimize impacts to these waters, and then mitigate for unavoidable impacts. Both the Section 404 Permit and Section 401 Water Quality Certification must be obtained prior to site disturbance.

General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (CGP)

2- 2 Construction activity, including demolition, resulting in a land disturbance of one acre or more must obtain coverage under the CGP. The Old 44 Drive at Oak Run Creek Bridge Replacement Project must be conditioned to implement storm water pollution controls during construction and post-construction as required by the CGP. To apply for coverage under the CGP the property owner must submit Permit Registration Documents electronically prior to construction. Detailed information on the CGP can be found on the State Water Board website: http://www.waterboards.ca.gov/water_issues/programs/stormwater/gen_const.shtml

Post-Construction Storm Water Requirements

2 -3 Studies have found the amount of impervious surface in a community is strongly correlated with the impacts on community's water quality. New development and redevelopment result in increased impervious surfaces in a community. Post-construction programs and design standards are most efficient when they involve (i) low impact design; (ii) source controls; and (iii) treatment controls. To comply with Phase II Municipal Storm Water Permit requirements the County of Shasta must ensure that new developments comply with specific design strategies and standards to provide source and treatment controls to minimize the short and long-term impacts on receiving water quality. The design standards include minimum sizing criteria for treatment controls and establish maintenance requirements. The proposed project must be conditioned to comply with post construction standards adopted by the County of Shasta in compliance with their Phase II Municipal Storm Water Permit.

If you have any questions or comments regarding this matter please contact me at (530) 224-4783 or dberchtold@waterboards.ca.gov.

Dannas J. Berchtold
Engineering Associate
Storm Water & Water Quality Certification Unit

DJB: wrb: reb

cc w/o
enclosures: Mr. Matt Kelley, U.S. Army Corp of Engineers, Redding
Ms. Donna Cobb, Department of Fish and Wildlife, Region 1,

Central Valley Regional Water Quality Control Board

Comment 2-1
The Central Valley Regional Water Quality Control Board (Central Valley RWQCB) noted that any modifications to wetlands and waterways, qualifying as waters of the U.S., require a Section 404 Permit and Section 401 Water Quality Certification prior to site disturbance.

Response: *Noted. The requirements for obtaining a Clean Water Act Section 401 Certification and a Clean Water Act Section 404 Permit for discharge of fill to Waters of the U.S. are identified on page 6 of the IS/MND. Shasta County will obtain these permits prior to site disturbance.*

Comment 2-2
The Central Valley RWQCB noted that coverage under a General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (CGP) must be obtained. The CGP requires implementation of storm water pollution controls during construction and post-construction. Permit Registration Documents must be submitted electronically prior to construction at the State Water Board website.

Response: *Noted. The requirement for obtaining a CGP is identified on pages 6 and 25 of the IS/MND. In accordance with the CGP, Shasta County or its designee will implement storm water pollution controls during construction and post-construction. Shasta County or its designee will apply for coverage under the CGP by electronically submitting the Permit Registration Documents at the State Water Board website.*

Comment 2-3
The Central Valley RWQCB commented that the project must comply with the post-construction storm water standards adopted by Shasta County, in compliance with their Phase II Municipal Storm Water Permit.

Response: *Noted. As described in Section III.C.6, "Geology and Soils," in the IS/MND, the project will comply with the requirements contained in the applicable National Pollutant Discharge Elimination System (NPDES) permit, which includes best management practices to reduce pollutants in post-construction runoff to minimize potential impacts on water quality.*

Old 44 Drive at Oak Run Creek Bridge Replacement Project
Mitigation Monitoring and Reporting Program

Mitigation Measures	Monitoring Action	Monitoring Timing/Frequency	Date Checked/ By Whom
MM 4.1. To offset the loss of anadromous salmonid habitat, Shasta County shall purchase 0.03 riparian floodplain/salmonid credits at Fremont Landing Conservation Bank. Proof of purchase of mitigation credits shall be provided to the U.S. Army Corps of Engineers/National Marine Fisheries Services prior to the start of groundbreaking activities. Responsibility: Shasta County	BC • Confirm mitigation measure is included in construction contract. • Check documentation to confirm mitigation credits have been purchased and that proof of purchase has been submitted to the U.S. Army Corps of Engineers/ National Marine Fisheries Services.	BC • One-time check of construction contract. • One-time check to confirm purchase of mitigation credits and submittal of proof of purchase to the approving agencies.	
MM 4.2. The loss of riparian habitat along Oak Run Creek shall be avoided/minimized and offset through implementation of the following: • Minimize the construction disturbance to riparian habitat along Oak Run Creek through careful pre-construction planning. • Erect construction fencing along the outer edges of the construction zone where needed to prevent accidental entry into riparian habitat. • Stockpile equipment and materials outside of riparian habitat, in the designated staging area. • In areas planned for temporary disturbance, prune riparian plants at ground level (as opposed to mechanically removing the entire plant and root system) to promote regeneration from the root systems. • Upon completion of construction, the bed and banks of jurisdictional waters subject to temporary	BC • Confirm mitigation measure is included in construction contract. • Confirm that construction disturbance to riparian habitat is minimized in pre-construction planning. • Field check to confirm construction fencing along the outer edges of the construction zone is erected. • Check documentation to confirm mitigation credits have been purchased. DC • Field check to confirm equipment and materials are stockpiled outside of riparian habitat, in the designated staging area.	BC • One-time check of construction contract. • Check as needed to confirm that construction disturbance to riparian habitat is minimized. • One-time field check to confirm erection of construction fencing. • One-time check to confirm mitigation credits have been purchased. DC • Field check as needed to confirm construction fencing is maintained and that equipment and materials are stockpiled in the designated staging area.	

Mitigation Measures	Monitoring Action	Monitoring Timing/Frequency	Date Checked/ By Whom
disturbance shall be restored to their pre-construction topography. • Shasta County shall offset the loss of riparian vegetation through on-site plantings in accordance with the Old 44 Drive Bridge Replacement Project at Oak Run Creek Planting Plan (Appendix B). Shasta County shall conduct the on-site riparian planting on a one-time basis, with no annual monitoring or remediation. • Shasta County shall purchase 0.09 open water creation credits (a 3:1 ratio) at a California Department of Fish and Wildlife-approved mitigation bank, or shall fund creation of 0.09 acres of streamside riparian habitat by the Western Shasta Resource Conservation District. Proof of mitigation purchase shall be provided to the California Department of Fish and Wildlife prior to the start of ground-breaking activities. • Temporarily disturbed soils in grasslands and oak/pine woodlands shall be re-planted as part of the erosion control requirements of the project, and in accordance with the Old 44 Drive Bridge Replacement Project at Oak Run Creek Planting Plan (Appendix B).	• Field check to confirm riparian plants are pruned at ground level. AC • Field check to confirm the bed and banks of jurisdictional waters are restored to their pre-construction topography. • Field check to confirm site is re-planted in accordance with the Planting Plan and the erosion control requirements of the project.	• Field check as needed to confirm riparian plants are pruned at ground level. AC • One-time field check to confirm the bed and banks are restored to their pre-construction topography. • One-time field check to confirm site is re-planted in accordance with the Planting Plan and the erosion control requirements.	
MM 4.3. All construction work, including pile driving activities, that will take place in the creek channel shall occur between July 1 and October 15 to minimize potential effects on salmonids. If water is present, in-water work shall be conducted only when the average maximum water temperature is in excess of 25 degrees Celsius (77 degrees Fahrenheit). If the average maximum water temperature has not exceeded 25ºC by the start of the in-water work period, Shasta County shall notify the National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW) prior to conducting work.	BC • Confirm mitigation measure is included in construction contract. DC • Field check construction initiation and termination dates. • Field check in-water temperatures leading up to the initiation of in-water construction.	BC • One-time check of construction contract. DC • One-time check of construction initiation and termination dates. • On-going monitoring of water temperatures prior to the start of in-water construction.	

Mitigation Measures	Monitoring Action	Monitoring Timing/Frequency	Date Checked/ By Whom
If the stream is dry or not flowing and no salmonids are present, the County may start in-water work by June 15 provided the aforementioned temperature condition is met and the National Weather Service forecast for precipitation at the project site is less than or equal to 30 percent on all work days leading up to July 1. If work is proposed outside of the specified periods or before the average maximum water temperature reaches 25ºC, the County shall obtain approval from NMFS and CDFW prior to conducting such work. Responsibility: Shasta County	• Check documentation to confirm NMFS and CDFW are notified if in-water work is occurring when the average maximum water temperature has not exceeded 25ºC or if work is proposed prior to July 1.	• Check as needed to confirm NMFS and CDFW notification/approval.	
MM 4.4. Best Management Practices (BMPs) for soil stabilization, sediment control, and spill prevention shall be implemented throughout the duration of the project to ensure that sediment/pollutant transport into Oak Run Creek is avoided or minimized. These BMPs may include covering disturbed areas with mulch, temporary seeding, use of soil binders, installation of soil blankets, and increasing the number and/or effectiveness of existing straw wattles and silt fences. These BMPs shall be specified in the Storm Water Pollution Prevention Plan to be prepared for the project. Responsibility: Shasta County	BC • Confirm mitigation measure is included in construction contract. DC • Field check to confirm implementation of BMPs.	BC • One-time check of construction contract. DC • Field check as needed to confirm implementation of BMPs.	
MM 4.5. In accordance with Section 401 Water Quality Certification requirements of the Regional Water Quality Control Board, water sampling shall be conducted: (a) when performing any in-water work, (b) in the event that project activities result in any materials reaching surface waters, or (c) when any activities result in the creation of a visible plume in surface waters. Monitoring shall be conducted immediately upstream out of the influence of the project and 300 feet downstream of the active work area. In addition, pursuant to the requirements of the National Pollutant Discharge Elimination System	BC • Confirm mitigation measure is included in construction contract. DC • Check water quality documentation for compliance with the Regional Water Quality Control Board standards, and verify that corrective actions have	BC • One-time check of construction contract. DC • Check as needed to confirm project is in compliance with Regional Water Quality Control Board requirements.	

Mitigation Measures	Monitoring Action	Monitoring Timing/Frequency	Date Checked/ By Whom
(NPDES) and the State Water Resources Control Board, water quality sampling shall be conducted a minimum of once per day during each "qualifying rain event" (defined as 0.5" of rain). Sampling must be conducted where storm water discharges from the site. If there are fewer than three discharge points (which is likely the case for this site), sampling shall be conducted three times per day. If the impact thresholds of either permit are exceeded, corrective actions shall immediately be implemented to ensure compliance. Corrective actions shall include implementation of additional soil stabilization and sediment control measures. These measures could include covering disturbed areas with mulch, temporary seeding, use of soil binders, installation of soil blankets, and increasing the number and/or effectiveness of straw wattles and silt fences. <u>Responsibility</u>: Shasta County	been implemented if thresholds are exceeded.		
MM 4.6. The potential for direct impacts on foothill yellow-legged frogs, western spadefoot, and western pond turtles that may be present in Oak Run Creek shall be avoided by having a qualified biologist conduct a pre-construction survey for foothill yellow-legged frogs, western spadefoot, and western pond turtles immediately prior to the start of in-water work each day that in-water work would occur. Any foothill yellow-legged frog adults, tadpoles, and egg masses, western spadefoot adults, tadpoles, and egg masses, and/or western pond turtles that may be found shall be relocated to a safe location upstream or downstream of the work area. Potential indirect impacts on foothill yellow-legged frogs, western spadefoot, and western pond turtles shall be minimized through use of erosion controls, which would minimize sediments discharged into drainages. <u>Responsibility</u>: Shasta County	BC • Confirm mitigation measure is included in construction contract. DC • Check documentation provided by the biologist regarding the results of the daily pre-construction surveys, as appropriate.	BC • One-time check of construction contract. DC • Check documentation provided by the biologist as needed.	

Mitigation Measures	Monitoring Action	Monitoring Timing/Frequency	Date Checked/ By Whom
MM 4.7. Prior to dismantling of the existing bridge, a qualified bat biologist shall inspect the bridge to determine the presence of roosting bats. If roosting bats are present, (1) proper exclusion devices shall be installed to prevent bats from roosting on the bridge during bridge removal (bats shall not be disturbed without specific notice to and consultation with the California Department of Fish and Wildlife) and (2) the new bridge shall be designed to provide roosting habitat for bats. Responsibility: Shasta County	BC • Confirm mitigation measure is included in construction contract. • Check documentation provided by the bat biologist regarding the results of the pre-demolition survey. • Confirm that measures identified by the bat biologist in consultation with CDFW are implemented as appropriate.	BC • One-time check of construction contract. • One-time check of biologist's pre-demolition report. • Field check prior to demolition to confirm measures identified by the bat biologist are implemented.	
MM 4.8. If required by the U.S. Army Corps of Engineers (USACE), mitigation for the permanent loss of jurisdictional streambed shall be achieved through payment of in-lieu fees to the USACE, purchase of mitigation credits, or onsite/offsite habitat restoration. Responsibility: Shasta County	BC • Confirm mitigation measure is included in construction contract. BC or AC • Confirm mitigation has been achieved.	BC • One-time check of construction contract. BC or AC • One-time check that mitigation has been achieved.	
MM 4.9. To ensure that active nests of migratory birds are not disturbed, vegetation removal and construction activities shall occur before February 1 or after August 31 to avoid impacts on nesting migratory birds. If vegetation removal and construction must occur during the nesting season, a nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area. The survey shall be conducted no more than three days prior to the beginning of vegetation removal or construction. If nesting birds are found, the nest site shall not be disturbed until after the young have fledged. Further, to prevent nest abandonment and mortality of chicks and eggs, no vegetation removal or construction activities shall occur within 500 feet of an active nest, unless a smaller buffer zone is authorized by the California Department of Fish and Wildlife and the United States	BC • Confirm mitigation measure is included in construction contract. • If vegetation removal or construction must occur between February 1 and August 31, check pre-construction survey report provided by biologist regarding the presence/absence of active nests. DC • If active nests are present, inspect project area to verify applicable buffers are maintained until after the young birds have fledged.	BC • One-time check of construction contract. • One-time check of biologist's documentation. DC • Field check on a weekly basis until the birds have fledged to confirm that buffers are maintained.	

Mitigation Measures	Monitoring Action	Monitoring Timing/Frequency	Date Checked/ By Whom
Fish and Wildlife Service (the size of the construction buffer zone may vary depending on the species of nesting birds present). Shasta County may install temporary exclusionary materials on the bridge in the winter to prevent cliff swallows from nesting on the bridge in spring and summer. Responsibility: Shasta County			
MM 5.1. If any cultural or paleontological resources (i.e., human bone or burnt animal bone, midden soils, projectile points, humanly-modified lithics, historic artifacts, fossils, etc.) are encountered during any phase of construction, all earth-disturbing work shall stop within 100 feet of the find until a qualified archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary. If human remains are encountered, the County Coroner shall be contacted (California Health and Safety Code 7050.5). If the remains are recognized as Native American, measures described in California Public Resources Code Section 5097.9 shall be implemented. Responsibility: Shasta County	BC • Confirm mitigation measure is included in construction contract. DC • If any cultural resources are encountered, confirm all construction activities stop within the affected area and a qualified archaeologist is contacted. • If remains are recognized as Native American, additional monitoring requirements may be specified by the archaeologist in consultation with representatives of the people of most likely descent.	BC • One-time check of construction contract. DC • Field check as needed to confirm temporary construction stoppage. • The archeologist shall specify the timing/frequency of additional monitoring, as appropriate.	
MM 8.1. If the contractor encounters materials on the project site that the contractor reasonably believes are 100 square feet or more of surface area of asbestos-containing material and the asbestos has not been rendered harmless, the contractor shall immediately cease work in the affected area and report the condition to the County engineer in writing. If warranted, the suspect material shall be sampled for the presence of asbestos; appropriate measures for worker safety and material handling and disposal shall be implemented	BC • Confirm mitigation measure is included in construction contract. DC • Field check/check documentation to confirm that if encountered, asbestos-containing (or possible containing) material is handled	BC • One-time check of construction contract. DC • Check as needed to confirm adherence to the mitigation measure.	

Mitigation Measures	Monitoring Action	Monitoring Timing/Frequency	Date Checked/ By Whom
based on the type and amount of asbestos determined to be present. The Contractor may continue work in unaffected areas reasonably believed to be safe. Responsibility: Shasta County	according to the specifications in mitigation measure.		
MM 8.2. To minimize potential impacts from lead-containing paint (LCP), all work shall be conducted in compliance with Caltrans Standard Special Provision 15-025: Existing Paint Systems and 15-027: Earth Material Containing Lead. Responsibility: Shasta County	BC • Confirm mitigation measure is included in construction contract. DC • Field check/check documentation to confirm that work is done in compliance with the Caltrans provisions.	BC • One-time check of construction contract. DC • Check as needed to confirm that work is done in compliance with the Caltrans provisions.	
MM 8.3. To minimize potential impacts from treated wood waste (TWW) all work shall be conducted in compliance with Caltrans Standard Special Provision 14-010: Treated Wood Waste. Responsibility: Shasta County	BC • Confirm mitigation measure is included in construction contract. DC • Field check/check documentation to confirm that work is done in compliance with the Caltrans provision.	BC • One-time check of construction contract. DC • Check as needed to confirm that work is done in compliance with the Caltrans provision.	
MM 12.1. Noise generated by pile-driving activities shall be minimized to the extent practicable. This may include the use of cushion blocks, shields, pre-drilling holes for the piles, or other effective measures. Construction activities shall occur only between the hours of 7 AM and 7 PM. Responsibility: Shasta County	BC • Confirm mitigation measure is included in construction contract. DC • Field check to confirm construction work hours.	BC • One-time check of construction contract. DC • Field check as appropriate to confirm construction work hours.	

PLANTING PLAN
Old 44 Drive at Oak Run Creek
Bridge Replacement Project

Introduction

The Shasta County Department of Public Works is proposing to replace the existing single-span, 82.6-foot-long by 20-foot-wide reinforced concrete deck/steel girder bridge over Oak Run Creek on Old 44 Drive with a new single-span, 122-foot-long by 32.33-foot-wide reinforced concrete box girder bridge. The new bridge would be installed at the same location and along the same alignment as the existing bridge. Both approaches to the bridge would require 200 feet of roadwork, and would include minor widening of the roadway near the bridge to match the width of the new bridge deck. In addition, an existing 60-inch-diameter culvert conveying an unnamed intermittent stream under Old 44 Drive would be extended by 10 feet on each side of the road. The new bridge abutments would be located approximately 16 feet north and 28 feet south of the existing bridge abutments, which would be removed.

To facilitate project construction, a gravel access road and work pad will be constructed in Oak Run Creek. The pad will extend under the bridge and upstream (east) of the bridge, and will be accessible from both the north and south sides of the bridge. Upon completion of construction, the pad and access road will be removed.

Three terrestrial plant communities occur in the project area: grassland, oak/pine woodland, and riparian scrub. The grassland occurs along the road shoulders, in the proposed staging area, and in other areas where trees have been previously cleared. Common species in the grassland include ripgut brome, soft chess, slender wild oats, long-beaked filaree, yellow star-thistle, klamathweed, and bindweed. Most of the grassland in the study area is periodically mowed by local residents.

The oak/pine woodland is present in places along Old 44 Drive, just beyond the road shoulders, and is part of the broader oak/pine woodland that encompasses the project area. The canopy layer consists predominantly of blue oak (*Quercus douglasii*), although gray pine (*Pinus sabiniana*), and interior live oak (*Q. wislizeni*) are also present. No defined shrub layer is present, although poison oak (*Toxicodendron diversilobum*) occurs sporadically beneath the trees.

Riparian vegetation in the work area consists primarily of willows (*Salix exigua, S. gooddingii, S. laevigata,* and *S. lasiandra*). Other species present include small oaks, Oregon

ash, gray pines, coffeeberry, poison oak, and pipevine. These species are represented by a relatively few number of individuals, and none of the trees are mature individuals.

Project implementation would result in the permanent loss of ±0.2 acres of grassland and ±0.03 acres of riparian scrub (the largest tree to be removed is a gray pine with a 5.2" dbh, which is located on the outer edge of the riparian zone), and the removal of fewer than ten trees with a dbh ≥5" from upland areas. Up to ±0.4 acres of grassland could be temporarily disturbed by construction of the temporary access road and construction staging. Soils in the oak/pine woodland could be temporarily disturbed by tree removal activities. Temporary disturbance in the riparian corridor is expected to cover approximately 2,000 square feet (±0.05 acres), including some lands that do not currently support woody riparian vegetation.

No mitigation is proposed to offset the permanent loss of the grassland given that it is periodically disturbed by mowing, supports numerous non-native species, and has only marginal value to wildlife. No mitigation is proposed to offset the permanent loss of oak/pine woodland given the small number of trees to be removed and the abundance of oak/pine woodland in the vicinity. Shasta County will offset the permanent and temporary loss of riparian vegetation through onsite plantings and purchase of mitigation credits. All temporarily disturbed lands in the work area will be revegetated upon completion of construction, as described below.

Responsible Party

Shasta County is responsible for implementation of this Planting Plan. At Shasta County's discretion, some activities may be delegated to contractors.

Schedule

Construction activities are anticipated to begin in summer 2016, and be completed prior to the onset of the fall rains. Herbaceous vegetation shall be replanted in the temporarily disturbed areas at the outset of the fall/winter season immediately following completion of construction. Woody vegetation shall be planted during the fall/winter season immediately following completion of construction, after fall rains have sufficiently moistened the soil.

Planting Temporarily Disturbed Soils in Grassland and Oak/Pine Woodland

Upon completion of construction activities, temporarily disturbed soils in grassland and oak/pine woodland will be revegetated as part of the erosion control requirements for the project.

Planting Areas

The temporarily disturbed grassland is located to the south of the bridge, and east of Old 44 Drive. It is anticipated that the ±0.4-acre grassland to be used for project staging will be replanted following completion of construction. The grassland planting area is privately owned. Planting areas in the oak/pine woodland are located on privately owned land and County-owned land.

Site Preparation

Upon completion of construction activities, temporarily disturbed soils in the grassland and oak/pine woodland will be contoured and stabilized to match adjacent conditions. Appropriate erosion control measures will be implemented during this activity to avoid the discharge of disturbed soils into Oak Run Creek.

Revegetation Materials

Temporarily disturbed soils in the grassland and oak/pine woodland will be replanted with native annual grasses such as California brome (*Bromus carinatus*), blue wild rye (*Elymus glaucus* ssp. *glaucus*), small fescue (*Festuca microstachys*), six-weeks grass (*Festuca octoflora*), meadow barley (*Hordeum brachyantherum* ssp. *brachyantherum*), squirreltail grass (*Elymus elymoides*), and big squirreltail grass (*Elymus multisetus*). A mix of at least three species of native grasses will be used to maximize the potential for successful revegetation. Components of the seed mix will be determined at the time of project construction and will be based on seed availability.

Planting Techniques

Upon completion of construction activities, temporarily disturbed soils in the grassland and the oak/pine woodland will be re-seeded. Seeding should be done as soon as grading is complete and early enough to provide protection during the first rain of the season. Summer temperatures and climate will likely require some irrigation of seeded areas to initiate vegetation establishment prior to winter rains.

Riparian Planting

Planting Areas

The temporarily disturbed riparian areas are located in County-owned right-of-way along the banks of Oak Run Creek, upstream and downstream of the bridge. It is anticipated that

approximately 2,000 square feet of riparian corridor will be replanted following completion of construction. The owner of the planting areas is Shasta County.

Site Preparation

Upon completion of construction activities, temporarily disturbed riparian areas will be contoured and stabilized to match adjacent conditions along Oak Run Creek. Appropriate erosion control measures will be implemented during this activity to avoid the discharge of disturbed soils into the stream channel.

Revegetation Materials

Materials used for revegetation will consist of cuttings of native willows and acorns of valley oaks. Willow cuttings and acorns will be obtained from locations in and/or adjacent to the project area. The salvage of riparian vegetation in areas that will be impacted is infeasible because the vegetation is not expected to survive until the fall when revegetation efforts would commence.

Planting Techniques

Following site preparation, temporarily disturbed riparian areas will be planted with locally obtained native willow cuttings and oak acorns. Willows will be planted within the ordinary high-water line of Oak Run Creek; valleys oaks will be planted at higher elevations in the riparian zone.

Willow cuttings will be planted between November 1 and January 31, after fall rains have thoroughly moistened the soil. Willow cuttings will be planted in the planting areas approximately two-feet on center. The specific planting techniques for establishment of willows are as follows:

1) Cuttings will be collected from vigorously growing willows along Oak Run Creek, in the vicinity of the project area. Cuttings will be obtained when the plants are dormant (late fall or winter).
2) The cuttings will generally be approximately two feet in length. To ensure willow survival throughout the riparian zone, some cuttings may need to be harvested at a length greater than two feet. The base cut will be made at an approximately 45-degree angle to the stem. The terminal end cut will be horizontal to the stem (this will help ensure correct orientation of the cutting during planting).
3) Cuttings will be a minimum of 3/8 inches in diameter (smaller diameter cuttings may not have sufficient stored energy to sprout consistently, especially in dry conditions). The

apical bud and top several inches of the stem will be removed. All side branches will also be removed.

4) Cuttings may be planted on the same day they are collected or, alternatively, may be fully submersed in water for up to ten days prior to planting.
5) Prior to planting, each cutting may be treated with a rooting hormone and fungicide, such as hormodin powder, by dipping the basal portion of the cutting. Each cutting should then dry to minimize the loss of rooting hormone through handling and planting.
6) Cuttings will be pushed into the moist soil so that ½ to ¾ of their length is buried. Three to four buds should remain aboveground. Cuttings planted farther back from the stream shall be sufficiently long that the deepest portion remains in moist soil during the summer period.
7) The cuttings will be planted approximately two-feet on center, in staggered rows, extending from the ordinary high water level of the stream to the upper extent of the riparian zone (as evidenced by the presence of riparian vegetation outside the work area).
8) Other willow planting techniques, such as willow bundles may also be used at the toe-of-slope, closer to the water's edge.

Valley oaks will be established in disturbed riparian areas by planting acorns, which will be collected locally. Damaged acorns and those that float after being submerged in cold water will be discarded. Acorns will be planted in staggered rows to imitate natural regeneration. Three to four acorns will be planted in each hole dug to a depth of 2 inches and back-filled with soil. Acorn clusters will be planted at 6 to 8-foot spacing. Planting will be conducted between October 15 and January 15, after the first fall rains have thoroughly moistened the soil. The depth of the planting holes will be about 2 inches greater than the depth of the plant containers. A water basin approximately 18 inches in diameter will be constructed around each plant. If herbivory is expected to be a problem, the young plants will be protected with mesh cages.

Annual Monitoring

No annual monitoring or remediation is proposed following revegetation of disturbed soils in the grassland and oak/pine woodland. Because of the limited planting area at the site and the high cost of establishing riparian habitat in such a small site, Shasta County proposes to conduct the on-site riparian planting on a one-time basis, with no annual monitoring or remediation. Because the general conditions of the project site will not be altered by bridge replacement, it is fully expected that suitable riparian cover will ultimately establish on the site with or without human intervention. However, to ensure that there are no short-term effects due

to the temporary loss of riparian vegetation, the County will purchase 0.09 open water creation credits (a 3:1 ratio) at a CDFW-approved mitigation bank or will fund creation of 0.09 acres of streamside riparian habitat by the Western Shasta Resource Conservation District. In addition, to offset the loss of salmonid habitat, the County will purchase 0.03 riparian floodplain/salmonid credits at Fremont Landing Conservation Bank. Proof of purchase of mitigation credits will be provided to CDFW prior to the start of groundbreaking activities. Collectively, the on-site plantings and purchase of mitigation credits would fully mitigate the permanent and temporary loss of riparian vegetation. Although there is the potential that some of the riparian plantings may be pruned during future road and bridge maintenance activities, no removal of riparian planting is anticipated. Water quality in Oak Run Creek would not be affected by pruning activities because the root systems of the riparian plantings because would continue to provide soil stabilization.