Draft

# WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT

## Initial Study/Mitigated Negative Declaration

Prepared for
Trinity County Resource
Conservation District

May 2017

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Prepared for
Trinity County Resource
Conservation District

May 2017

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**NOTICE OF INTENT TO ADOPT**
**A MITIGATED NEGATIVE DECLARATION**

WEST WEAVER CREEK SALMONID HABITAT REHABILITATION PROJECT
Trinity County, California

The Trinity County Resource Conservation District (TCRCD) announces the availability of a Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) prepared for the West Weaver Creek Salmonid Habitat Rehabilitation Project. The proposed project is located on West Weaver Creek, west of the town of Weaverville, in Trinity County, California.

The TCRCD is proposing the West Weaver Creek Salmonid Habitat Rehabilitation Project (project), which includes channel and floodplain rehabilitation on a degraded reach of West Weaver Creek. West Weaver Creek is a tributary to Weaver Creek, which in turn is a tributary to the Trinity River that currently supports Southern Oregon and Northern California Coast (SONCC) coho salmon evolutionarily significant unit (ESU) (*Oncorhynchus kisutch*) (federally listed as Threatened) and steelhead (*Oncorhynchus mykiss*). The goals of the project are to improve fish passage through the project reach, improve instream conditions for spawning and summer/winter rearing for coho salmon and steelhead within the project reach, and promote fine sediment deposition in the overbank areas, thus improving conditions for the establishment of riparian species and reducing downstream sediment input to the Trinity River.

In accordance with CEQA, the TCRCD conducted an initial study (IS) to evaluate the potential environmental effects of the project. Based upon the findings contained in the IS, it is determined that the project will not have a significant effect on the environment, based on mitigation measures that will be attached to the project as conditions of approval. Therefore, the TCRCD intends to adopt a Mitigated Negative Declaration (MND) for the project.

The public review period begins on May 10, 2017 and closes on June 8, 2017. All comments must be received by 5:00 PM on June 8, 2017. Written comments shall be sent to:

Donna Rupp
Project Coordinator II
Trinity County Resource Conservation District
PO Box 1450
Weaverville, CA 96093

If submitting written comments, please include your name and an address, email, or phone number where you may be contacted.

The Draft IS/MND will be available for review at the Trinity County Resource Conservation District, #30 Horseshoe Lane, Weaverville CA 96093. The office is open Monday through Thursday between 8:00 a.m. and 5:00 p.m. and Friday between 8:00 a.m. and 12:00 p.m. A copy of the Draft IS/MND may also be viewed at the TCRCD website: www.tcrcd.net

A public hearing is not planned to be held by TCRCD for this project. For additional information, please call Donna Rupp at (530) 623-6004.

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# ENVIRONMENTAL CHECKLIST

## Initial Study

| | |
|---|---|
| **1. Project Title:** | West Weaver Creek Salmonid Habitat Rehabilitation Project |
| **2. Lead Agency Name:** | Trinity County Resource Conservation District |
| **3. Contact Person and Phone Number:** | Donna Rupp, Project Coordinator II<br>(530) 623-6004 |
| **4. Project Location:** | West Weaver Creek, 1.3 miles east of Weaverville (Township 33 north, Range 10 west, Sections 2 and 11). |
| **5. Project Sponsor's Name and Address:** | Trinity County Resource Conservation District<br>PO Box 1450<br>Weaverville, CA 96093 |
| **6. General Plan Designation(s):** | Open Space and Rural Residential |
| **7. Zoning Designation(s):** | Open Space and Rural Residential |

## Introduction

The Trinity County Resource Conservation District (TCRCD) is proposing the West Weaver Creek Salmonid Habitat Rehabilitation Project (project), which includes channel and floodplain rehabilitation on a degraded reach of West Weaver Creek, near the town of Weaverville, in Trinity County, California. West Weaver Creek is a tributary to Weaver Creek, which in turn is a tributary to the Trinity River, that currently supports Southern Oregon and Northern California Coast (SONCC) coho salmon evolutionarily significant unit (ESU) (*Oncorhynchus kisutch*) (federally listed as Threatened) and steelhead (*Oncorhynchus mykiss*). Steelhead in West Weaver Creek are part of the Klamath Mountains Province distinct population segment (DPS); this DPS was considered for listing by the National Marine Fisheries Service (NMFS) but NMFS concluded that listing is not warranted at this time.

The TCRCD has worked with hydrologists and engineers at Environmental Science Associates (ESA) to assess existing conditions and develop potential restoration designs for a degraded reach of West Weaver Creek, located between the confluence with Grub Gulch and the State Highway 299 culvert. This degraded reach of West Weaver Creek has been severely impacted by historical

hydraulic mining operations and multiple recent wildfires, which has led to several elements of impaired fish habitat. The *West Weaver Creek Assessment and Action Planning Report* (Planning Report) identified a number of recommend actions to be taken to improve ecological conditions for salmonids in West Weaver Creek (ESA, 2012). Select proposed restoration actions from the Planning Report constitute the proposed project.

# Project Location

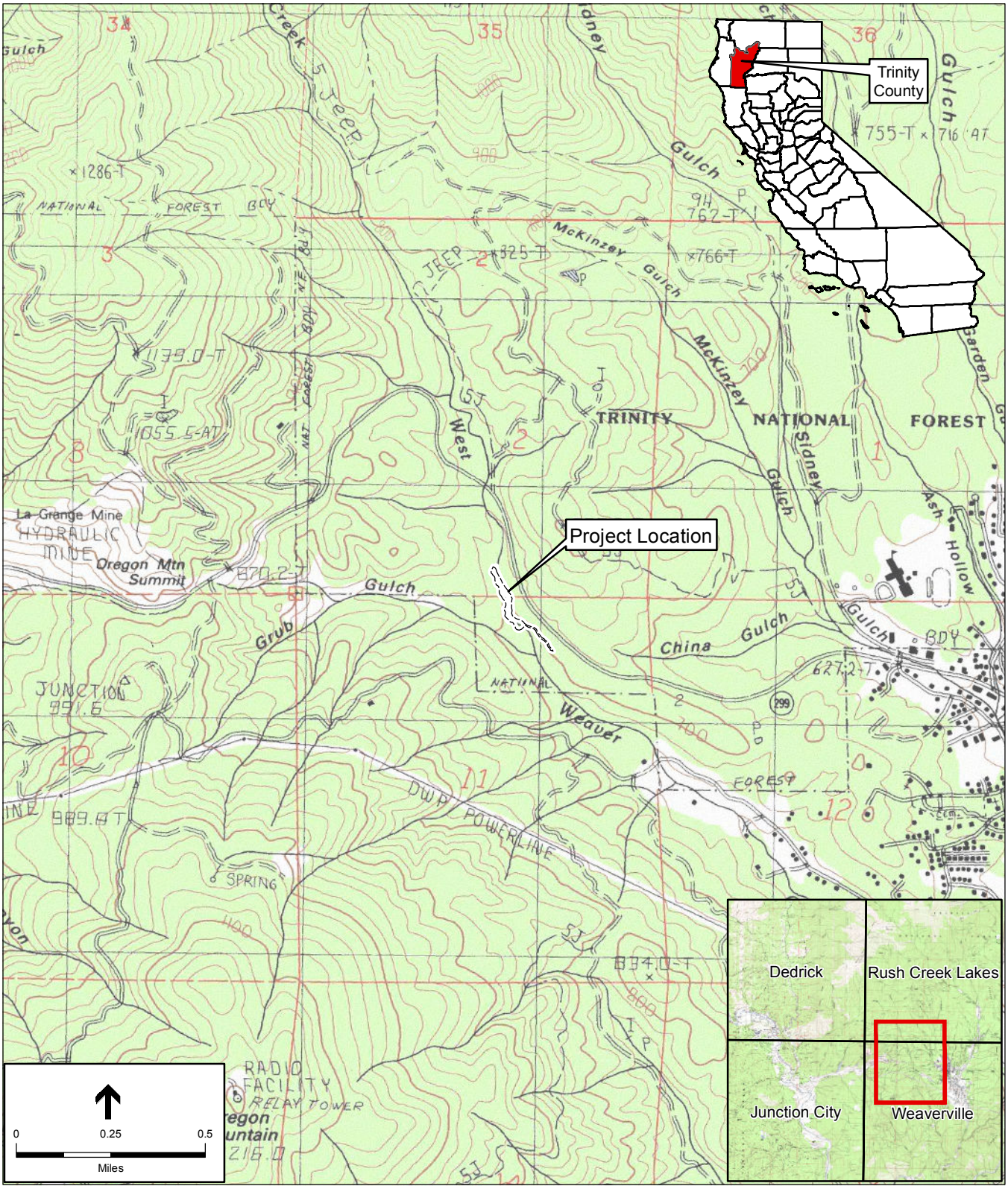
The West Weaver Creek watershed is located in the Klamath Mountain physiographic province of California, more specifically in the Trinity Mountains in Trinity County, California. West Weaver Creek is a branch of Weaver Creek, which itself is a tributary to the Trinity River with its confluence located downstream of Lewiston Dam at Trinity River Mile (RM) 93.8. The West Weaver Creek watershed lies just west of the town of Weaverville, in township 33N, range 10W, sections 2 and 11. The creek headwaters start northwest of Weaverville, flow south until the creek crosses under Highway 299, and then flow in a southeasterly direction as the creek skirts the southwest side of Weaverville, connecting with East Weaver Creek just southeast of Weaverville, where the two become Weaver Creek. The West Weaver Creek Salmonid Habitat Rehabilitation project site is approximately 2.39-acres and is located on West Weaver Creek immediately downstream of Highway 299, west of the town of Weaverville, at latitude 40° 44′ 19″ N and longitude 122° 58′ 03″ W at RM 2.0 between the Grub Gulch confluence and the State Highway 299 culvert (**Figures 1** and **2**). Lands in the northern portion of the project area are managed by the USFS and comprise approximately 0.74 acre; the remaining 1.65 acres are privately owned.

# Purpose and Objectives of the Proposed Project

The goals of the project are to improve fish passage through the project reach, improve instream conditions for spawning and summer/winter rearing for coho salmon and steelhead within the project reach, and promote fine sediment deposition in the overbank areas, thus improving conditions for the establishment of riparian species and reducing downstream sediment input to the Trinity River.

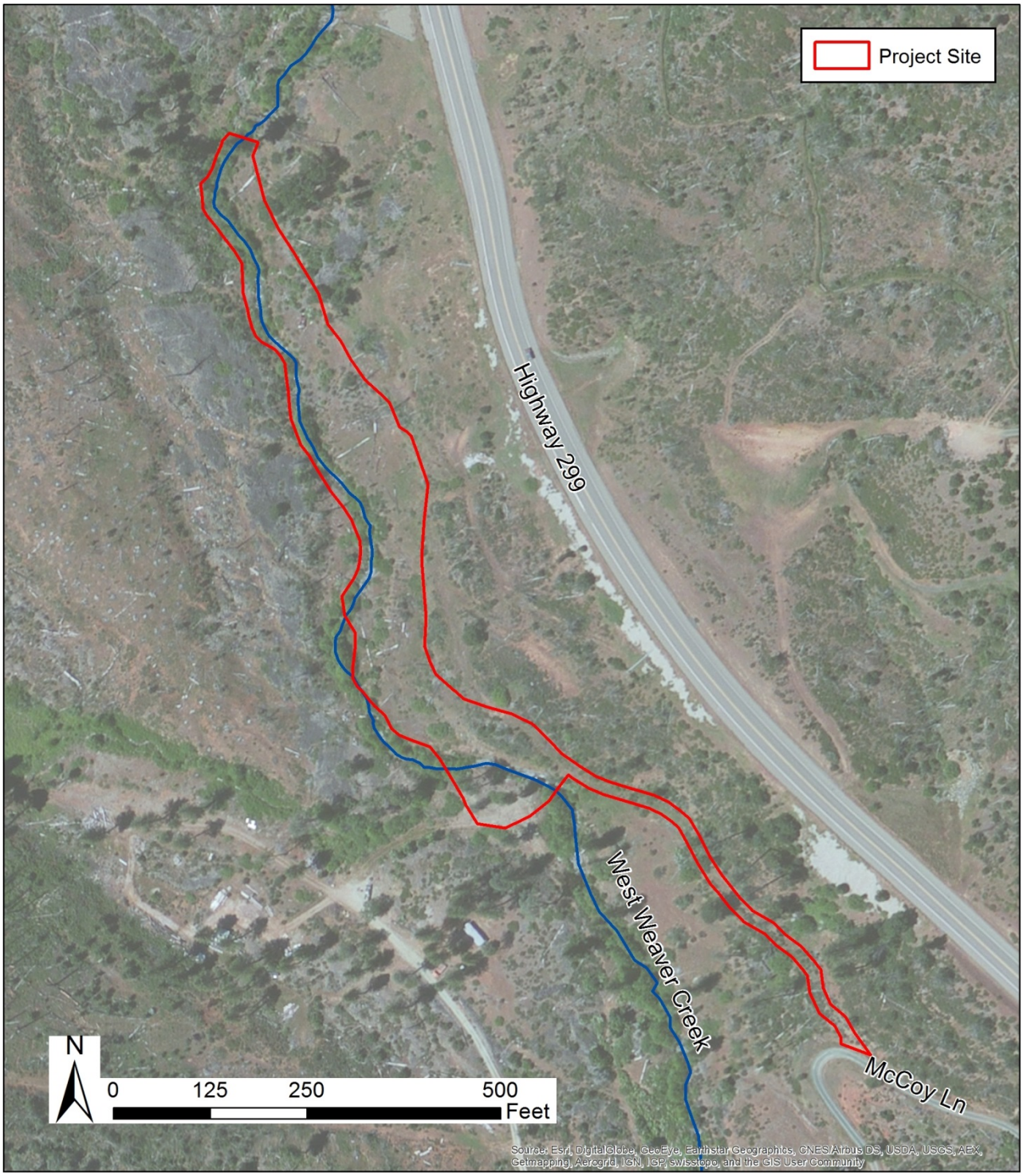
The goals of the project will be achieved through the following actions:

1. Design and construct a series of riffle pool, step pool, and cascade morphologic features that will:
    a. Improve fish passage;
    b. Create deep pools for improved summer rearing conditions;
    c. Provide channel substrate suitable for spawning;
    d. Retain sediment in the channel;
    e. Provide structure and material needed for primary productivity;
    f. Connect the channel to adjacent overbank areas; and
    g. Elevate summertime groundwater levels adjacent to the channel.




SOURCE: USGS Weaverville, Calif. 7.5-minute topographic quadrangle

**Figure 1**
Project Location




SOURCES:ESRI (Aerial)

**Figure 2**
Project Site

2. Grade anabranching (secondary) side channels and a lowered floodplain terrace that will:
   a) Create winter rearing habitat;
   b) Provide winter high flow refuge; and
   c) Retain sediment on the floodplain terrace.
3. Enhance riffle pools and anabranching (secondary) side channels with wood structures and boulders that will:
   a) Provide cover during summer rearing conditions; and
   b) Provide velocity breaks during winter rearing conditions.
4. Enhance the lowered terrace with willow/alder/cottonwood (flow) baffles to:
   a) Provide velocity refuge during high winter flows;
   b) Retain fine sediment; and
   c) Expand the riparian zone.

Generally, the recommended actions can be encompassed within the term "rehabilitation"—activities that involve the physical manipulation of the stream bed, banks, floodplain and associated vegetation to create conditions that results in flow dynamics and geomorphic and ecologic processes that can maintain and enhance desired habitats. These actions are not intended to "restore" the stream to a pre-disturbance condition, but rather improve the existing stream conditions for the benefit of a target species, such as coho salmon and steelhead, and/or the aquatic and riparian ecology of the creek.

# Background

## Overview of West Weaver Creek

Located in Trinity County, California, West Weaver Creek has a Mediterranean climate of hot, dry summers and cool, wet winters. Mean annual precipitation in the watershed ranges from approximately 40 to 60 inches, with an average of 49 inches. The majority of precipitation falls between October and May. In this geographic region, snow frequently accumulates above 4,000 feet, and elevations between 3,000 and 4,000 feet are frequently subject to rain-on-snow events (USFS, 2004). The West Weaver Creek basin is above 4,000 feet upstream of RM 6.5, indicating the head waters likely experience rain-on-snow events, common in the high mountains of Mediterranean climates.

The West Weaver Creek watershed area is approximately 8.2 square miles. West Weaver Creek has an elongated, dendritic basin shape with about 8.5 river miles. There are no major tributaries entering West Weaver Creek. The most significant flow input comes from three gulches including Grub Gulch (RM 1.8), Bear Gulch (RM 4.7), and Austrian Gulch (RM 5.8). Upstream of the project reach, the West Weaver Creek watershed is undeveloped and for the most part in pristine conditions.

The headwaters of West Weaver Creek provide high water quality ideal for supporting coho salmon and steelhead. It is located in the Southern Oregon/Northern California Coast Coho Salmon Evolutionarily Significant Unit (ESU) and the Klamath Mountains Province Steelhead Distinct Population Segment (DPS). There are no major migration barriers to anadromous fish downstream of the project reach.

This reach of West Weaver Creek has been severely impacted by historical hydraulic mining operations and multiple recent wildfires. The existing stream in the project reach is incised with predominantly exposed bedrock and tall banks of coarse substrate. Incoming sediment is efficiently transported through the project reach. Despite its location in the mountain watershed, the altered setting does not have the hillslopes to supply colluvium needed to maintain a natural stream bed. This has led to several elements of impaired fish habitat: reduced fish passage, lack of alluvium needed for spawning and macroinvertebrate production, and a lack of summer rearing habitat (ESA, 2012). Areas adjacent to stream lack the conditions, soil and available water, for riparian and upland species to establish (aside from extremely hardy species such coyote brush and poison oak). The extent of damage to West Weaver Creek, primarily by hydraulic mining activities, prevents “restoring” the stream at this location to its pre-disturbance condition. However, despite its extremely degraded condition, the project reach does contain a positive attribute, an adjacent floodplain that runs along the east (left) bank. Implementing the appropriate “rehabilitation” actions that make use of this opportunity will significantly improve the condition of the project reach.

More detailed information regarding West Weaver Creek and the project reach can be found in the Planning Report prepared by ESA (2012) for the TCRCD.

# Watershed History

## Land Use Practices

The West Weaver Creek watershed has experienced a suite of Euro-American land use practices including but not limited to mining, timber harvest, residential land development, road construction, fire suppression, and flow diversion. The most prominent and disturbing of the land use practices in the watershed was hydraulic gold mining, occurring in the late 1800s and early 1900s. Hydraulic mining consists of the diversion of water (in this case, from an adjacent watershed, the Stuart Fork of the Trinity River) and focused discharge of that water onto hillslopes to scour soil and rock to uncover deposits thought to contain gold. The water was frequently delivered to the mining locations through pipes from upslope locations, resulting in high-pressure discharge through “hydraulic monitors”—essentially large nozzles that were powerful enough to rapidly erode soil and rock. Major hillslope scarps and mounds of coarse debris are found throughout the watershed, most notably near the channel downstream of RM 3. The BLM indicates the West Weaver Creek mining landscape in the Weaverville Community Forest downstream of RM 1.5 is an interpreted cultural site (BLM, 2003).

The watershed has undergone both clear-cut and selective-cut timber harvest in relatively small areas of the watershed. All of the residential growth has occurred in the lower two miles of the creek, most of which is on river-left between RM 0.5 and 1.0. A number of country roads exist throughout the basin in support of timber harvest (most of which are upstream of RM 2.3). All paved roads exist downstream of RM 2.3, the most notable and likely having the most affect, State Highway 299.

### Recent Wildfire History

In the past 80 years, the West Weaver Creek watershed has been influenced by four significant wildfires (**Figure 3**). The most recent wildfires, the Oregon and Junction Fires, occurred in 2001 and 2006, respectively. One portion of the watershed (generally bounded by RMs 2 to 3) was influenced by both of these wildfires, meaning the same watershed area was hit twice over a short period of time. An aerial photograph time series from 1998 to 2010 (**Figure 4**) illustrates the changes in vegetation cover during a time period that bounds these two wildfires. In the 2003 aerial photo, two years after the Oregon Fire, there is evidence of vegetation survival/recovery on the hillslopes adjacent to the creek. However, in the 2010 aerial photo, four years after the Junction Fire, the hillslope landscape appears to be completely cleared of vegetation.

## Previous Stream Assessments

Several previous efforts to assess West Weaver Creek were identified as a part of research on the watershed. Overviews of those efforts are presented below.

### West Weaver Creek Fish Habitat Assessment

In 1990, Ebasco Environmental conducted a fish habitat assessment of West Weaver Creek from RM 0 to RM 4.4 (identified natural fish barrier) for the U.S. Bureau of Reclamation. The Ebasco assessment quantified the habitat types using a habitat classification with 22 habitat types and the investigation assessed substrate and habitat utilization. The most frequent habitat types throughout the survey reach were classified as step runs, pocket water, and low-gradient riffle and step run-pocket water complexes, and plunge pools estimated to be the dominant pool type. Substrates were “visually” estimated to be dominated by cobble and gravel, 38 percent and 33 percent, respectively. About 5 percent of the channel area was determined suitable for spawning. It was observed that 0+ age steelhead preferred runs, trench pools, and step runs, and avoided riffles and pocket water over the studied reach. The report recommended instream enhancements including: low-stage check dams, bank-placed boulders, floating or half-log cover structures, submerged large woody debris and boulder clusters series, log or boulder weirs, and log or boulder wing deflectors.

### Weaverville Watershed Analysis

Published in 2004, the USFS Shasta-Trinity National Forest, Trinity River Management Unit conducted an assessment of the Weaver Creek watershed in context with other Weaverville-area creeks to provide a baseline for evaluating existing conditions in terms of desired future conditions. The focus of this assessment was vegetation condition as related to fuel loading, water

quality, aquatic habitat, wildlife habitat, and soil productivity (USFS, 2004). Upstream of RM 5 the West Weaver Creek watershed condition was rated high. Downstream of RM 5, the watershed condition was rated low, and was noted to exhibit low-levels of geomorphic, hydrologic, and biotic integrity relative to natural potential condition and the majority of the drainage network. The poor rating downstream of RM 5 was mostly attributed to the 2001 Oregon Fire, but also to increased roads and urban development. Adverse conditions of the stream were reported as insufficient large wood material (e.g., most wood material was of small diameter; <1 foot), shallow pools (average=1.4 feet), and 51 percent of the banks were assessed as unstable.

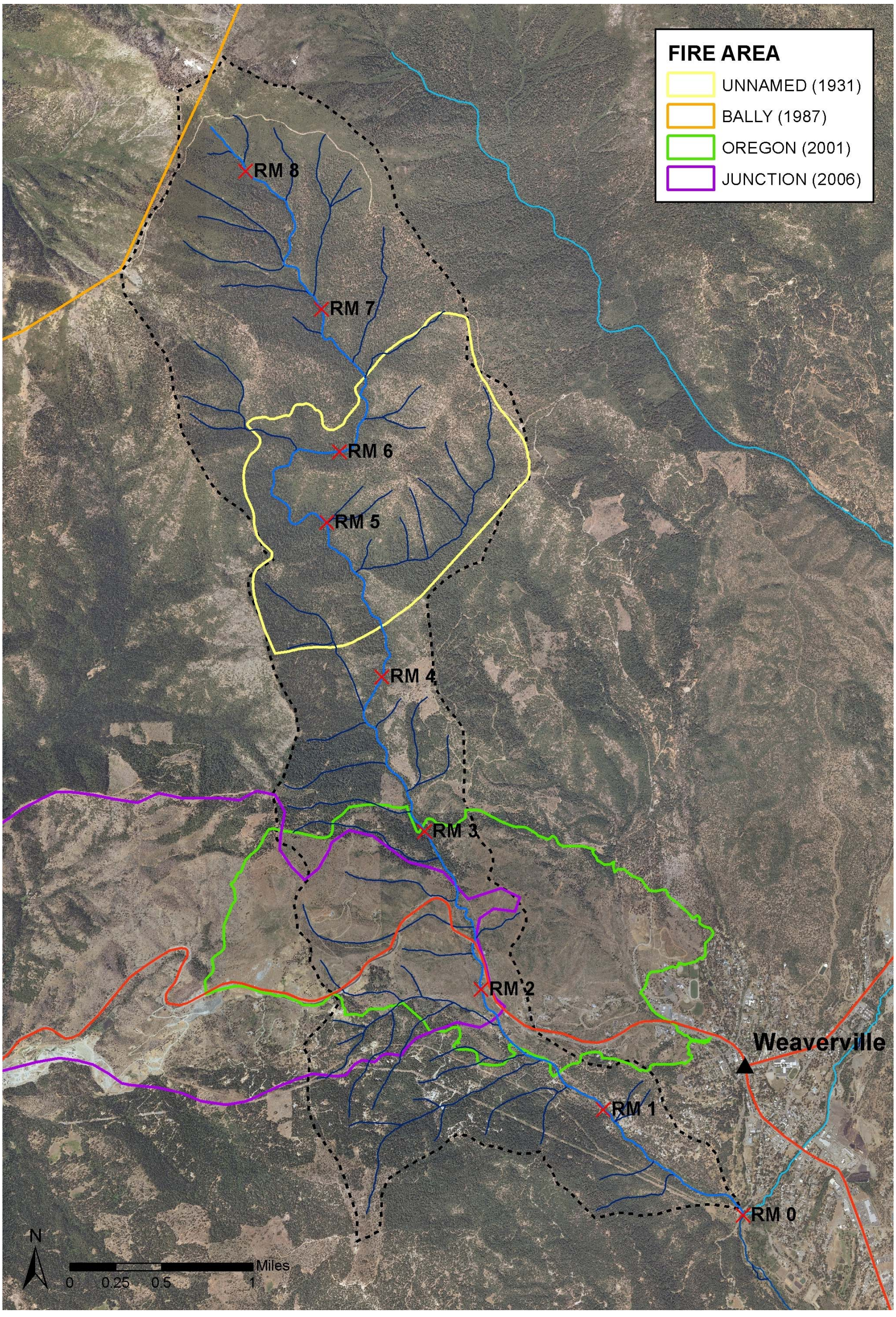
The report recommended actions to reduce cumulative watershed impacts and restore a more natural system, including a road maintenance program, decommissioning of roads (especially near stream reaches occupied by anadromous fishes), and management of vegetation to promote tree growth and maintain riparian function. The report also recommended using in-stream habitat structures to create complexity and stabilize the channel. These recommended structures include log and rock check dams, head-cut mitigation structures, and structures to create pool habitat.

## Past Stream Restoration Efforts

Since the 1980s several habitat improvement projects have been completed in the West Weaver Creek watershed. Some of these projects included the installation of structures, with some of the structures still persisting and providing complex habitat in West Weaver Creek (USFS, 2004). One such example is that of log weirs tacked to the bed with 1-inch rebar, intended to stabilize stream substrate and improve pool formation.

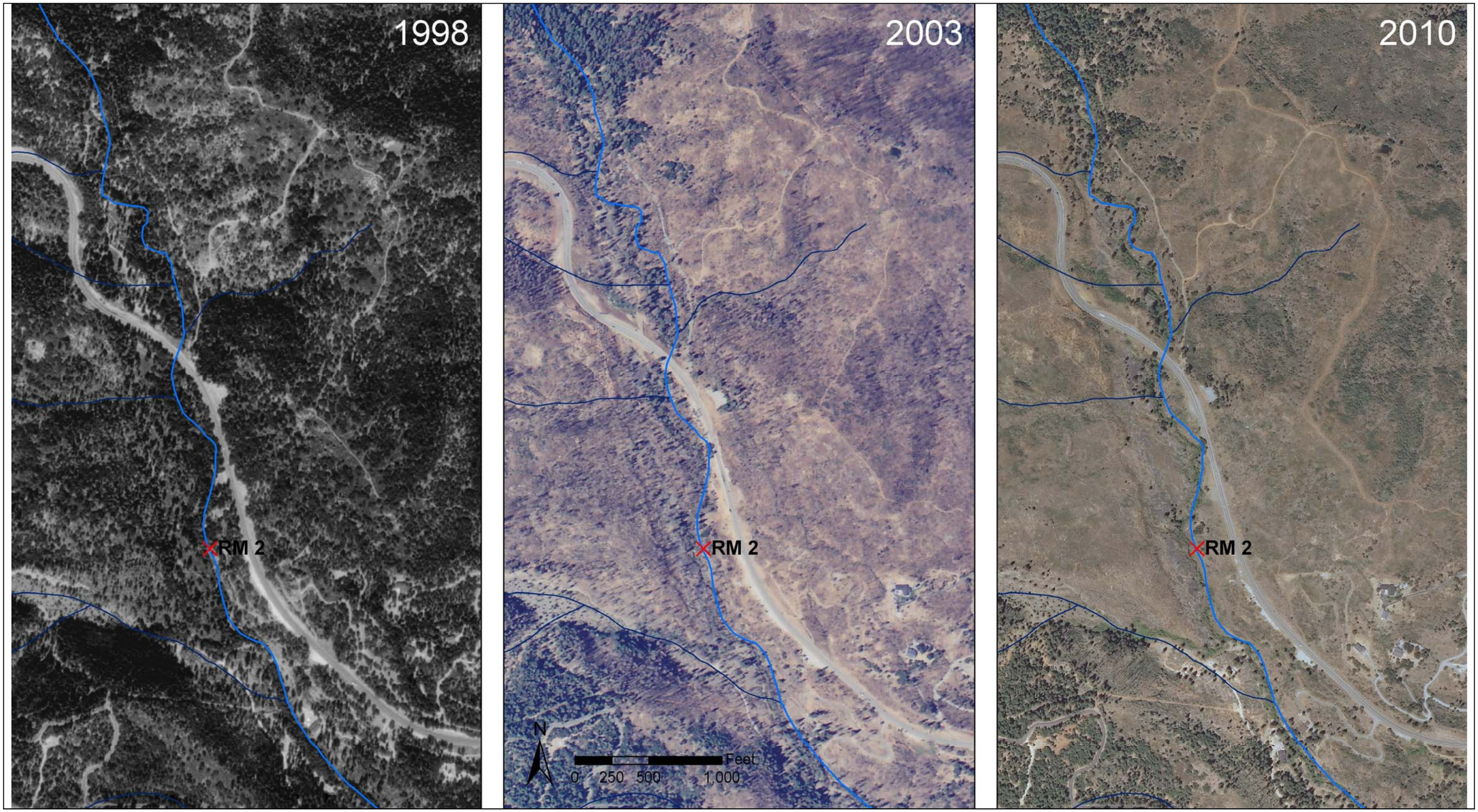
Prior to 2000, the culvert at Oregon Street (at RM 1.4) was a perched, corrugated metal pipe that was considered an upstream migration barrier for coho salmon (Ebasco, 1990). The perched Oregon Street culvert was upgraded with a 24-foot wide, modular precast concrete bottomless culvert/bridge in November of 2000. This replacement came after previous retrofits with baffles failed subsequent to the 1997 flood. The replacement project was funded by the “5C” Five Counties Salmonid Conservation Program.

In 2010, the USFS considered placing in-stream boulders and large woody debris structures to provide in channel sediment storage (Lynsky, 2010) as a part of the Weaverville Community Forest - Riparian and Stream Channel Improvement Project. However, because of unforeseen timeline issues and consultation issues with National Marine Fisheries Service (NMFS), the habitat structures were not included in the project at the time, and only riparian and upland plantings were completed.




SOURCE: CDF

**Figure 3**
West Weaver Creek Recent Fire History




SOURCE: USGS EROS (1998), USDA NAIP (2003 and 2010)

**Figure 4**
Effects of the Oregon (2001) and Junction (2006) Fires
Aerial Photo Time Series

# Project Approvals and Permits

The TCRCD would adopt the initial study/mitigated negative declaration (IS/MND) as the lead agency. Additionally, the following permits, reviews, consultations, and approvals (see **Table 1**, below) would also be required to be completed or approved prior to the commencement of project construction.

**TABLE 1**
**PERMITS AND APPROVALS NEEDED**

| Agency | Permit/Approval | Status |
|---|---|---|
| Federal | | |
| National Marine Fisheries Service (NMFS) | Federal Endangered Species Act, Section 7 Consultation for Threatened and Endangered Species Biological Opinion | Project covered under Programmatic Biological Opinion with USACE. |
| United States Army Corps of Engineers (USACE) | Clean Water Act, Section 404 NWP 27 Permit for discharge of dredged or fill material in waters of the United States | Applied. Anticipated issuance of permit May 2017. |
| State | | |
| California Department of Fish and Wildlife (CDFW) | California Fish and Game Code Section 1600-1602 Streambed Alteration Agreement | Applied. Anticipated issuance of permit June 2017. |
| North Coast Regional Water Quality Control Board (NCRWQCB) | Clean Water Act, Section 401 Water Quality Certification | Applied. Anticipated issuance of permit May 2017. |
| California State Water Resources Control Board (SWRCB) | • General Order for Dewatering and other Low Threat Discharge to Surface Waters Permit<br>• National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit<br>• General Waste Discharge Requirements for Dredge and Fill Discharges | Not yet applied. Anticipated application date of June 2017. |

# Proposed Project

The TCRCD proposes to implement channel and floodplain rehabilitation on a degraded reach of West Weaver Creek, near Weaverville, Trinity County, California. West Weaver Creek, a headwater tributary to the Trinity River, has good water quality making it ideal for supporting coho salmon and steelhead. Located in the Weaverville Community Forest, the project allows local stewardship of important natural resources and strengthens development of community-based conservation. The project reach lies in the portion of the watershed severely impacted by historic hydraulic mining and recent wildfires, has poor salmonid habitat, and supplies fine sediment to the downstream Trinity River. Note that the Trinity River is a Section 303(d) listed river for sediment. The current instream habitat conditions are largely the result of degraded geomorphic form and function of the creek, and the proposed rehabilitation actions described in detail below would provide benefits including increased in-channel and floodplain sediment sorting and retention, decreased fine sediment yield, improved passage to upstream habitat, increased spawning and rearing habitat, increased colonization surfaces for macroinvertebrates, and increased high-flow refugia. The primary goals of the project are: 1) to provide fish passage to intact upstream reaches and improve conditions for spawning and summer/winter rearing for

coho salmon and steelhead within the project reach and 2) promote fine sediment deposition in the overbank areas improving conditions for establishment of riparian species and reducing downstream sediment input to the Trinity River.

# Components of the Action

## Restoration Design

See **Figures 5** through **8** for details on project design.

### *Channel Bed Construction*

The primary goals of the project will be achieved through reconstructing the channel bed with gravel bed morphological features. The project will construct alternating segments of riffle pool, step pool, and boulder cascade geomorphic features, totaling approximately 490 linear feet of reconstructed channel bed. The geomorphic features will be designed to provide improved fish passage and provide opportunities for coho salmon and steelhead spawning and rearing within the project reach. Additionally, these enhancements will improve opportunity for macroinvertebrate productivity and improve connectivity to the adjacent bench resulting in increased off-channel rearing habitat and fine sediment retention.

### *In-Channel Structures*

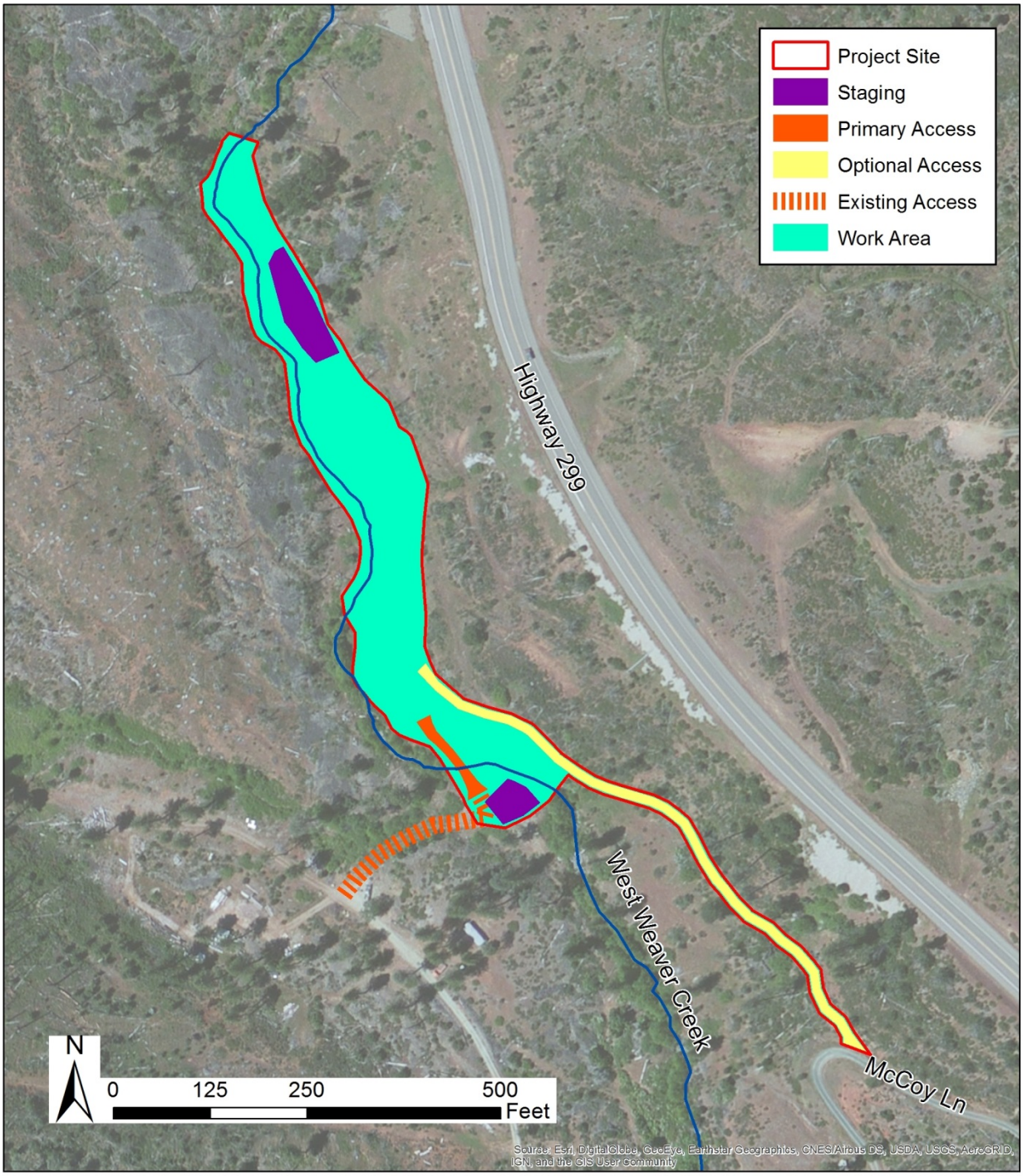
In-channel structures are project components which occur within the active creek channel and are designed to stabilize the channel, develop geomorphic complexity, and/or to provide aquatic species habitat. In-channel structures and activities include:

- Boulder Cascades,
- Step-Pools and Crests,
- Secondary Channel Streambed and Crests,
- Riffle-Gravel Crests,
- Boulder Sills,
- Placement of Engineered Streambed Material,
- Boulder Clusters, and
- Large Wood Structures (riffle pool and secondary).

Note that the boulder sills will not be installed in the active channel.

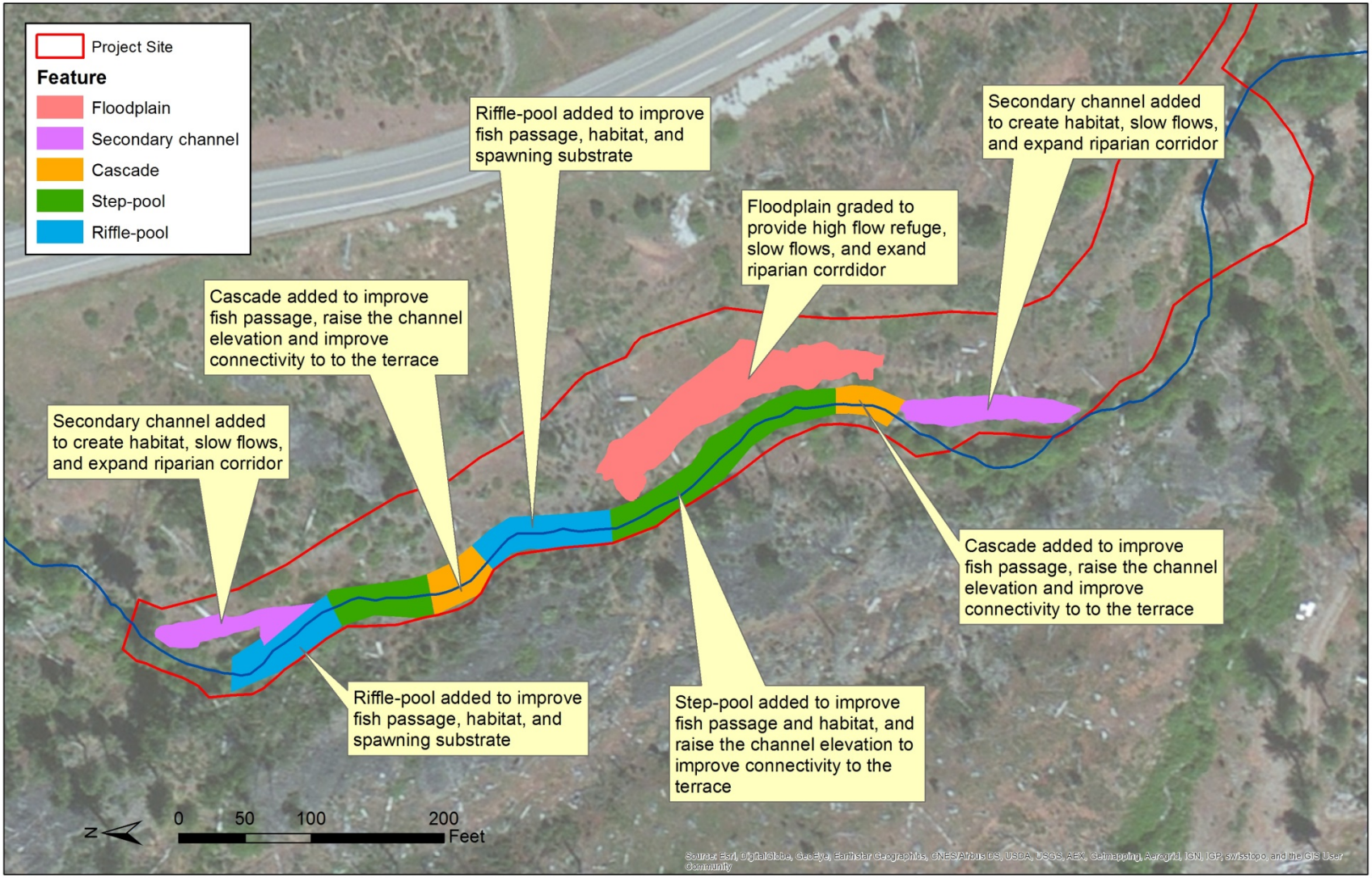
### *Spawning Gravel Augmentation*

Appropriately sized spawning gravels, in the form of Engineered Streambed Material (ESM), will be added to the riffle-pool segments within the project reach to provide suitable substrate for spawning coho salmon and steelhead. Note that ESM contains a range of sediment sizes including spawning sized gravels. Large wood flow forcing structures will be used in the channel to facilitate pool formation to maintain the riffle pool reach, and provide cover during summer rearing.



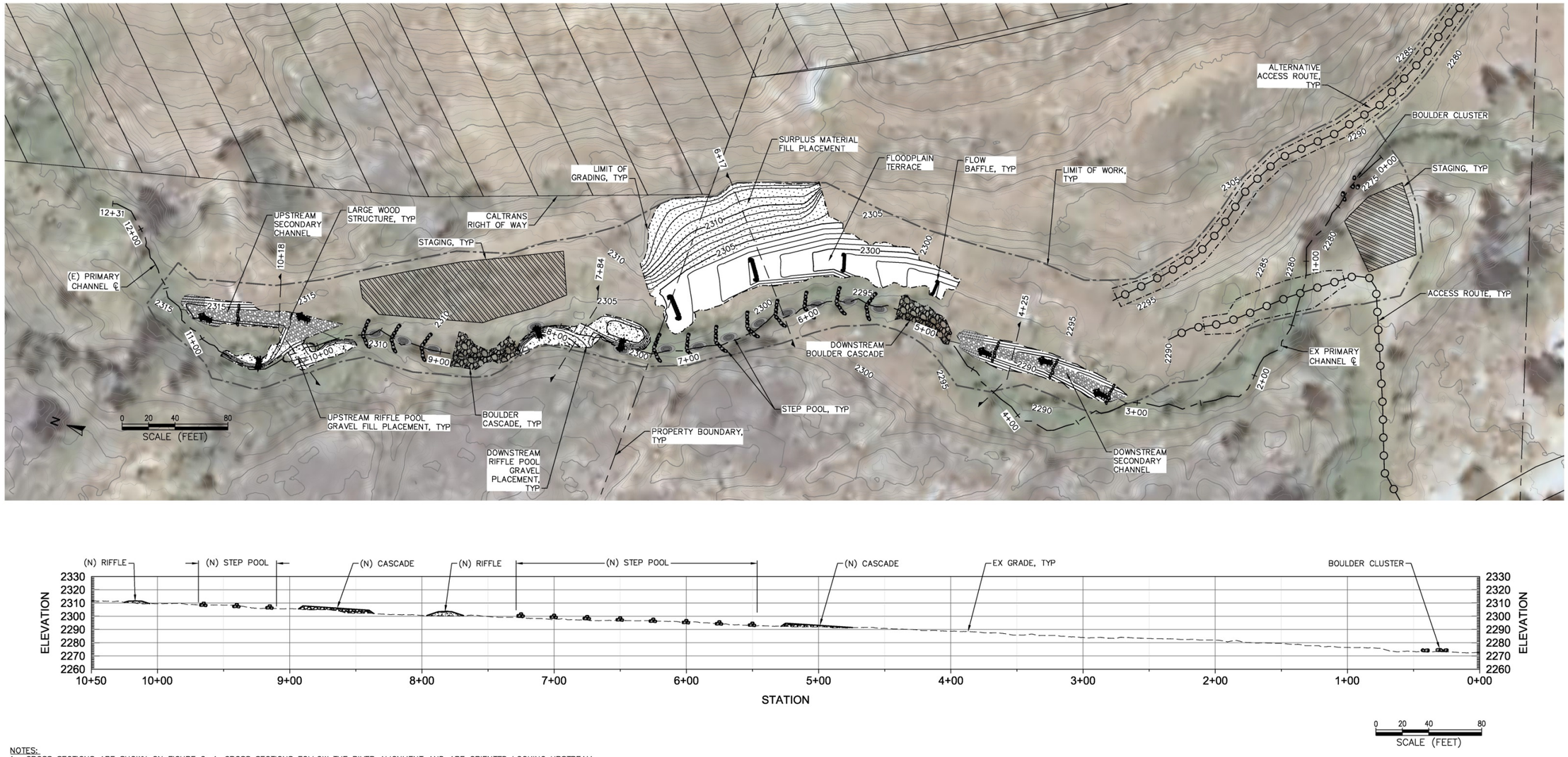

SOURCES:ESRI (Aerial)
NOTES: No grading or other road improvements proposed on Existing Access route.

**Figure 5**
Project Overview




SOURCE: ESRI (Aerial)

**Figure 6**
Preliminary Project Plan




NOTES:
1. CROSS SECTIONS ARE SHOWN ON FIGURE 2–4. CROSS SECTIONS FOLLOW THE RIVER ALIGNMENT AND ARE ORIENTED LOOKING UPSTREAM.

**Figure 7**
Plan and Profile

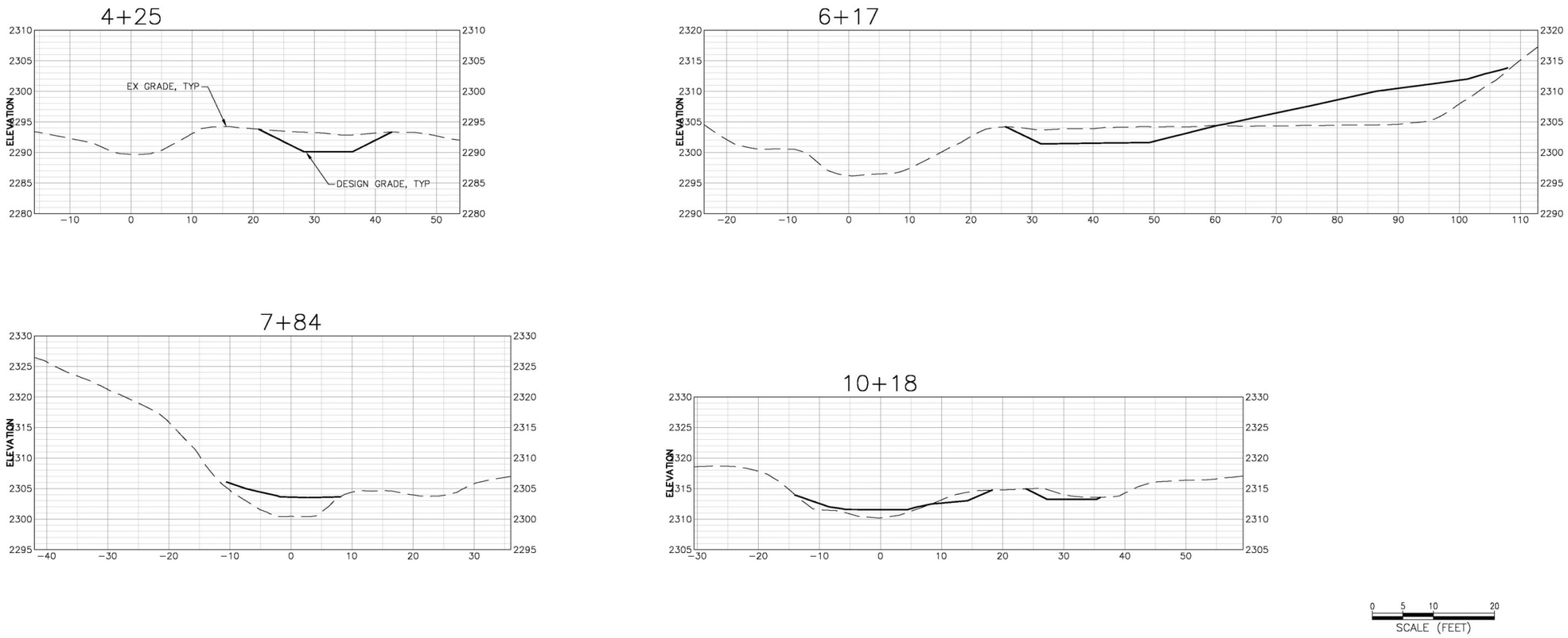



**Figure 8**
Grading Sections

### *Floodplain Connectivity and Riparian Planting*

The reconstructed bed will raise water surface elevations and improve connectivity to an existing floodplain. Additionally, two secondary channels and a lower floodplain terrace will be graded to improve off-channel connectivity. The increased floodplain connectivity will provide high flow refugia for coho salmon and steelhead. The secondary channels will provide additional coho and steelhead winter rearing habitat. Large wood habitat structures will be placed at select locations in the secondary channel to provide velocity breaks and cover. Willow baffles will be placed on the lowered floodplain terrace to help reduce flow velocities, retain fine sediment, and promote expansion of the riparian zone. Soils generated by the excavation of the secondary channels and floodplain terrace will be placed on site within a designated area in the project grading footprint.

### *Post-Construction Erosion Control and Restoration Measures*

Following construction activities, erosion control BMPs will be employed to limit on site erosion. All fill placement, access, and staging areas would be treated with sediment control measures after project completion. Erosion control measures may include, but are not limited to, select placement of erosion control fabric on upland slopes or ground areas (outside of the active channel) disturbed by equipment travel, coir logs for trapping of fine sediment on fill slopes, and hand placed or blown mulch over other disturbed ground surfaces.

After construction activities have been completed, portions of the disturbed areas will be revegetated with native riparian vegetation and/or a native seed mix. Planting would occur in late fall or early winter, before the winter storm season, in order to take advantage of seasonal precipitation and maximize survival rates.

## Construction Methods

Construction of the West Weaver Creek Salmonid Habitat Rehabilitation Project will employ currently accepted typical construction methods. The contractor will establish access routes and staging areas for travel within the site and storage of materials and equipment. Prior to grading the side channels and floodplain bench will be cleared and grubbed to a depth of 0.5 feet (6 inches). Woody vegetation removed during clearing and grubbing will be used for wood structures and baffles, and may be shredded/chipped for re-use on site for mulch. Materials (e.g., soils, rocks, gravels, etc.) will be transported on site with a wheeled dump truck, tracked dump truck, front end loader, and/or tracked skid-steer loader. In-channel work will likely utilize either a small scale excavator, or a wheeled backhoe. Smaller equipment is preferred for in-channel work in order to minimize impacts to existing riparian vegetation. In order to protect creek resources and protect aquatic organisms, in-channel work (within approximately 490 linear feet of channel) may require limited dewatering (if water is present, up to approximately 605 linear feet). Channel dewatering is not anticipated to be continuous over the 605 lineal feet; it is anticipated that the Contractor will dewater select portions of the channel during installation of specific features. The restoration contractor shall be responsible for generating a dewatering plan which complies with the construction stormwater permit. Floodplain and secondary channel grading will likely utilize a tracked bulldozer and medium size excavator. Dust control will employ a standard water truck equipped with spray nozzles.

### *Access and Staging*

There are two alternative routes for access to the project site (see Figure 5). The primary access route to the project site is on the west side of the creek via a private road that connects to Oregon Street, which intersects with State Highway 299 in the town of Weaverville. The secondary alternative access route is from the intersection of State Highway 299 and McCoy Lane with access to the work area is via an existing dirt access road along the east side of the creek. It is likely only the primary access route will be utilized. Limited grading will occur associated with establishment of the access route to remove topographic features (less than one foot tall), and to generally smooth the surface of the staging area. The primary access route requires construction of a temporary creek crossing consisting of two (2) 18-inch diameter culverts and gravels. The existing grade will be demarcated with a material which will facilitate re-construction of original grade following removal of the culverts (e.g., filter fabric or a layer of mulch). Gravels associated with the access route will be removed from the channel following completion of the project. The gravels will be disposed of on-site; likely as non-engineered road surfacing on the landowner's private road. Ramps into and out of the creek will be graded to create drivable slopes for construction equipment. The estimated amount of grading is approximately 0.1 acre. The exact quantity may vary based upon conditions encountered during construction of the access route.

During construction, the contractor will require storage space for equipment and materials in addition to parking spaces for worker vehicles (i.e., "staging areas"). There are two staging areas proposed (see Figure 5). The larger of the two is located on the east bank generally in the middle of the work area. The second, smaller staging area is located adjacent to the creek crossing at the primary access route. Approximately 0.18 acre will be utilized for staging areas. Best management practices (BMPs) will be utilized to address impacts related to use of the access and staging areas.

The access routes and staging areas will not require surfacing with gravel; as noted above, as a result of historic land use practices the ground surface is largely gravels and cobbles (i.e., soils have been washed away). At the completion of the project the staging and access routes will be seeded with a mixture of native grasses and forbs. Development of the staging and access route is anticipated to take up to one (1) week.

### *Clearing and Grubbing*

Clearing and grubbing is the preliminary phase of the construction project. The contractor will remove and off haul all existing debris and rubble. Vegetation that requires removal to facilitate construction activities will be removed by hand or machine. Trees larger than 12 inches diameter at breast height (DBH) will be stored on site for use. The top six inches of topsoil will be excavated and stockpiled. The topsoil will either be buried or re-applied, as per guidance from the project revegetation specialist. Woody vegetation removed during clearing and grubbing will be used for wood structures and baffles, and may be shredded/chipped for re-use on site for mulch.

### *General Grading*

Grading activities excavate and place earthen materials on the site. The objective of the grading operations is to construct "design grade" elevations as shown in the grading plan. Grading will

occur within the cleared and grubbed area. Grading activities may occur over a period of up to six (6) weeks.

### *In-Channel Work*

The project will include in-channel work within West Weaver Creek. Construction of in-channel structures typically includes the following sequence of actions:

- Dewatering of channel: in order to protect creek resources (i.e., reduce turbidity and nuisance sediment transport) and to protect aquatic organisms, up to approximately 605 linear feet of the stream channel may be dewatered. A qualified fisheries biologist will supervise fish rescue and translocation prior to dewatering, and will be present onsite during dewatering and subsequent fish rescue prior to any in-stream work being completed. No federally- or state-listed salmonid species are expected within West Weaver Creek under current conditions.

- Excavation of subgrade: Layout of excavation depths and horizontal limits by grade setter; excavation of earthen materials by excavator; relocation of excavated material by either a wheeled loader, tracked dump truck, or compact tracked loader; and miscellaneous support by laborers and the foreman.

- Placement of bedding materials: shuttling of bedding with a tracked loader; placement of the materials with a tracked loader or excavator; and grade checking/confirmation.

- Placement of boulders: shuttling of materials with either a wheeled loader or compact tracked loader; placement of boulders by an excavator; and grade checking/confirmation.

- Backfill with native materials: finish grading with an excavator or tracked loader, and miscellaneous clean-up and hand grading by laborers.

Excavation will occur primarily in the areas of the proposed secondary channels. Excavation depths range from 0.2 feet to 4.4 feet. A mix of gravel, cobbles, and boulders (rock materials) will be required for use in secondary channels and in-channel structures. The rock materials would be used for restoration features including: secondary channels, riffle-pools, step-pools, and boulder cascades. The nearest quarry is located approximate 3.2 miles west of Weaverville in Junction City. Earthwork on the project is anticipated to balance with respect to cut and fill. Specifically, materials excavated to create the secondary channels and floodplain elements will be placed on site in designated areas.

In order to avoid impacts on aquatic species, in-channel construction activities shall be restricted to the dry season, when stream flows have subsided. The dry season is anticipated to occur between June 15$^{th}$ and October 15$^{th}$.

### *Restoration Activities*

Restoration activities, broadly, are actions taken after earthwork and in-channel structure placement. These activities stabilize post-construction soils, reduce impacts of localized erosive forces, and facilitate differential deposition of sediments. Restoration activities include: revegetation, live pole planting, multi-layer fabric installation, and flow baffles.

Revegetation efforts at the site will be undertaken by the TCRCD. Revegetation will consist of limited planting of live poles, container stock and seeding of select species found within the watershed. This effort will be in support of and in addition to seeding for erosion control and site stabilization. Revegetation will occur in the late fall or early winter to take advantage of seasonal precipitation; the TCRCD will monitor the site and depending on spring rainfall may selectively hand irrigate container stock to facilitate plant establishment.

## Work Hours

Construction activities would generally take place during normal working hours, 7:00 a.m. to 6:00 p.m., Monday through Friday. Given the short construction window, construction work may also need to be performed outside these hours, including weekends or holidays, with prior approval from the property owner.

## Equipment

Anticipated construction materials for the construction of the proposed project is shown in **Table 2**. The actual equipment used during construction would be determined by the contractor and the construction schedule.

**TABLE 2**
**CONSTRUCTION EQUIPMENT**

| Equipment | Construction Purpose |
|---|---|
| Backhoe | Soil manipulation and drainage work |
| Bulldozer | Earthwork construction and clearing and grubbing |
| Compact Track Loader | Dirt or gravel manipulation |
| Dump Truck | Fill material delivery |
| Excavator | Soil manipulation |
| Grader | Ground leveling |
| Mini Excavator | Soil manipulation |
| Wheeled Loader | Dirt or gravel manipulation |

## Dewatering Plan

In accordance with federal Clean Water Act Section 402, the selected contractor will develop, implement, and maintain a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP will be submitted to and approved by Trinity County, the Regional Water Quality Control Board, and the State Water Resources Control Board. The plan will describe the proposed methods of erosion and sediment controls for construction activities including: excavation and fill placement, and construction of in-channel structures. Additionally, the Contractor shall ensure environmental and worker protection; operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations; and minimize air, waterway, and subsoil contamination or pollution and other undesirable effects. A component of the SWPPP is a dewatering plan for in-channel activities.

Dewatering operations are practices that manage the discharge of water and sediment when stream flow and subsurface flow must be removed from a work location so that construction tasks may be accomplished. Stream flow diversion and dewatering is undertaken in order to protect creek resources (i.e., reduce turbidity and nuisance sediment transport) and to protect aquatic organisms. This section presents typical information that would be included in a dewatering plan, and outlines anticipated methods that may be employed by the contractor. No federally- or state-listed salmonid species are expected within West Weaver Creek under current conditions.

**Table 3**, below, summarizes maximum probable dewatering areas associated with project activities.

**TABLE 3**
**SUMMARY OF DEWATERING ACTIVITIES**

| Project Component | U/S Station | D/S Station | Length (ft.) | Width (ft.) | Impacted Area (acre) |
|---|---|---|---|---|---|
| In-channel Work | 1,080 | 475 | 605 | 15 | 0.21 |
| Temporary Access | 140 | 110 | 30 | 35 | 0.02 |

SOURCE: ESA, 2016

The Proposed project is anticipated, at a minimum, to employ two dewatering methods: a temporary diversion system and shallow drywells. Temporary diversion systems typically consist of structures and measures that intercept stream flow upstream of a project site, transport it around the work area, and discharge it downstream with minimal water quality impacts. Temporary diversions are used to enclose a construction area and reduce sediment laden discharge from construction work occurring in or adjacent to the waterway. Dry wells are temporary wells which are installed adjacent to the stream channel and are utilized to remove groundwater adjacent to the construction area. Dry wells are typically deployed in conjunction with temporary diversions. The Contractor may, at their option, choose to install smaller dewatering systems in sequence from upstream to downstream at locations of individual in-channel structures.

Dewatering will occur in two locations: the in-channel construction portion of the project reach, and at the temporary crossing area. The in-channel portion of the project reach will have on-going dewatering operations for the duration of the in-channel construction activities. Dewatering at the temporary crossing will only be required during the installation of the temporary crossing. The temporary crossing will consist of dual 18-inch pipes; the pipes are sized such that they are capable of conveying the anticipated maximum summer flow.

**Table 4**, below, summarizes typical flows for the anticipated construction period.

**TABLE 4**
**ANTICIPATED FLOWS DURING CONSTRUCTION**

| Flow Regime | Typical Discharge (cfs) |
|---|---|
| Average Summer flow rate | 2.4 |
| Early Summer (anticipated maximum flow) | <12 |
| Late Summer/Early Fall (anticipated minimum flow) | 0.5 |

SOURCE: USFS, unpublished data (personal communication with ESA

**Figure 9** shows the entire project area and outlines the approximate limits of the dewatering areas. Note that the locations shown of the temporary diversions, discharge point, and dry wells are approximate and will be determined by the contractor.

### *Temporary Diversions*

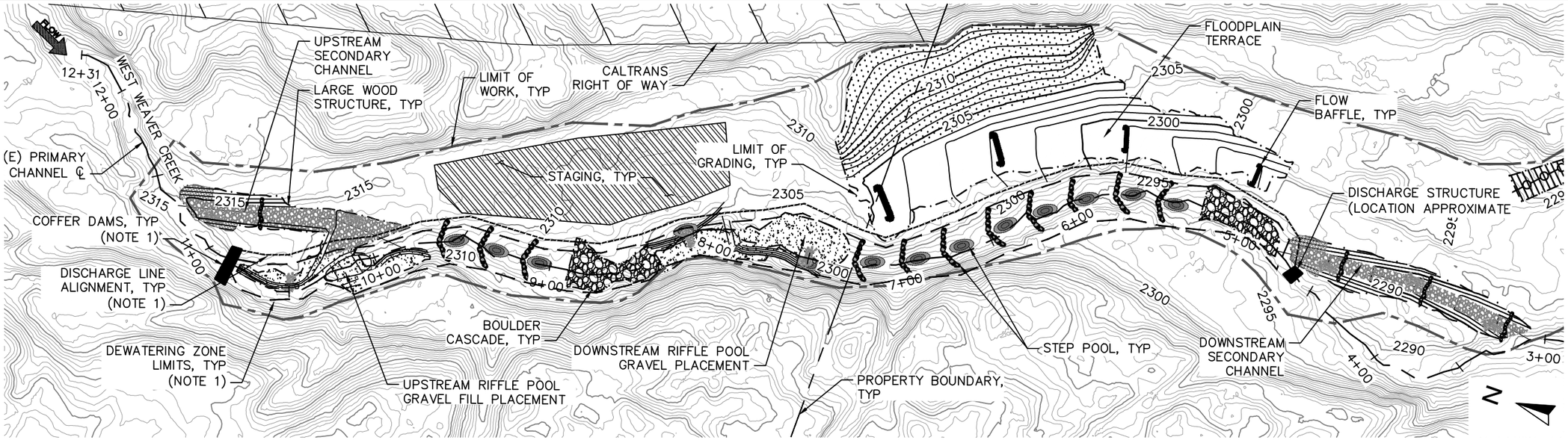
Temporary diversions, broadly, consist of three main components: flow impoundment structure(s), a pumping apparatus, and a discharge structure. The contractor will determine the components, alignment, and placement of the temporary diversion.

Coffer dams are temporary methods of flow impoundment, and are located at the upstream end of the dewatering zone. Depending on the amount of water in the channel and local topographic conditions, a second coffer dam may be required at the downstream end of the dewatering zone. Two common methods of coffer dam construction are: dams consisting of posts and an impermeable liner keyed into the banks and bed, or “supersacks” (i.e., 4’x4’x4’ bags filled with gravel) placed side by in the channel to block flow. Gravels used for the coffer dams shall be clean, washed, and rounded; the amount of gravels required for the cofferdams is unknown and may be as much as 50 cubic yards.

The pumping apparatus will have an inlet structure which is screened to prevent entrainment of wildlife and sediment. The pump shall be sized to accommodate the anticipated flow (i.e., 2.4 cfs); a secondary pump may be kept on site to accommodate unanticipated flow events. The discharge from the pump will flow via gravity to the discharge location; conveyance may be via either pipes or large diameter hoses. The pump and fuel containers for the pump shall be stored in a manner such that spilled fuel does not enter the waterway. If required, infiltration galleries may be used to capture subsurface flows immediately adjacent to the work areas. Infiltration galleries consist of clean washed gravels installed vertically into the channel with a sump pump to lower local the subsurface water elevation below work areas. Gravels associated with the infiltration galleries may be left on site; all other materials shall be removed from the gallery.

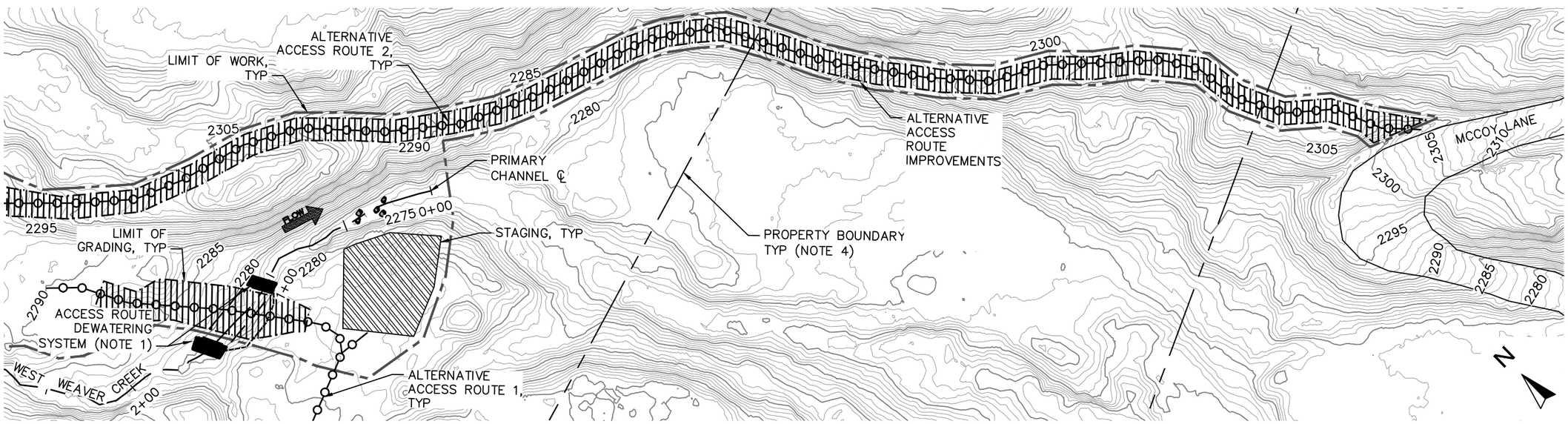
The discharge structure shall be constructed such that discharge does not disturb vegetation, disturb soils, or cause erosion. Typically a discharge structure shall be located in-channel and will typically consists of a shallow basin constructed of gravel filled sandbags, placed over a layer of filter fabric, and lined with filter fabric. The discharge structure shall be monitored and maintained to prevent erosion of the stream bed.

All dewatering appurtenances, including culvert entrances and exits, screened pumps, and piping will be inspected and maintained on a daily basis to ensure their integrity for the duration of the work schedule. A biological monitor will be present during installation and throughout the flow diversion period to prevent impacts on aquatic wildlife.




UPSTREAM PROJECT ELEMENTS

PLAN VIEW SCALE: 1' = 60'




UPSTREAM PROJECT ELEMENTS

PLAN VIEW SCALE: 1' = 60'

0 30 60

SCALE (FEET)

SOURCE:Source: ESA

ESA

NOTES

1. DEWATERING SYSTEM COMPONENTS ARE SHOWN DIAGRAMMATICALLY. THE CONTRACTOR SHALL DEVELOP THE DEWATERING SYSTEM METHODS, MATERIALS, AND SEQUENCING AS PART OF THE SWPPP.

West Weaver Creek Rehabilitation

**FIGURE 9**

Conceptual Dewatering Plan

NOT FOR CONSTRUCTION

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### *Dry Wells*

Dry wells are located adjacent to the creek and are used to remove shallow groundwater and hyporheic flow from the project vicinity. Dry wells consist of perforated pipes (typically short sections of culvert) which are installed vertically with a sump pump placed in the bottom of the well. The vertical pipe is typically covered with a filter fabric to prevent the movement of fine soil particles into the well. The sump pump can be operated with a float switch such that the pump in only active once a predetermined water level has risen within the well. As with the pumping system for the diversion, the pump and associated fuel containers will be stored such that spilled fuel does note soak into the ground or enter the waterway. Discharge from the dry wells may be plumbed into the drainage system for the diversion structure, or may have an independent conveyance system. Discharge from the dry wells shall be managed in the same manner as the temporary diversions. The discharge structure for the dry wells and the temporary diversions may be shared, or an independent discharge structure may be constructed for the dry well system.

Dry wells are not currently anticipated to be necessitated for dewatering activities within the project footprint. The Contractor may, at their option, utilize dry wells if subsurface flow conditions are such that temporary diversions are insufficient to remove all water from the work area.

## Post Project Monitoring

### *Overview of Monitoring Plan*

The *West Weaver Creek Channel and Floodplain Rehabilitation Monitoring Plan* (ESA, 2015) project was developed through a partnership between the U.S. Forest Service Pacific Southwest Research Station, Dr. Steven Railsback, ESA, and the TCRCD. The USFS and Dr. Railsback are using the project to evaluate an individual-based model designed to help predict and explain the interacting, cumulative effects of river management actions on freshwater life stages of salmonids. Such actions include changes in flow, temperature, or turbidity regimes, alteration of channel shape and availability of spawning gravel and cover for feeding or hiding, and manipulation of biological conditions such as piscivorous fish densities and food availability. The underlying assumption of individual-based models is that population-level outcomes emerge from interactions between individuals and their environment. Stream reaches are represented as sets of two-dimensional cells. These cells have unique dimensions and values for parameters representing the availability of cover that influences short-term avoidance of predators, velocity shelter that influences the benefits of feeding on drifting prey, and spawning gravel. Site-specific hydraulic models are used to estimate cell-specific depths and water velocities from streamflow. Reach-scale variables in addition to streamflow include water temperature and turbidity.

Since 2012, the USFS has collected physical and biological data that will support the utilization of this modeling approach. Biological monitoring parameters include fish density, growth, and apparent survival with twice-yearly sampling and Passive Integrated Transporter (PIT) tagging in the project reach of West Weaver Creek. Physical data to support the model are collected by sensors in the creek corridor set to record depth (used to estimate streamflow), velocity, temperature and turbidity every 15 minutes. Five years (2012 – 2016) of spring and fall pre-

restoration sampling in the project area has not captured any coho salmon in the project reach (B. Harvey, personal communication, December 15, 2016).

In addition to the fish and sediment monitoring, the geomorphic evolution of the site will be monitored using repeat photographs. As mentioned, the project will manipulate the topography of the stream corridor. The evolution of project site from the point of manipulation will be documented and monitored through repeat photographs from photo monitoring pins that will be established prior to construction.

## References

Ebasco Environmental. 1990. Trinity River Basin Restoration Program West Weaver Creek Fish Habitat Assessment. Prepared for U.S. Bureau of Reclamation (USBR).

Environmental Science Associates (ESA). 2012. West Weaver Creek Assessment and Action Planning. Prepared for the Trinity County Resource Conservation District. August 2012.

Environmental Science Associates (ESA). 2015. West Weaver Creek Channel and Floodplain Rehabilitation Monitoring Plan. Prepared for the Trinity County Resources Conservation District. March 2015.

Lynsky, T. 2010. Weaverville Community Forest – Riparian and Stream Channel Improvement Project. Decision memo by Tina Lynsky, District Ranger, Trinity River Management Unit. U.S. Forest Service: Shasta-Trinity National Forest.

U.S. Department of the Interior Bureau of Land Management (BLM). 2003. America's Priceless Heritage: Cultural and Fossil Resources on Public Lands – California. Bureau of Land Management, Washington, DC. BLM/CA/GI-03/021+8111. 10pp.

United States Forest Service (USFS). 2004. Weaverville Watershed Analysis. Shasta-Trinity National Forest, Trinity River Management Unit.

# Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

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

## DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

☐ 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 will be 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 "potentially significant impact" or "potentially significant unless mitigated" impact 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. 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, no further environmental documentation is required.

Donna Rupp — May 10, 2017

Signature — Date

Donna Rupp, Project Coordinator II — TCRCD

Printed Name — For

# Environmental Checklist

## Aesthetics

| Issues (and Supporting Information Sources): | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **1. AESTHETICS — Would the project:** | | | | |
| a) Have a substantial adverse effect on a scenic vista? | ☐ | ☐ | ☒ | ☐ |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | ☐ | ☐ | ☐ | ☒ |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | ☐ | ☐ | ☒ | ☐ |
| d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area? | ☐ | ☐ | ☐ | ☒ |

### Affected Environment

Aesthetic or visual resources include the "scenic character" of a particular region and site. Scenic features can include both natural features, such as vegetation and topography, and manmade features (e.g. historic structures). Areas that are more sensitive to potential effects are usually readily observable, such as land found adjacent to major roadways and hilltops.

#### *Visual Environment*

Located in a relatively undeveloped area of Trinity County, the project area is characterized by mixed hardwood-conifer woodland (disturbed), riparian woodland, West Weaver Creek, and State Highway 299. Adjacent land uses include private residences and open space. Much of the project site and surrounding area was recently burned by wildfires occurring in 2001 and 2006. The landscape is still recuperating from these fires and the vegetation of the project area is recovering. Topography of the project area has remained relatively undisturbed, with the exception of Highway 299 and a few graded local roads and driveways associated with the private residences adjacent to the project site. There are two pullouts along Highway 299 that provide views of the project site, and the site is visible from the highway. The nearest residences are located immediately west and south of the project site.

### Discussion

a, c) The project site is in an area designated as Open Space and Rural Residential by the Trinity County General Plan. There are no designated scenic vistas or notable geographic features identified in the vicinity of the project site in the Trinity County General Plan; as a result, the proposed project would not have an effect on a scenic vista (Trinity County, 1988). Potential viewer groups include adjacent residences as well as vehicle occupants on Highway 299. Views of the creek corridor from surrounding areas are limited and would only be visible to a small number of people for limited periods (i.e., vehicle

occupants passing by the project site). Construction of the proposed project would result in temporary changes in local visual conditions, such as grading, clearing and grubbing of vegetation, in-channel work, and the presence of equipment in the project area (over approximately 6-8 weeks). However, implementation of the proposed project also includes restoration and revegetation of affected areas. No new structures are proposed as part of the project, and there would be no permanent changes to the visual character of the project site following project construction. Following construction, project site conditions would be restored and revegetated similar to pre-project conditions. For these reasons, visual impacts from the proposed project are considered a **less than significant** impact.

b) A review of the current California Department of Transportation (Caltrans) Map of Designated Scenic Routes indicates that there are no officially designated state scenic highways within Trinity County, although Highway 3 and the eastern portion of Highway 299 from the county border to Highway 3 are Eligible State Scenic Highways (approximately 1.5 miles east of the project site) (Caltrans, 2016). Therefore, the proposed project would result in **no impact**.

d) The project site is located within a rural setting where lighting is minimal. Scattered rural residential land uses and passing vehicles generate the primary sources of nighttime light and daytime glare in the project vicinity. The project does not propose any new light sources and is not expected to produce glare. Additionally, the proposed project is not associated with a land use change or additional vehicle trips that would generate additional sources of light or glare. Therefore, the proposed project would result in **no impact**.

## References

California Department of Transportation (Caltrans), 2016. Caltrans Map of Designated Scenic Routes. Updated March 16, 2016. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed October 12, 2016.

Trinity County, 1988. Trinity County General Plan Land Use Element. Adopted 1988.

# Agricultural and Forest Resources

| Issues (and Supporting Information Sources): | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **2. AGRICULTURAL AND FOREST 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? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | ☐ | ☐ | ☐ | ☒ |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | ☐ | ☐ | ☐ | ☒ |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

The West Weaver Creek watershed is located in the Klamath Mountain physiographic province of California, more specifically in the Trinity Mountains in Trinity County. The project site is in an area designated as Open Space and Rural Residential by the Trinity County General Plan. The project site is out of the survey area for the California Department of Conservation's (CDC) Farmland Mapping and Monitoring Program (FMMP) (CDC, 2014). No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is present within or near the project site, and no land within or near the project site is enrolled in the Williamson Act (CDC, 2014). Agricultural uses in the general area include limited livestock grazing. The project site is not zoned as forestland, timberland, or Timberland Production.

## Discussion

a-e) The project site does not contain Farmland (as defined by the FMMP), Williamson Act land, agricultural zoning or existing agricultural uses. The project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. The project would not involve significant land use changes that

would result in conversion of Farmland or forest land. Therefore, the proposed project would result in **no impact** and no mitigation measures are required.

## References

California Department of Conservation, 2014. Farmland Mapping and Monitoring Program.

# Air Quality/Greenhouse Gas Emissions

| *Issues (and Supporting Information Sources):* | *Potentially Significant Impact* | *Less Than Significant with Mitigation Incorporation* | *Less Than Significant Impact* | *No Impact* |
|---|---|---|---|---|
| **3. AIR QUALITY/GREENHOUSE GAS EMISSIONS —** 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? | ☐ | ☐ | ☒ | ☐ |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | ☐ | ☐ | ☒ | ☐ |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | ☐ | ☐ | ☒ | ☐ |
| d) Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☒ | ☐ |
| e) Create objectionable odors affecting a substantial number of people? | ☐ | ☐ | ☒ | ☐ |
| f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ☐ | ☐ | ☒ | ☐ |
| g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☐ | ☐ | ☒ | ☐ |

## Affected Environment

The project site is located within the North Coast Air Basin (NCAB). This air basin includes all of Del Norte, Humboldt, Trinity, and Mendocino Counties, and the northern portion of Sonoma County. The proposed project is located within Trinity County. The North Coast Unified Air Quality Management District (NCUAQMD) is responsible for the air quality in Trinity County.

The federal Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter (particulate matter less than 10 microns in diameter, $PM_{10}$), fine particulate matter (particulate matter less than 2.5 microns in diameter, $PM_{2.5}$), and lead. **Table AQ-1** presents current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant. As shown in Table AQ-1, California has also established state standards for hydrogen sulfide, sulfates, and visibility reducing particles.

**TABLE AQ-1**
**STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES**

| Pollutant | Averaging Time | State Standard | National Standard | Pollutant Health and Atmospheric Effects | Major Pollutant Sources |
|---|---|---|---|---|---|
| **Ozone** | 1 hour | 0.09 ppm | --- | High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue. | Formed when reactive organic gases (ROG) and nitrogen oxides ($NO_x$) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment. |
| | 8 hours | 0.07 ppm | 0.07 ppm | | |
| **Carbon Monoxide** | 1 hour | 20 ppm | 35 ppm | Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen. | Internal combustion engines, primarily gasoline-powered motor vehicles. |
| | 8 hours | 9.0 ppm | 9 ppm | | |
| **Nitrogen Dioxide** | 1 hour | 0.18 ppm | 0.100 ppm | Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. | Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads. |
| | Annual Avg. | 0.030 ppm | 0.053 ppm | | |
| **Sulfur Dioxide** | 1 hour | 0.25 ppm | 75 ppb | Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants; destructive to marble, iron, and steel. Limits visibility and reduces sunlight. | Fuel combustion, chemical plants, sulfur recovery plants, and metal processing. |
| | 3 hours | --- | 0.5 ppm | | |
| | 24 hours | 0.04 ppm | --- | | |
| | Annual Avg. | --- | --- | | |
| **Respirable Particulate Matter (PM10)** | 24 hours | 50 μg/m3 | 150 μg/m3 | May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility. | Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays). |
| | Annual Avg. | 20 μg/m3 | --- | | |
| **Fine Particulate Matter (PM2.5)** | 24 hours | --- | 35 μg/m3 | Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling. | Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including $NO_x$, sulfur oxides, and organics. |
| | Annual Avg. | 12 μg/m3 | 12.0 μg/m3 | | |
| **Lead** | Monthly Avg. | 1.5 μg/m3 | --- | Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction. | Present source: lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline. |
| | Quarterly | --- | 1.5 μg/m3 | | |
| **Hydrogen Sulfide** | 1 hour | 0.03 ppm | No National Standard | Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations) | Geothermal Power Plants, Petroleum Production and refining |
| **Sulfates** | 24 hour | 25 μg/m3 | No National Standard | Breathing difficulties, aggravates asthma, reduced visibility | Produced by the reaction in the air of $SO_2$. |
| **Visibility Reducing Particles** | 8 hour | Extinction of 0.23/km; visibility of 10 miles or more | No National Standard | Reduces visibility, reduced airport safety, lower real estate value, discourages tourism. | See $PM_{2.5}$. |

NOTES:

ppm = parts per million; ppb = parts per billion; $\mu g/m^3$ = micrograms per cubic meter.

SOURCE: California Air Resources Board, 2016a; California Air Resources Board, 2009.

Concentrations of criteria air pollutants are measured at four monitoring sites within Humboldt, Del Norte, and Trinity Counties. Data collected at monitoring stations in these counties are considered to be generally representative of air quality of the project area, especially for regional pollutants such as ozone and $PM_{10}$. **Table AQ-2** summarizes the concentrations of ozone, $PM_{10}$, and $PM_{2.5}$ from 2013 through 2015 and compares them to federal and state standards.

**TABLE AQ-2**
**AIR QUALITY DATA SUMMARY (2013–2015) FOR THE PROJECT AREA**

| Pollutant | Monitoring Data by Year | | | |
|---|---|---|---|---|
| | Standard[a] | 2013 | 2014 | 2015 |
| Ozone | | | | |
| Maximum concentration 1-hour (ppm)[b] | 0.09 | 0.069 | 0.070 | 0.076 |
| Number of days state standard exceeded 1-hour | | 0 | 0 | 0 |
| Maximum concentration 8-hour (ppm)[b] | | 0.063 | 0.064 | 0.064 |
| Number of days state standard exceeded 8-Hour | 0.070 | 0 | 0 | 0 |
| Number of days national standard exceeded 8-Hour | 0.070 | 0 | 0 | 0 |
| Particulate Matter ($PM_{10}$) | | | | |
| Maximum concentration state measurement ($\mu g/m^3$)[b] | | **66.7** | 45.6 | **57.6** |
| Est. days over state standard[c] | 50 | 14.9 | 0 | 2.0 |
| Maximum concentration national measurement ($\mu g/m^3$)[b] | | 64.3 | 104.7 | 58.1 |
| Est. days over national standard[c] | 150 | 0 | 0 | 0 |
| Particulate Matter ($PM_{2.5}$) | | | | |
| Maximum concentration national measurement ($\mu g/m^3$)[b] | | 28.1 | 33.0 | **73.4** |
| Est. days national standard exceeded[c] | 35 | 0 | 0 | 4.2 |
| State annual average ($\mu g/m^3$)[b] | 12 | 6.7 | 5.7 | 8.0 |

NOTES:

a Generally, state standards and national standards are not to be exceeded more than once per year.

b ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.

c $PM_{10}$ and $PM_{2.5}$ is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.

Values in **Bold** exceed the respective air quality standard.

SOURCE: California Air Resources Board, 2016b.

Pursuant to the 1990 Federal Clean Air Act Amendments, the EPA classifies air basins (or portions thereof) as “in attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the NAAQS had been achieved. The air in Humboldt, Del Norte, and Trinity Counties is considered to be either unclassified or in attainment of State and Federal Ambient Air Quality Standards, except for the State’s 24-hour $PM_{10}$ standard in Humboldt County. The two pollutants of greatest concern are ozone and particulate matter. The current attainment status for Trinity County is shown in **Table AQ-3**.

**TABLE AQ-3**
**TRINITY COUNTY ATTAINMENT STATUS**

| Pollutant | State Standards | Federal Standards |
|---|---|---|
| Ozone | Attainment | Unclassified/Attainment |
| Carbon Monoxide | Unclassified | Unclassified/Attainment |
| Nitrogen Dioxide | Attainment | Unclassified/Attainment |
| Sulfur Dioxide | Attainment | Unclassified |
| Fine Particulate Matter ($PM_{10}$) | Attainment | Unclassified |
| Fine Particulate Matter ($PM_{2.5}$) | Attainment | Unclassified/Attainment |

SOURCES: California Air Resources Board, 2016c; U.S. Environmental Protection Agency, 2016.

## *North Coast Unified Air Quality Management District*

### $PM_{10}$ Attainment Plan

To address the NCAB's nonattainment status with respect to $PM_{10}$, the NCUAQMD prepared a draft $PM_{10}$ attainment plan report identifying cost-effective control measures that can be implemented to bring ambient $PM_{10}$ levels down to the California standards. The control strategies include transportation control measures (public transit, ridesharing, vehicle buyback program, traffic flow improvement, bicycle incentives, etc.), land use measures to reduce reliance on automobiles, and open burning measures (NCUAQMD, 1995). The NCUAQMD plans to update the document.

### Naturally Occurring Asbestos

The NCUAQMD is required by State law to implement and enforce all State Airborne Toxic Control Measures (ATCM). The NCUAQMD has instituted a registration program for all construction, grading, quarrying, and surface mining operations within its jurisdiction. An applicant must first register with the NCUAQMD prior to engaging in specific activities covered by the regulation. Registration is also required for existing operations, projects, and facilities. As part of the registration process, the applicant may be required to submit a dust control plan.

Notification must be made to the NCUAQMD at least 14 days before any activity begins. However, the Naturally Occurring Asbestos ATCM includes a series of exemptions. One of the exemptions is for projects that are located in an area not designated as an ultramafic rock unit area by the California Department of Conservation Division of Mines and Geology. This exemption appears to apply to the proposed Project because the nearest mapped ultramafic rock unit area is approximately one mile west of the proposed Project site (DOC, 2000).

### Rule 430 – Fugitive Dust Emissions

NCUAQMD Rule 430 prohibits the handling, transporting, or open storage of materials in a manner that allows or may allow unnecessary amounts of particulate matter to become airborne. The rule requires project applicants to take reasonable precautions to prevent particulate matter from becoming airborne, including, but not limited to, the following provisions:

- Covering open bodied trucks when used for transporting materials likely to give rise to airborne dust.
- Installing and using hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Containment methods can be employed during sandblasting and other similar operations.
- Conducting agricultural practices in a manner that minimizes airborne dust.
- Using water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land.
- Applying asphalt, oil, water or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.
- Paving roadways and maintaining them in a clean condition.
- Removing earth or other material from paved streets that has been deposited by trucking or earth moving equipment, by erosion, or by other means.

### *Greenhouse Gases*

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). The accumulation of GHGs in the atmosphere has been linked to global climate change. Global climate change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the speed of global warming and the extent of the impacts attributable to human activities, most agree that there is a link between increased emission of GHGs and long-term increases in global temperature. GHGs allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation and warm the air. The process is similar to the effect greenhouses have in raising their internal temperature, hence the name GHGs. Both natural processes and human activities emit GHGs.

The accumulation of GHGs in the atmosphere regulates the earth's temperature. However, emissions from human activities such as electricity generation and use of fossil fuel powered motor vehicles have elevated the concentration of GHGs in the atmosphere. This accumulation of GHGs has contributed to an increase in the temperature of the earth's atmosphere and contributed to global climate change. The principal GHGs are carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), sulfur hexafluoride, perfluorocarbons, hydrofluorocarbons, and water vapor. $CO_2$ is the reference gas for climate change. To account for the individual warming potential of various GHGs, and to combine emissions of gases with differing properties, GHG emissions are typically quantified and reported as $CO_2$ equivalents ($CO_2e$).

Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be substantial.

### *Sensitive Receptors*

Some receptors are considered more sensitive than others to air pollutants. Reasons for greater sensitivity include pre-existing health problems, proximity to an emissions source, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people and the infirm are more susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are also sensitive to poor air quality because people usually stay home for extended periods of time.

The nearest sensitive receptors for the habitat rehabilitation project are residences approximately 0.10 miles south of the project site. In addition to the residences, Trinity High School is located approximately 0.98 miles east of the project site and Weaverville Elementary School is approximately 1.57 east of the site.

## Discussion

a-c) The applicable air quality plan for the project site is the NCUAQMD's $PM_{10}$ Attainment Plan. The plan identifies control strategies, including transportation control measures (public transit, ridesharing, vehicle buy-back program, traffic flow improvement, bicycle incentives, etc.), land use measures to reduce reliance on automobiles, and open burning measures (NCUAQMD, 1995). The plan includes no control strategies directly related to the proposed project or construction projects in general; therefore, implementation of the proposed project would not obstruct implementation of the applicable air quality plan.

The West Weaver Creek restoration-related emissions would be generated by a variety of activities, including exhaust and fugitive dust generated by grading, excavation, and other off-road restoration activities and by construction equipment and employee vehicles traveling on on-road surfaces. Restoration is expected to start in July 2017 and be completed by October 2017. The restoration phase would require approximately 6 to 8 weeks.

Restoration-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt and water content of the soil, and the weather. In the absence of mitigation, restoration activities could result in high quantities of dust, and as a result, local visibility and $PM_{10}$ concentrations may be adversely affected on a temporary and intermittent basis. In addition, fugitive dust generated by construction would include not only $PM_{10}$, but also larger particles, which would fall out of the atmosphere within several hundred feet of the site and could result in nuisance-type impacts.

**Table AQ-4** shows the estimated annual emissions for construction and compares those emissions to the NCUAQMD and federal general conformity *de minimis* thresholds. As shown in Table AQ-4, ROG/VOC, CO, NOx and $PM_{10}$ emissions would not exceed any

of the significance thresholds. As proposed, the proposed project would result in a **less than significant** impact.

**TABLE AQ-4**
**CONSTRUCTION RESTORATION EMISSIONS**

| Scenario | Construction Criteria Pollutant Emissions (tons per year)[1] | | | |
|---|---|---|---|---|
| | ROG/VOC | CO | NOx | $PM_{10}$ |
| Construction and Restoration | 0.28 | 2.03 | 3.01 | 0.38 |
| *NCUAQMD Threshold* | 40 | 100 | 40 | 16 |
| *Exceed Threshold?* | No | No | No | No |
| *Conformity de minimis Threshold* | 100 | 100 | 100 | 100 |
| *Exceed Threshold?* | No | No | No | No |

NOTES:
1 Restoration emission estimates were modeling using CalEEMod version 2013.2.2.

tpy = tons per year

SOURCE: ESA, 2016

d) Project restoration under the proposed project would result in short-term emissions of diesel particulate matter (DPM), which is a toxic air contaminant (TAC). Off-road heavy-duty diesel equipment would emit DPM during grading, excavation, and other earth moving activities. NCUAQMD have not adopted a methodology for analyzing such impacts and have not recommended that health risk assessments be completed for construction-related emissions of TACs. Due to the phasing of the restoration process, including site preparation, grading, and excavation at different times, the relatively short-term work period, and the distances to sensitive receptors, the proposed project would not result in significant restoration-related health risks. For these reasons, the impact would be **less than significant**.

e) The proposed project would result in diesel exhaust emissions from the use of off-road equipment such as loaders and excavators that would be a source of odors in the project area. Although residents living near the project site could be located near project restoration staging areas where off-road equipment would be running/idling, diesel exhaust emissions from these sources would be temporary, intermittent, and dissipate over time and distance. Therefore, the short-term restoration activities would not result in any objectionable odors affecting substantial numbers of people in the vicinity of the project area. This would result in a **less than significant** impact.

f, g) The NCUAQMD has not adopted a significance threshold for GHG emissions for either construction or operational activities. For this analysis, the Sacramento Metropolitan Air Quality Management District (SMAQMD) GHG threshold of 1,100 metric tons $CO_2e$ was to evaluate GHG CEQA impacts during the restoration phase of the proposed project (SMAQMD, 2016).

On August 1, 2016, CEQ issued the Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. As discussed in the guidance, when addressing climate change agencies should consider: (1) the potential effects of a proposed project on climate change as indicated by assessing GHG emissions; and, (2) the effects of climate change on a proposed project and its environmental impacts. The guidance recommends that agencies quantify direct and indirect GHG emissions from proposed projects (taking into account available data and GHG quantification tools that are suitable for the proposed agency action). The guidance does not establish any particular quantity of GHG emissions as "significantly" affecting the quality of the human environment or give greater consideration to the effects of GHG emissions and climate change over other effects on the human environment. It is recommended that agencies consider reasonable alternatives and mitigation measures to reduce action-related GHG emissions or increase carbon sequestration in the same manner as they consider alternatives and mitigation measures for other environmental effects (CEQ, 2016).

During short-term restoration of the project site, GHG emissions would be generated by vehicle engine exhaust from off-road equipment, haul trips, and restoration-related worker trips. GHG emissions generated during the restoration phase of the project were estimated using CalEEMod. The highest annual GHG emissions during the restoration period would be 255 metric tons of $CO_2e$ in 2017, which includes heavy-duty off-road equipment, haul trucks, delivery trucks, and worker vehicles. These GHG emissions would be below the SMAQMD CEQA significance threshold. For these reasons, implementation of the proposed project would result in a **less than significant** impact.

## References

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U.S. Environmental Protection Agency, 2016. *De Minimis Emission Levels.* Accessed October 25, 2016.

# Biological Resources

| Issues (and Supporting Information Sources): | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | 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? | ☐ | ☒ | ☐ | ☐ |
| 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? | ☐ | ☒ | ☐ | ☐ |
| 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? | ☐ | ☐ | ☒ | ☐ |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | ☐ | ☐ | ☒ | ☐ |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | ☐ | ☒ |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

### *Data Sources/Methodology*

Biological resources within the project site were identified by ESA biologist Joshua Boldt through field reconnaissance and an aquatic resources delineation conducted in November 2014 and June 2015. Prior to the surveys, a review of pertinent literature and database queries were conducted for the project site and surrounding area. The surveys were conducted on foot and existing habitat types, plants, and wildlife species within and adjacent to the project site were recorded. The biological surveys focused on identifying and delineating habitat for special-status plant and wildlife species, although general habitat conditions were noted and incidental species observations were recorded. A formal aquatic resource delineation was also conducted.

During the biological surveys, ESA biologists walked random transects through the entire project site, spaced closely to obtain 100 percent visual coverage of the habitats present. Habitats present at the project site were compared to the habitat requirements of the regionally occurring special-status species and used to determine which of these species had the potential to occur at or adjacent to the project site. Potentially jurisdictional wetlands and other waters of the U.S. were

delineated according to methods outlined in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE, 2010). Plant nomenclature follows *The Jepson Manual: Vascular Plants of California (Second Edition)* (Baldwin et al., 2012).

A focused botanical survey was conducted on June 2, 2015. Prior to conducting the field survey, a list of special-status plants with the potential to occur within the vicinity of the project site was reviewed. Sources consulted in the preparation of the list of target plant taxa included the Sensitive Species List for the Pacific Southwest Region, the California Natural Diversity Database (CNDDB) (CDFW, 2017a), and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (CNPS, 2017). Target plant species were identified based on the availability of suitable habitat in the project site. The survey followed the procedures outlined in the California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2009). All habitats were surveyed within the project area boundary. The 2.39-acre project site was traversed on foot in order to ensure thorough coverage of the project site. All plant taxa observed were recorded. The survey was floristic in nature, meaning that every plant taxon that occurs in the project site was identified to the taxonomic level necessary to determine rarity and listing status. Species not identified in the field were collected and identified in the laboratory at a later date. All species were identified using *The Jepson Manual: Vascular Plants of California (Second Edition)* (Baldwin et al., 2012).

The primary sources of data referenced for this section include the following:

- United States Fish and Wildlife Service (USFWS) list of Federal Endangered and Threatened Species that occur in the project area (USFWS, 2017a);
- USFWS Critical Habitat for Threatened and Endangered Species (online mapping program) (USFWS, 2017b);
- California Natural Diversity Database (CNDDB), Rarefind 5 computer program (v5.0)(California Department of Fish and Wildlife [CDFW], 2017a);
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (v8-03) (CNPS, 2017);
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW, 2017b);
- Special Animals List (CDFW, 2017c);
- *West Weaver Creek Salmonid Habitat Rehabilitation Project Biological Assessment and Essential Fish Habitat Assessment* (ESA, 2017a); and
- *West Weaver Creek Salmonid Habitat Rehabilitation Project Aquatic Resources Delineation* (ESA, 2017b).

### *Regional Setting*

The project site is located in the Klamath Mountains ecological region, eastern Klamath Mountains subsection. Regional natural plant communities within and surrounding the project site include those that are prevalent to the foothills of the eastern Klamath Mountains in California, such as coniferous forests, mixed hardwood/conifer woodlands, chaparral, and annual grasslands. Within the project site plant communities include mixed hardwood-conifer woodland (disturbed) and a narrow band of riparian vegetation. Land use immediately surrounding the project site is characterized by open space and rural residential.

### *Project Site Setting*

#### Plant Communities and Wildlife Habitats

Wildlife habitats are generally described in terms of dominant plant species and plant communities along with landform, disturbance regime, and other unique environmental characteristics. The wildlife habitats described in this section are based on the California Department of Fish and Wildlife's (CDFW) A Guide to Wildlife Habitats (Mayer and Laudenslayer, 1988) that is used in CDFW's California Wildlife Habitat Relationships System. The California Wildlife Habitat Relationships (CWHR) habitat classification scheme has been developed to support the CWHR System, a wildlife information system and predictive model for California's regularly occurring birds, mammals, reptiles and amphibians.

Wildlife habitats generally correspond to plant communities. Plant communities are assemblages of plant species that occur together in the same area and are repeated across landscapes. Both species composition and relative abundance define them. Plant communities within the project site were identified using field reconnaissance and aerial photography. Within CDFW's current vegetation classification system, vegetation alliances are the scientifically derived hierarchical class that corresponds best with plant communities and are designed to be the unit for conservation of rare or threatened plant communities (Sawyer et al., 2009). Vegetation alliances typically represent a much finer scale of vegetation description than wildlife habitats but correspond appropriately with one or several wildlife habitat types. CDFW provides crosswalks to help correlate vegetation alliances with wildlife habitats and the descriptions below make use of the crosswalk. A description of each habitat type is presented below. Related vegetation alliances are listed following the wildlife habitat description and are based on the alliance descriptions presented by Sawyer et al. (2009).

Two recent wildfires, the Oregon and Junction Fires, occurred in 2001 and 2006, respectively, and burned much of the project site and surrounding area. The landscape is still recuperating from these fires and the vegetation of the project area is still recovering. Habitats in the rehabilitation areas include aquatic riverine habitat and associated riparian vegetation. Proposed staging areas and access roads are located within mixed hardwood-conifer woodland (disturbed). At the project site, West Weaver Creek is characterized by a single channel. An unnamed intermittent channel drains east to West Weaver Creek east of the project site outside of the project boundary.

### Terrestrial Habitats

*Mixed Hardwood-Conifer Woodland*

This plant community occurs throughout the project site outside of the creek channel and is dominated by ponderosa pine (*Pinus ponderosa*), foothill pine (*Pinus sabiniana*), black oak (*Quercus kelloggii*), and sugar pine (*Pinus lambertiana*). Shrub species associated with this mixed woodland community include poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), buck brush (*Ceanothus cuneatus*), and coyote brush (*Baccharis pilularis*). The understory of this plant community is dominated by forbs and annual grass species. Due to the recent wildfire history of the project site, this vegetation community is disturbed and does not support plant densities and diversity typical of undisturbed examples of this community type. Most trees within the project site were burned during the wildfires. Many saplings are found throughout the project site; unburned matures trees are located sporadically.

***Vegetation Alliances***

- *Quercus kelloggii – Pinus ponderosa* (California black oak – ponderosa pine woodland) Association

*Montane Riparian Woodland*

Montane riparian woodland is present as a narrow band of vegetation along the banks of West Weaver Creek. This community is dominated by white alder (*Alnus rhombifolia*), with big-leaf maple (*Acer macrophyllum*), Fremont cottonwood (*Populus fremontii*), Pacific dogwood (*Cornus nuttallii*), Oregon ash (*Fraxinus latifolia*), black oak, and willows (*Salix* sp) also occurring. The understory supports a dense mix of shrubs and forbs including California blackberry (*Rubus ursinus*), sedges (*Carex* sp.), horsetail (*Equisetum* sp.), stinging nettle (*Urtica dioica*), wild rose (*Rosa* sp.), and poison hemlock (*Conium maculatum*).

***Vegetation Alliances***

- *Alnus rhombifolia* (white alder grove) Alliance

### In-Water Habitat

For fish migrating upstream on Weaver Creek to the confluence of West and East Weaver Creeks, there are no migration barriers. The downstream-most natural fish barrier on West Weaver Creek has been identified as a 7-foot waterfall near Bear Gulch (Ebasco, 1990; USFS, 2004). SONCC coho salmon ESU have not been observed in the project reach during monitoring conducted by the USFS from 2012 to 2106 (spring and fall sampling) (pers. comm., Harvey 2016), and the species is not expected to occur within the project reach under current conditions. The nearest recent (2015) confirmed occurrence of SONCC coho salmon ESU within the main stem of Weaver Creek was below the Little Browns Creek confluence with Weaver Creek, approximately 4 miles downstream of the project reach (pers. comm., Harvey 2016). Spawning within the project reach, while possible, is unlikely due to current habitat conditions including limited suitable substrate and altered stream planform from hydrologic mining and recent fire events and associated erosion. This conclusion is supported by the monitoring results described above.

Juvenile coho salmon may potentially use downstream portions of West Weaver Creek that provide suitable habitat near the heads of riffles where spawning gravels occur or other potentially suitable habitats such as riffle pools and deeper runs, where suitable water temperatures exist. However, coho salmon have not been observed in the project reach during monitoring conducted by the USFS from 2012 to 2106 (pers. comm., Harvey 2016), and the species is not expected to occur within the project reach under current conditions. Juvenile coho salmon could potentially use the project reach for rearing or overwintering, although the project reach is degraded from erosion and fire activity and currently provides low-quality habitat with limited habitat features for juvenile thermoregulation. Therefore, it is unlikely coho salmon currently use the project reach for rearing or overwintering.

In the Upper Trinity River watershed, coho salmon begin entering in early to mid-September and the migration reaches a peak in late September to early October. Arrival in the upper tributaries such as Weaver Creek generally peaks in November and December. As described above, the current distribution of coho salmon spawners in the Upper Trinity River watershed is concentrated in accessible tributaries, like Weaver Creek, below Lewiston and Trinity Dams which greatly reduced spawning habitat with the watershed when constructed. Coho salmon have not been observed in the project reach during monitoring conducted by the USFS from 2012 to 2106 (pers. comm., Harvey 2016), and the species is not expected to occur within the project reach under current conditions. Therefore, it is unlikely adult coho salmon currently use the project reach for migration or spawning.

### *Wetlands and Other Waters of the U.S.*

Wetlands are ecologically complex habitats that support a variety of both plant and animal life. In a jurisdictional sense, the federal government defines wetlands in Section 404 of the Clean Water Act as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b] and 40 CFR 230.3). Under normal circumstances, the federal definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands include freshwater marsh, seasonal wetlands, and vernal pool complexes that have a hydrologic link to other waters of the U.S (see definition below for “other waters of the U.S.”). The USACE) is the responsible agency for regulating wetlands under Section 404 of the Clean Water Act (CWA), while the EPA has overall responsibility for the CWA. The CDFW does not normally have direct jurisdiction over wetlands unless they are subject to jurisdiction under Streambed Alteration Agreements or they support state-listed endangered species; however, CDFW has trust responsibility for wildlife and habitats pursuant to California law.

“Other waters of the U.S.” refers to those hydric features that are regulated by the CWA but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high-water mark. Examples of other waters of the U.S. include rivers, creeks, intermittent and ephemeral channels, ponds, and lakes.

A formal aquatic resources delineation was conducted for the project site by ESA in November 2014 (ESA, 2017b). The aquatic resources delineation identified 0.12 acre of potentially

jurisdictional waters of the U.S. within the project site that are expected to be subject to regulation under Section 404 of the CWA. Potentially jurisdictional non-wetland waters of the U.S. in the project site consist of West Weaver Creek, which is riverine (perennial) habitat. Potentially jurisdictional features within the project site are summarized in **Table BIO-1**. The aquatic resources delineation has not yet been verified by the USACE and should be considered preliminary until verification in writing is received from the USACE.

**TABLE BIO-1**
**POTENTIAL JURISDICTIONAL WATERS OF THE U.S.**

| Map ID | Waters Type – Cowardin Classification | Total Acres | Linear Feet |
|---|---|---|---|
| Other Waters of the U.S. | | | |
| West Weaver Creek | Perennial Channel – Riverine Perennial | 0.12 | 490 |
| **Total Area/Linear Feet of Jurisdictional Features:** | | **0.12** | **490** |

SOURCE: ESA, 2016b

### Perennial Channel (Riverine Perennial)

Perennial channels are classified as "riverine perennial" using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et. al, 1979). A perennial channel is a stream, or stream portion, that flows continuously during the calendar year. Riverine perennial habitat within the project site occurs in the form of West Weaver Creek, comprising approximately 0.12 acre.

## *Sensitive Natural Community*

A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, is structurally complex, or is in other ways of special concern to local, state, or federal agencies. Most sensitive natural communities are given special consideration because they perform important ecological functions, such as maintaining water quality and providing essential habitat for plants and wildlife. Some plant communities support a unique or diverse assemblage of plant species and therefore are considered sensitive from a botanical standpoint. CEQA may identify the elimination of such communities as a significant impact.

Sensitive natural communities include: a) areas of special concern to federal, state, or local resource agencies; b) areas regulated under Section 404 of the CWA; c) areas protected under Section 402 of the CWA; and d) areas protected under state and local regulations and policies. Habitat types on the project site that would be considered sensitive by regulatory agencies include riverine habitats and riparian scrub.

Riparian habitats are considered by state and federal regulatory agencies to represent a sensitive and declining resource. Riparian areas can serve significant biological functions by providing nesting, breeding, foraging, and spawning habitat for a wide variety of resident and migratory wildlife species. Under Fish and Game Code Section 1600, the CDFW takes jurisdiction over the stream or lake zone which is defined by the top of bank or outside extent of riparian vegetation, whichever is the greatest.

The CDFW's *List of California Terrestrial Natural Communities* (CDFW, 2010) ranks vegetation alliances in California according to their degree of rarity imperilment (as measured by rarity, trends, and threats). All alliances are listed with a G (global) and S (state) rank. Alliances with State ranks of S1-S3 are considered of special concern by the CDFW, and all associations within them are also considered to be highly imperiled. CDFW guidance recommends all alliances with State ranks of S1-S3 be considered and analyzed under CEQA. The project site does not support any vegetation alliances that have State ranks of S1-S3.

### *Wildlife Movement Corridors*

Wildlife movement corridors are considered an important ecological resource by various agencies (CDFW and USFWS) and under CEQA. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range. Topography and other natural factors, in combination with urbanization, can fragment or separate large open-space areas. Areas of human disturbance or urban development can fragment wildlife habitats and impede wildlife movement between areas of suitable habitat. This fragmentation creates isolated "islands" of vegetation that may not provide sufficient area to accommodate sustainable populations, and can adversely affect genetic and species diversity. Movement corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between separate populations.

West Weaver Creek, along with its associated riparian corridor, provides a movement corridor for areas upstream and downstream of the project site. The corridors allow common aquatic and terrestrial wildlife species to safely disperse back and forth between suitable habitats upstream and downstream. Highways and roads can present an impassable barrier to many wildlife species and are hazardous for wildlife to cross. Relatively unimpeded waterways such as West Weaver Creek (along with associated riparian corridors) provide important movement corridors, which allow dispersal and subsequent gene flow between wildlife populations separated by roads and populated areas.

### *Special-Status Species*

Special-status species are legally protected under the state and federal Endangered Species Acts or other regulations or are species that are considered sufficiently rare by the scientific community to qualify for such listing. These species are classified under the following categories:

1. Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 Code of Federal regulations [CFR] 17.12 [listed plants], 17.11 [listed animals] and various notices in the Federal Register [FR] [proposed species]).

2. Species that are candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (61 FR 40, February 28, 1996);

3. Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 California Code of Regulations [CCR] 670.5);

4. Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);

5. Animal species of special concern to CDFW;

6. Animals fully protected under Fish and Game Code (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);

7. Species that meet the definitions of rare and endangered under CEQA. CEQA Section 15380 provides that a plant or animal species may be treated as "rare or endangered" even if not on one of the official lists (State CEQA Guidelines, Section 15380); and

8. Plants considered under the CNPS and CDFW to be "rare, threatened or endangered in California" (California Rare Plant Rank [CRPR] 1A, 1B, and 2 in CNPS, 2017) as well as CNPS Rank 3 and 4[1] plant species.

A list of special-status species that have the potential to occur within the vicinity of the project site was compiled based on data contained in the California Natural Diversity Database (CNDDB) (CDFW, 2017a), the USFWS list of Federal Endangered and Threatened Species that Occur in or may be Affected by the proposed project (USFWS, 2017a), and the CNPS Inventory of Rare and Endangered Plants (CNPS, 2017). A list of special-status species, their general habitat requirements, and an assessment of their potential to occur within and adjacent to the project site is provided below in **Table BIO-2**.

The "Potential to Occur" categories are defined as follows:

- **Unlikely**: The project site does not support suitable habitat for a particular species and/or the project site is outside of the species known range.

- **Low Potential**: The project site only provides limited and low quality habitat for a particular species. In addition, the known range for a particular species may be outside of the immediate project area.

- **Medium Potential**: The project site and/or immediate project area provides suitable habitat for a particular species.

- **High Potential**: The project site and/or immediate project area provide ideal habitat conditions for a particular species and/or known populations occur in the immediate project area or within the project site.

[1] CRPR 3 and 4 plants may be analyzed under CEQA §15380 if sufficient information is available to assess potential impacts to such plants. Factors such as regional rarity vs. statewide rarity should be considered in determining whether cumulative impacts to a CRPR 3 or 4 plant are significant even if individual project impacts are not. CRPR 3 and 4 plants may be considered regionally significant if, for example, the occurrence is located at the periphery of the species' range, or exhibits unusual morphology, or occurs in an unusual habitat/substrate. For these reasons, CRPR 3 and 4 plants should be included in the special-status species analysis. CRPR 3 and 4 plants are also included in the California Natural Diversity Database Special Plants, Bryophytes, and Lichens List. [Refer to the current online published list available at: http://www.dfg.ca.gov/biogeodata.].

**TABLE BIO-2**
**REGIONALLY OCCURRING SPECIAL-STATUS SPECIES**

| Scientific Name<br>Common Name | Listing Status<br>USFWS/<br>CDFW/CNPS | General Habitat | Potential to Occur in the Project Area |
|---|---|---|---|
| Fish | | | |
| *Oncorhynchus kisutch*<br>SONCC coho salmon ESU | FT/ST/-- | Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, California. State listing refers to populations between the Oregon border and Punta Gorda. | **Medium**. Project site is within the ESU and designated critical habitat for species. However, no coho salmon have been observed in West Weaver Creek during five years (2012-2016) of pre-restoration sampling (pers. comm., Harvey 2016). |
| *Oncorhynchus mykiss*<br>Central Valley steelhead DPS | FT/--/-- | Federal listing refers to populations in the Sacramento and San Joaquin Rivers and their tributaries. | Unlikely. Project site is outside of DPS for this species. Steelhead in West Weaver Creek are part of the Klamath Mountains Province DPS. |
| *Oncorhynchus mykiss*<br>Northern California steelhead DPS | FT/--/-- | Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead. | Unlikely. Project site is outside of DPS for this species. Steelhead in West Weaver Creek are part of the Klamath Mountains Province DPS. |
| *Oncorhynchus mykiss*<br>Summer-run steelhead | --/CSC/-- | Northern California coastal streams south to Middle Fork Eel River. Cool, swift, shallow water and clean loose gravel for spawning and suitably large pools in which to spend the summer. | Low. Project site provides marginal habitat; West Weaver Creek limited by summer flows. |
| *Oncorhynchus tshawytscha*<br>California coastal Chinook salmon ESU | FT/--/-- | Federal listing refers to wild spawned, coastal, spring and fall runs between Redwood Creek and the Russian River. | Unlikely. Project site is within the ESU for this species, however West Weaver Creek does not provide suitable habitat and species has not been observed using West Weaver Creek. |
| *Oncorhynchus tshawytscha*<br>Central Valley spring-run Chinook salmon ESU | FT/ST/-- | Federal listing refers to populations spawning in the Sacramento River and tributaries. Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. | Unlikely. Project site is outside of ESU for this species. |
| *Oncorhynchus tshawytscha*<br>Sacramento River Winter run Chinook salmon ESU | FE/SE/-- | Sacramento River below Keswick Dam. Spawns in the Sacramento River but not tributary streams. | Unlikely. Project site is outside of ESU for this species. |
| *Oncorhynchus tshawytscha*<br>Upper Klamath and Trinity Rivers Chinook salmon ESU. | --/CSC/-- | Spring run Chinook salmon in the Trinity River and the Klamath River upstream of the mouth of the Trinity River. Major limiting factor for juvenile Chinook salmon is temperature, which strongly effects growth and survival. | Unlikely. West Weaver Creek does not provide suitable habitat and species has not been observed using West Weaver Creek. |
| Invertebrates | | | |
| *Branchinecta conservatio*<br>Conservancy fairy shrimp | FE/--/-- | Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium. | Unlikely. Suitable habitat is not present within the project site. |

**TABLE BIO-2**
**REGIONALLY OCCURRING SPECIAL-STATUS SPECIES**

| Scientific Name<br>Common Name | Listing Status<br>USFWS/<br>CDFW/CNPS | General Habitat | Potential to Occur in the Project Area |
|---|---|---|---|
| Invertebrates (cont.) | | | |
| *Branchinecta lynchi*<br>vernal pool fairy shrimp | FT/--/-- | Lifecycle restricted to vernal pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools. Endemic to the grasslands of the Central Valley, central Coast Mountains, and south coast. | Unlikely. Suitable habitat is not present within the project site. |
| *Lepidurus packardi*<br>vernal pool tadpole shrimp | FE/--/-- | Lifecycle restricted to vernal pools. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turgid. | Unlikely. Suitable habitat is not present within the project site. |
| Amphibians | | | |
| *Ascaphus truei*<br>Pacific tailed frog | --/CSC/-- | Inhabits cold, clear, rocky streams in wet forests. They do not inhabit ponds or lakes. A rocky streambed is necessary for cover for adults, eggs, and larvae. Restricted to perennial montane streams. | Low. Project site provides marginal low quality habitat. |
| *Rana boylii*<br>Foothill yellow-legged frog | --/CSC/-- | Breeds in backwaters or pool tailouts in streams, creeks, and rivers with suitable cobble substrate. | **Moderate**. West Weaver Creek provides suitable habitat for this species. |
| Reptiles | | | |
| *Emys marmorata*<br>western pond turtle | --/CSC/-- | Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks. | **Moderate**. West Weaver Creek provides suitable habitat for this species. |
| Birds | | | |
| *Accipiter gentilis*<br>northern goshawk | --/CSC/-- | Within, and in vicinity of, coniferous forest. Uses old nests, and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees. | Unlikely. Suitable habitat is not present within the project site. |
| *Aquila chrysaetos*<br>golden eagle | --/CFP/-- | Nests on cliffs of all heights and in large trees near open areas. Occurs in rolling foothills, mountain terrain, sage-juniper flats, and rugged open habitats with canyons and escarpments. Preys mostly on small mammals. Breeds late January through August. | Low. Project site provides marginal low quality habitat. |

**TABLE BIO-2**
**REGIONALLY OCCURRING SPECIAL-STATUS SPECIES**

| Scientific Name<br>Common Name | Listing Status USFWS/ CDFW/CNPS | General Habitat | Potential to Occur in the Project Area |
|---|---|---|---|
| Birds (cont.) | | | |
| *Coccyzus americanus*<br>Yellow-billed cuckoo | FT/SE/-- | Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with understory of blackberry, nettles, or wild grape. | Unlikely. Suitable habitat is not present within the project site. |
| *Empidonax traillii brewsteri*<br>Little willow flycatcher | --/SE/-- | Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters, from 2,000 to 8,000 feet. Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches. | Low. Project site provides marginal low quality habitat. The riparian habitat on the project site does not provide preferred habitat elements (i.e. dense thickets of willows, adjacency to meadows) typically used by this species. Nearest CNDDB occurrence over 50 miles away. |
| *Haliaeetus leucocephalus*<br>Bald eagle | BEPA/ SE, CFP/-- | Found at lakes, reservoirs, river systems, and coastal wetlands. The breeding range is generally in mountainous areas near lake or river margins, where they find large trees (usually conifers) with open branches for nesting. | Unlikely. Suitable habitat is not present within the project site. |
| *Strix occidentalis caurina*<br>Northern spotted owl | FT/SCT,CSC/-- | Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy. | Unlikely. Suitable habitat is not present within the project site. |
| Mammals | | | |
| *Antrozous pallidus*<br>Pallid bat | --/CSC/-- | A wide variety of habitats is occupied, including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. The species is most common in open, dry habitats with rocky areas for roosting. Roosts in buildings, caves, tree hollows, crevices, mines, and bridges. | Unlikely. Suitable habitat is not present within the project site. |
| *Canis lupus*<br>Gray wolf | FE/SE/-- | Habitat generalist, historically occupying diverse habitats including tundra, forests, grasslands, and deserts. Primary habitat requirements are the presence of adequate ungulate prey, water, and low human contact. | Unlikely. Project site is outside of current known range. Suitable habitat is not present within the project site. |
| *Corynorhinus townsendii*<br>Townsend's big-eared bat | --/SCT,CSC/-- | Found throughout California in a wide variety of habitats. Roost in caves, mines, tunnels with minimal disturbance but can also be found in abandoned open buildings or other human made structures. Recently detected in hollowed trees. Extremely sensitive to human disturbance. | Unlikely. Suitable habitat is not present within the project site. |

**TABLE BIO-2**
**REGIONALLY OCCURRING SPECIAL-STATUS SPECIES**

| Scientific Name<br>Common Name | Listing Status USFWS/ CDFW/CNPS | General Habitat | Potential to Occur in the Project Area |
|---|---|---|---|
| Mammals (cont.) | | | |
| *Lepus americanus klamathensis*<br>Oregon snowshoe hare | --/CSC/-- | Above the yellow pine zone in Canadian and Hudsonian Provinces in Northern California. Alder and willow thickets in riparian areas; also thickets of young conifers. | Unlikely. Suitable habitat is not present within the project site. |
| *Pekania pennanti*<br>fisher – West Coast DPS | FPT/SCT, CSC/-- | Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs, and rocky areas for cover and denning. Needs large areas of mature dense forest. | Unlikely. Suitable habitat is not present within the project site. |
| Plants | | | |
| *Euphorbia (=Chamaesyce) hooveri*<br>Hoover's spurge | FT/--/1B.2 | Annual herb found in vernal pools. Elevations range from 25 to 250 meters. Blooms July through October. | Unlikely. Project site is outside of current known range. Suitable habitat is not present within the project site. |
| *Cypripedium fasciculatum*<br>clustered lady's-slipper | --/--/4.2 | Perennial rhizomatous herb occurring on seeps and streambanks in lower montane and North Coast coniferous forests, particularly in serpentine soils. Found between 100 and 2,435 meters elevation. Blooms March through August. | **Moderate.** Suitable habitat is present within the project site. However, species not observed during focused botanical survey conducted in 2015. |
| *Cypripedium montanum*<br>mountain lady's-slipper | --/--/4.2 | Perennial rhizomatous herb occurring in broad-leafed upland forest, cismontane woodland, and lower montane and North Coast coniferous forests. Found between 185 and 2,225 meters elevation. Blooms March through August. | **Moderate.** Suitable habitat is present within the project site. However, species not observed during focused botanical survey conducted in 2015. |
| *Juncus dudleyi*<br>Dudley's rush | --/--/2B.3 | Perennial herb occurring in wet areas in lower montane coniferous forests. Elevations range from 455 to 2,000 meters. Blooms July and August. | **Moderate.** Suitable habitat is present within the project site. However, species not observed during focused botanical survey conducted in 2015. |
| *Lewisia cotyledon* var. *heckneri*<br>Heckner's lewisia | --/--/1B.2 | Perennial herb occurring in crevices in cliffs and rocky slopes of granite or basalt in lower montane coniferous forests. Elevations range from 225 to 2,100 meters. Blooms May to July. | Unlikely. Suitable habitat is not present within the project site. |
| *Orcuttia tenuis*<br>slender Orcutt grass | FT/SE/1B.1 | Annual herb found in vernal pools at elevations ranging from 35 to 1,760 meters. Blooms May to October. | Unlikely. Project site is outside of current known range. Suitable habitat is not present within the project site. |

**TABLE BIO-2**
**REGIONALLY OCCURRING SPECIAL-STATUS SPECIES**

| Scientific Name<br>Common Name | Listing Status<br>USFWS/<br>CDFW/CNPS | General Habitat | Potential to Occur in the Project Area |
|---|---|---|---|
| Plants (cont.) | | | |
| *Smilax jamesii*<br>English Peak greenbrier | --/--/4.2 | Perennial rhizomatous herb occurring on streambanks and lake margins in broad-leaved upland forest, marshes, swamps, and coniferous forests. Elevations range from 505 to 1,975 meters. Blooms May to October. | **Moderate.** Suitable habitat is present within the project site. However, species not observed during focused botanical survey conducted in 2015. |

**STATUS CODES:**

**FEDERAL (U.S. Fish and Wildlife Service):**
BEPA = Bald Eagle Protection Act
FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government
FPT = Proposed for Listing as Threatened

**STATE (California Department of Fish and Wildlife):**
SE = Listed as Endangered by the State of California
ST = Listed as Threatened by the State of California
SCT = Candidate for State Listing (Threatened)
CSC = California species of special concern
CFP = California fully protected bird species

**California Native Plant Society (CNPS):**
Rank 1A = Plants presumed extirpated in California and either rare or extinct elsewhere
Rank 1B = Plants rare, threatened, or endangered in California and elsewhere
Rank 2A = Plants presumed extirpated in California but common elsewhere
Rank 2A = Plants rare, threatened, or endangered in California but more common elsewhere
Rank 3 = Plants about which more information is needed
Rank 4 = Plants of limited distribution

CNPS Code Extensions
.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 = Fairly threatened in California (20-80% occurrences threatened)
.3 = Not very threatened in California (less than 20% of occurrences threatened or no current threats known)

SOURCE: CNPS, 2017; CDFW, 2017a; USFWS, 2017a

### *Critical Habitat*

Critical habitat is defined in Section 3(5)A of the Federal Endangered Species Act as the specific portions of the geographic area occupied by the species in which physical or biological features essential to the conservation of the species are found and that may require special management considerations or protection. Specific areas outside of the geographic area occupied by the species may also be included in critical habitat designations upon a determination that such areas are essential for the conservation of the species. West Weaver Creek in the project site has been designated as critical habitat for SONCC coho salmon ESU. Critical habitat has been designated for California Coastal Chinook salmon ESU in the Trinity River approximately 8.5 miles downstream of the project site.

### *Essential Fish Habitat*

Public Law 104-297, the Sustainable Fisheries Act of 1996, amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to establish new requirements for Essential Fish Habitat (EFH) descriptions in federal Fisheries Management Plans and to require federal agencies to consult with NMFS on activities that may adversely affect EFH. The

Magnuson-Stevens Act requires all fishery management councils to amend their Fishery Management Plans (FMPs) to describe and identify EFH for each managed fishery. The Act also requires consultation for all federal agency actions that may adversely affect EFH (i.e., direct and indirect effects). It does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside of EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of the activity's location. Under section 305(b)(4) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. However, state agencies and private parties are not required to consult with NMFS unless state or private actions require a federal permit or receive federal funding. EFH is managed under the FMPs as directed under the Magnuson-Stevens Fishery Conservation and Management Act.

Under the Pacific Coast Salmon Fishery Management Plan, the Trinity River and accessible tributaries have been designated as EFH for coho and Chinook salmon (Pacific salmon). These areas serve as a migratory corridor, holding area, potential spawning, and rearing habitat for both adult and juvenile salmon. West Weaver Creek in the project site has been designated as EFH for Pacific salmon.

## Discussion

a) Special-status species and their habitats that may be affected either directly or indirectly through implementation of the proposed project include SONCC coho salmon ESU, foothill yellow-legged frog, western pond turtle, nesting raptors and migratory birds, and special-status plant species. Each of these potentially affected species is described below.

### *Southern Oregon and Northern California Coast coho salmon*

Based upon the analysis of baseline habitat conditions, the effects of the proposed project on SONCC coho salmon ESU would be limited to potential downstream effects of the proposed project. As discussed above under "In-Water Habitat", it is unlikely coho salmon currently use the project reach due to low-quality habitat conditions from erosion and wildfire activity. Furthermore, coho salmon have not been observed in the project reach during monitoring conducted by the USFS from 2012 to 2106 (pers. comm., Harvey 2016), and the species is not expected to occur within the project reach under current conditions.

The long-term effects of the proposed project would be beneficial for SONCC coho salmon ESU in West Weaver Creek by providing additional suitable habitat within West Weaver Creek and preventing damage from sedimentation to currently suitable habitat downstream that may be influenced by current degraded conditions within the project reach.

A discussion of potential downstream effects and a summary of effects is provided below.

### Potential Downstream Effects

*Turbidity and Sedimentation*

Construction activities will temporarily disturb soil and creekbed sediments, resulting in the potential for temporary increases in turbidity and suspended sediments in West Weaver Creek. Construction-related increases in sedimentation and siltation above the background level could potentially affect fish species and their habitat by reducing egg and juvenile survival, interfering with feeding activities, causing breakdown of social organization, and reducing primary and secondary productivity. The magnitude of potential effects on fish would depend on the timing and extent of sediment loading and flow in the river before, during, and immediately following construction.

Any increase in turbidity associated with instream work is likely to be brief and occur only in the vicinity of the site, attenuating downstream as suspended sediment settles out of the water column. Although suspended sediment from instream work has the potential to adversely affect fish there are several measures that will be used to minimize the effect. In-water work will only occur during a two-month window to limit the duration of the effects and avoid critical life stage periods for SONCC coho salmon. In addition, background suspended sediment during the instream work period is generally very low.

Sedimentation and turbidity from site construction on SONCC coho salmon is a **potentially significant** impact**.** Implementation of **Mitigation Measures BIO-1** through **BIO-3** would reduce impacts to SONCC coho salmon to less than significant. In addition, the proposed project would include preparation and implementation of a stormwater pollution prevention plan (SWPPP) in compliance with the State Water Resources Control Board's General Permit for Discharges of Storm Water Associated with Construction Activity (see Mitigation Measure HYDRO-1). The amount of sediment generated by construction would be minimized by mitigation measures associated with the SWPPP that are designed to minimize erosion and sediment entering the channel. Furthermore, water quality will be monitored to ensure that turbidity, etc. stay within acceptable limits. Lastly, mitigation measures designed to reduce impacts to water quality will be implemented (see Mitigation Measure HYDRO-1 and HYDRO-2). With these measures in place, impacts to fish species and their habitat from turbidity and sedimentation would be **less than significant**.

*Contaminants*

During construction, sources of hazardous materials are associated with heavy equipment, such as fuels, lubricating oil, grease, and/or hydraulic fluid. Materials associated with this equipment could harm aquatic organisms and habitats, either due to a direct spill into the river during instream construction or due to spills occurring on land being washed into the river by storm runoff, a potentially significant impact. However, with implementation of a SWPPP and associated Spill Prevention and Response Plan,

locating the equipment staging area in an upland area away from the West Weaver Creek channel, and implementation of the mitigation measures listed above, impacts to fish species and their habitat from contaminants would be **less than significant**.

#### Beneficial Effects

The long-term effects of the Proposed project would be beneficial to SONCC coho salmon ESU by improving fish passage and habitat quality including potential spawning habitat within the project reach, and improving habitat quality downstream of the project reach by decreasing sedimentation in the lower reaches of West and East Weaver Creeks due to the habitat degradation that currently exists in the project reach.

#### Summary of Project Effects on Critical Habitat/Essential Fish Habitat

West Weaver Creek has been designated as critical habitat for SONCC coho salmon ESU and EFH for Pacific salmon. The proposed project is expected to have direct short- and long-term effects on the designated Critical Habitat of SONCC coho salmon ESU and the EFH of Pacific salmon. Project construction activities are expected to result in short term disturbance to the channel and streambank areas as described above. Localized impacts to water quality may occur due to temporary increases in turbidity and suspended sediment but these effects are expected to be minor and short-term. Therefore, the project would have temporary negative effects to Critical Habitat and EFH, but would provide long-term benefits and increase the quality of the Critical Habitat and EFH in West Weaver Creek. This impact is expected to be **less than significant**.

### *Special-Status Amphibians*

#### Foothill Yellow-legged Frog

Suitable habitat is present within the project site for foothill yellow-legged frog. West Weaver Creek provides suitable aquatic habitat and adjacent areas provide basking habitat. Implementation of the proposed project would include temporary disturbance to perennial stream channel. If present, foothill yellow-legged frogs could experience harassment, injury, or mortality resulting from ground disturbance, operation of construction equipment, increased human presence, and other construction activities. This is a potentially **significant impact.** Implementation of **Mitigation Measures BIO-4** would reduce impacts to foothill yellow-legged frog to less than significant.

### *Special-Status Reptiles*

#### Western Pond Turtle

Implementation of the proposed project would include temporary disturbance to perennial stream channel, which may provide suitable aquatic habitat for western pond turtle. Grading of suitable habitat during construction could directly affect western pond turtle individuals if they are present. This is a potentially **significant impact.** Implementation of **Mitigation Measures BIO-5** would reduce impacts to western pond turtle to less than significant.

### *Nesting Birds*

Under the Migratory Bird Treaty Act (MBTA), migratory bird species and their nests and eggs are protected from injury or death. California Fish and Game Code Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs.

The project site and the immediate vicinity have the potential to support nesting raptors and migratory birds on suitable nest trees along West Weaver Creek. Direct impacts on nesting raptors or migratory birds or their habitat such as removal of trees could result in substantial lowered reproductive success or habitat loss, thereby potentially adversely affecting local population levels. The raptor or bird species could be adversely affected if active nesting, roosting, or foraging sites are either removed or exposed to a substantial increase in noise or human presence during project activities. The impact would be less than significant if construction activities occur during the non-breeding season (i.e., from September 1 through January 31$^{st}$). However, construction activities conducted during the breeding season between February 1$^{st}$ and August 31$^{st}$ could affect the species adversely and result in a **significant impact**. Implementation of **Mitigation Measure BIO-6** would mitigate the impact to **less than significant**.

### *Special-Status Plants*

Based on the CNDDB and CNPS reviews, four special-status plant species were found to have the potential to occur within the habitat types found on the project site: clustered lady's-slipper, mountain lady's-slipper, Dudley's rush, and English Peak greenbrier. The focused botanical survey conducted in 2015 did not locate any populations of these or any other special-status plant species. Therefore, there would be **no impact** to special-status plant species.

b) The project site supports montane riparian woodland, a habitat type that is considered to be a sensitive natural community by the CDFW. Implementation of the project would result in the temporary removal of this riparian habitat. This is considered a **potentially significant** impact. Implementation of **Mitigation Measure BIO-7** would minimize the impact to **less than significant**.

c) Project implementation would require construction activities and discharges of fill material, in the form of logs, Engineered Streambed Material, and boulders, within jurisdictional waters. Temporary impacts to jurisdictional waters would also include the construction of a temporary creek crossing (located along the primary access route, an existing road), which would consist of two (2) 18-inch diameter culverts and gravels. The existing grade will be demarcated with a material which will facilitate re-construction of original grade following removal of the culverts (e.g., filter fabric or a layer of mulch). Gravels associated with the temporary channel crossing of the primary access route will be removed from the channel following completion of the project.

In total, it is estimated that the project could result in up to 0.06 acre (along approximately 490 linear feet) of temporary construction-related impacts to federally-jurisdictional waters. Overall, project implementation, including the permanent placement of spawning gravels within jurisdictional waters, is not expected to result in any net loss of jurisdictional waters through creation of structures in or obstructions to the channel or the conversion of channel waters to uplands, and instead is expected to result in a net increase in aquatic resource functions and services at the project site. Based on the nature of the proposed restoration activities, and the long-term aquatic ecosystem benefits that would result from project implementation, impacts to jurisdictional aquatic features are considered **less than significant**.

d) West Weaver Creek, along with its associated riparian corridor, provides a movement corridor for areas upstream and downstream of the project site. Construction activities may temporarily disrupt wildlife movement within the project area. However, the disturbance would only occur during project construction and the disruption of wildlife movement would be temporary in nature. In channel work will occur at a time of year (June 15$^{th}$ to October 15$^{th}$ – see Mitigation Measure BIO-1) that would avoid impacting migrating SONCC coho salmon. Implementation of the proposed project would not interfere substantially with the movement of fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. In addition, the proposed project would have a long-term beneficial impact on fisheries habitat in West Weaver Creek and downstream in the Trinity River. Therefore, impacts to wildlife or fish movement or migration are considered **less than significant**.

e) Trinity County does not have a tree protection ordinance. Therefore there would be **no impact**.

f) The proposed project is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore there would be **no impact**.

## Mitigation Measures

**Mitigation Measure BIO-1:** The project seeks to comply with the National Oceanic and Atmospheric Administration Restoration Center (NOAA RC) Programmatic Biological Opinion (PBO) and Essential Fish Habitat determination for projects involving restoration of salmonid habitat; as such, it will implement all applicable avoidance and minimization measures as stipulated in the PBO. Furthermore, dewatering and the rescue and relocation of fish by a qualified biologist, as described in sections below, will be conducted in order to avoid and minimize potential impacts to fish including listed salmonids. Finally, the following measures will be used to reduce the likelihood of adverse impacts on salmonids that use West Weaver Creek:

- In-channel work, including all channel and bank modifications, will be restricted to the minimum necessary to support restoration success. In-channel work will be limited to the dry season (June 15th and October 15th).

- Sediment curtains will be placed around the construction zone to prevent sediment disturbed during ground disturbance activities from being transported and deposited outside of the construction zone.

- Silt fencing will be installed along the top of creek bank below upland areas where construction occurs within 100 feet of known or potential salmonid habitat. The contractor shall endeavor to prevent movement of sediment from grading areas into the creek channel

- Spoil sites will be located so they do not drain directly into West Weaver Creek. Spoil sites will be graded to reduce the potential for erosion.

- Equipment will not operate in the active channel except as necessary to construct temporary stream crossings and in-stream habitat structures.

- All project personnel will be instructed on the protection of biological resources, and in particular the special-status species that might be encountered during project activities. They will be trained to stop work upon observation of a special-status species within the work area and to notify a project monitor for additional guidance.

- During the clear and grub phase and construction, as much understory brush and as many trees as possible will be retained. The emphasis will be on retaining shade-producing and bank-stabilizing vegetation.

**Mitigation Measure BIO-2: Prepare a Dewatering Plan.** A dewatering plan will be developed and designed so that any potential discharges to surface water will meet the water quality objectives provided in the *Water Quality Control Plan (Basin Plan) for the North Coast Region* (NCRWQCB, 2011). The Dewatering Plan will describe the procedures necessary to satisfy the requirements of the State of California's General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Storm Water Permit) and the RWQCB 401 water quality certification. The dewatering plan is required to include details on the proposed use of fish screens, intended to prevent entrainment or impingement of small fish (on the suction end of intake pipes), and measures to prevent erosion of sediments downstream.

**Mitigation Measure BIO-3: Fish Rescue.** The following work plan identifies step-by-step activities that will be followed under the direction of an on-site fisheries biologist during fish relocation and salvage at the project location.

1. Block nets with 1/8-inch mesh will be placed in suitable locations determined in the field approximately 100 feet above (i.e., upstream) and below (i.e., downstream) the designated construction area to isolate fish movement and prevent fish from entering the dewatered site. For this project, the construction area includes the portion of the West Weaver Creek where streambed rehabilitation would occur.

2. Once the stream reaches have been isolated, multiple passes utilizing a backpack electrofisher with an output of approximately 1.5 amps will be employed throughout the entire length of the reach to safely and effectively capture and remove fish. Electrofisher passes will continue until a diminishing return on fish captured per pass is reached (i.e., numbers of fish captured per pass are reduced to a level where effectiveness has substantially decreased). The on-site

fisheries biologist will determine when a diminishing return on fish captured has been reached.

3. Once a substantially diminished return has been reached, the fisheries biologists will coordinate with the construction contractors to initiate a partial reduction in flows (through incremental diversion of flows) to slowly reduce the wetted channel area and condense any remaining fish. Additional electrofisher passes will be made as necessary until it has been reasonably determined by the on-site fisheries biologist that all fish have been removed from the site that practicably can be removed.

4. Captured fish from electrofishing (Steps 2 and 3) will be placed in 5-gallon buckets with fresh, clear water and transported to release sites identified during the site reconnaissance. Buckets containing fish will be moved to the release sites frequently, with no more than 50 fish in a bucket at one time and for no longer than 15 minutes. All fish species will be released in pools or slow moving currents (i.e., glides) and will be allowed to gently swim out of the buckets. Representative samples of the captured fish will be enumerated by species prior to release in suitable locations identified. Any potential fish mortalities will also be noted.

5. Once all fish have been captured, transported, and released, the on-site fisheries biologist will clear the site for complete dewatering. During the complete stream diversion and dewatering phase, the on-site fisheries biologists and contractor-provided assistants (number to be determined at the time of dewatering, up to three) will monitor the reach (with fish removal and transporting equipment) for any stranded fish that may have been missed during steps 3 and 4. The stream diversion will take place incrementally (i.e., diverting a portion of the total flow and allowing the water to recede slowly while minimizing erosion potential and turbidity). Any stranded fish will be immediately captured, transported, and released into suitable habitats as described above. Manual capture will also include removal of native fish that are hiding under rocks in the dewatered channel. To the extent practicable, once all stranded fish have been removed, transported, and released, the site will be thoroughly inspected for any potential stranded fish. If the site is deemed to be absent of fish to the extent practicable after inspection, the on-site fisheries biologist, in consultation with construction crews, will clear the site for continued construction operations.

6. The resource agencies will be notified at least two days prior to the expected date that the rescue and relocation will begin.

7. Following completion of fish rescue operations, a Fish Rescue Operation Report will be prepared and submitted to USACE, NMFS, USFWS, and CDFW within one month. The Fish Rescue Operation Report will document the fish rescue and salvage operation, including the estimated number of fish salvaged by species.

**Mitigation Measure BIO-4: Perform Pre-construction Surveys for Foothill Yellow-legged Frog.** Two weeks prior to any disturbance within suitable habitat for foothill yellow-legged frog, proposed disturbance areas shall be surveyed for adult frogs, tadpoles, or eggs by a qualified biologist. If the species is detected, the biologist shall contact CDFW to determine if moving any of the life stages is appropriate. In making this determination, CDFW would consider if an appropriate relocation site exists. If CDFW approves moving the animals, the biologist shall be allowed sufficient time to move the animals from the work site before work activities begin.

**Mitigation Measure BIO-5: Perform Pre-construction Surveys for Western Pond Turtle.** Prior to construction, a qualified biologist shall conduct a survey for western pond turtles within 24 hours of the start of construction activities within 500 feet of suitable habitat located within the construction area. If no individuals are identified, then no additional measures are required. If a turtle is found in a proposed construction area, the biologist would move the turtle from the area to suitable habitat downstream of the project site.

**Mitigation Measure BIO-6: Perform Pre-construction Surveys for Raptors and Migratory Birds.** For construction activities expected to occur during the nesting season of raptors (February 1 to August 31) and migratory birds, a pre-construction survey shall be conducted to determine if active nests are present on or within 500 feet of the project site. The survey shall be conducted by a qualified biologist no more than seven days prior to the onset of construction. If no active nests are identified during the pre-construction survey, no further mitigation is necessary.

If active nests are found on or within 500 feet of the project site, then TCRCD shall notify CDFW and explain any additional measures that a qualified biologist plans to implement to prevent or minimize disturbance to the nest while it is still active. Depending on the conditions specific to each nest, and the relative location and rate of construction activities, it may be feasible for construction to occur as planned within the 500-foot buffer without impacting the breeding effort. Appropriate measures may include restricting construction activities within 500 feet of active raptor nests, and having a qualified biologist with stop work authority monitor the nest for evidence that the behavior of the parents have changed during construction. Appropriate measures would be implemented until the young have fledged or until a qualified biologist determines that the nest is no longer active. Construction activities may be halted at any time if, in the professional opinion of the biologist, construction activities are affecting the breeding effort.

**Mitigation Measure BIO-7: Revegetation.** Revegetation efforts at the site will be undertaken by the TCRCD. Revegetation will consist of limited planting of live poles, container stock and seeding of select species found within or appropriate to the watershed. This effort will be in support of and in addition to seeding for erosion control and site stabilization. Revegetation will occur in the late fall or early winter, to take advantage of seasonal precipitation; the TCRCD will monitor the site and, depending on spring rainfall, may selectively hand-irrigate container stock to facilitate plant establishment.

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# Cultural Resources

| Issues (and Supporting Information Sources): | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | 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 §15064.5? | ☐ | ☐ | ☐ | ☒ |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | ☐ | ☒ | ☐ | ☐ |
| c) Disturb any human remains, including those interred outside of formal cemeteries? | ☐ | ☒ | ☐ | ☐ |
| d) Cause a substantial adverse change in the significance of a tribal cultural resources as defined in §21074? | ☐ | ☒ | ☐ | ☐ |
| e) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ☒ | ☐ | ☐ |

## Introduction

This section provides an assessment of potential impacts on cultural resources that might be present in the vicinity of the proposed project. Cultural resources include architectural resources, archaeological resources, tribal cultural resources, and human remains. Paleontological resources are also discussed in this section. Key terms are defined below.

### *Affected Environment*

The following affected environment section has been excerpted from the Cultural Resources Survey Report prepared in November 2016 (ESA, 2016). The section includes brief contexts for the prehistoric, ethnographic, and historic-period setting in the project site. The project site is the area of direct impact for the project including areas of ground disturbance, staging areas, access, and work areas.

Also included in this section is a summary of the findings of the records search and survey efforts, as well as the findings of the evaluation efforts, including recommendations of significance for cultural resources identified within the project site.

### *Key Terms*

**Architectural resources** include buildings, structures, objects, and historic districts. Residences, cabins, barns, lighthouses, military-related features, industrial buildings, and bridges are examples of architectural resources.

**Archaeological resources** consist of prehistoric and historic-era archaeological resources. Prehistoric archaeological resources consist of village sites, temporary camps, lithic scatters, roasting pits/hearths, milling features, petroglyphs, rock features, and burials. Associated artifacts include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking

debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs). Historic-era archaeological resources consist of townsites, homesteads, agricultural or ranching features, mining-related features, refuse concentrations, and features or artifacts associated with early military and industrial land uses. Associated artifacts include stone, concrete, or adobe footings and walls; artifact filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.

**Tribal cultural resources** are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources.

**Paleontological resources** are the fossilized evidence of past life found in the geologic record. Fossils are preserved in sedimentary rocks, which are the most abundant rock type exposed at the surface of the earth. Despite the abundance of these rocks, and the vast numbers of organisms that have lived through time, preservation of plant or animal remains as fossils can be a rare occurrence. In many cases, fossils of animals and plants occur only in limited areas and in small numbers relative to the distribution of the living organisms they represent. In particular, fossils of vertebrates – animals with backbones – are sufficiently rare to be considered nonrenewable resources.

## *Background Context*

### Paleontological Setting

The Society of Vertebrate Paleontology (SVP) established guidelines for the identification, assessment, and mitigation of adverse impacts on nonrenewable paleontological resources (SVP, 2010). The SVP has helped define the value of paleontological resources and, in particular, indicates that geologic units of *high* paleontological potential are those from which vertebrate or significant invertebrate or plant fossils have been recovered in the past (i.e., are represented in institutional collections). Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be considered significant. Geologic units of *low* paleontological potential are those that are not known to have produced a substantial body of significant paleontological material. As such, the sensitivity of an area with respect to paleontological resources hinges on its geologic setting and whether significant fossils have been discovered in the area or in similar geologic units.

Geologically the area is underlain by a series of folded and faulted metamorphic rocks of Paleozoic and Mesozoic age that have been invaded by batholiths of Late Jurassic and possibly Early Cretaceous age (Clark, 1970:132). The University of California Museum of Paleontology (UCMP) database does not include any specimens from the Paleozoic, Mesozoic, Late Jurassic, or Early Cretaceous periods (UCMP, 2016). Of the 1,084 specimens catalogued in Trinity County, most are from the later Eocene, Miocene, and Pleistocene periods. All of these discoveries have been plants and invertebrates. Seven specimens have been collected in Trinity County from the Silurian, Permian, and Devonian periods of the Paleozoic Era and the Triassic period of the Mesozoic Era. All of these fossils are invertebrate anthozoa, which includes sea anemones, sea fans, and sea pens.

### Prehistoric Setting

Archaeologists developed individual cultural chronological sequences tailored to the archaeology and material culture of each subregion of California. Each of these sequences is based principally on the presence of distinctive cultural traits and stratigraphic separation of deposits. Archaeologists have been refining the sequence of human occupation in northern California and the Central Valley; however, little systematic work has been done in the Trinity River area.

Researchers have focused on archaeological sites in the North Coast Ranges for comparative material to understand major cultural and historical sequences. In 1955, C. Meighan defined the Shasta Complex, also known as the Shasta Aspect of the Augustine Pattern (Fredrickson, 1984:496; Moratto, 1984:195). Identified at sites in the northern Central Valley and adjacent uplands, it is recognized by semi-subterranean dwellings, settlements near streams, a hunting-gathering subsistence base, acorn processing using hopper mortars, and Gunther Barbed arrow points. Archaeologists believe the Augustine Pattern represents a fusion of introduced elements with those of the older Berkeley Pattern, and link it to the spread of Wintuan peoples and cultural influences into the Sacramento Valley (Fredrickson, 1984:525). Surveys and excavations associated with construction of the Shasta, Trinity, and Whiskeytown reservoirs supported continuity between archaeologically recognized patterns and ethnographically recorded Wintu culture, as well as reiterated the local prevalence of the Shasta Complex. As a result, "the largely homogenous archaeological record in the areas of the major reservoirs ... was believed to express a time depth-not exceeding 900 years" (Raven, 1984:448 cited in Medin and Allen, 1998).

Fredrickson (1974) initially divided human history in the Central Valley into three broad periods: the Paleoindian period, the Archaic period, and the Emergent period. This scheme used sociopolitical complexity, trade networks, population, and the introduction and variations of artifact types to differentiate between cultural units. New radiocarbon dates are used by Rosenthal et al. (2007:150–159), who have divided human history in central California into five broad periods: Paleoindian (11,550 to 8500 B.C.), Lower Archaic (8550 to 5550 B.C.), Middle Archaic (5550 to 550 B.C.), Upper Archaic (550 B.C. to A.D. 1100), and Emergent (A.D. 1100 to the historic-period). Economic patterns, stylistic aspects, and regional phases further subdivide cultural periods into shorter phases. This scheme uses economic and technological types, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods. The five broad periods are described below.

The **Paleoindian Period** (11,550 to 8,550 B.C.), characterized by big-game hunters occupying broad geographic areas, is represented in the Central Valley region by only three locations in the San Joaquin Valley where early concave base points have been found at scattered surface sites. These points have been compared to Clovis points, the distinctive projectiles points that have been dated to approximately 11,550 and 9,550 B.C. At the Tulare Lake site in the southern San Joaquin Valley, uranium series dates were obtained on human bone fragments producing uncalibrated dates ranging from 11,379 to 15,802 RCYBP.[2] However there is no solid association between the bones and the points at this location.

[2] Radio Carbon Years Before the Present

During the **Lower Archaic Period** (8550 to 5550 B.C.), geographic mobility continued from the Paleoindian Period; the era is characterized by large wide-stemmed and leaf-shaped projectile points. One Lower Archaic archaeological site has been identified in the Central Valley and includes a small lithic artifact assemblage and a small amount of faunal remains that included fish, waterfowl, mussels, and a few fragments of artiodactyls (deer/elk) bone. Despite the lack of abundant large mammal remains from the site, the size of the projectile points has led to the interpretation that hunting big game was predominant during the Lower Archaic. While no milling equipment from this period has been located in the Central Valley, evidence from the adjacent Sierra Nevada and Coast Range foothills imply a reliance on plant foods, including acorns and pine nuts.

At the beginning of the **Middle Archaic Period** (5550 to 550 B.C.) climate change, including warmer, drier conditions and rising sea levels, ultimately led to the development of the Sacramento-San Joaquin Delta. As a result of initial deposition and later stabilization, alluvial landforms buried many Middle Holocene-aged surfaces. Subsequently, many sites from the Middle Archaic have been located in a buried context especially in the foothills of central California. Deposits associated with early-Middle Archaic sites include artifact assemblages of flaked and ground stone tools used for resource procurement and processing; few beads or ornaments have been found. However, by the later Middle Archaic there is a recognizable shift towards sedentism as reflected by more developed material assemblages such as the mortar and pestle, non-utilitarian artifacts, and numerous trade goods including the first cut shell beads. Plant and animal remains as well as unique burial practices indicate year-round occupation at selected locations.

During the **Upper Archaic Period** (550 B.C. to A.D. 1100) geographic mobility may have continued, although groups began to establish longer-term base camps in locations from which a more diverse range of resources could be exploited. The first rich black middens are recorded from this period. The addition of milling tools, obsidian and chert concave-base projectile points, and the occurrence of sites in a wider range of environments suggest that the economic base was more diverse. Widespread goods such as *Olivella* beads, *Haliotis* ornaments, obsidian bifacial points, and ceremonial blades indicated specialized technologies. By the later Upper Archaic, mobility was being replaced by the development of numerous small villages.

The **Emergent Period** (A.D. 1100 to the historic-period) included social complexity developing toward lifeways of large, central villages with resident political leaders and specialized activity sites. Artifacts associated with the period include the bow and arrow, small corner-notched projectile points, and a diversity of beads and ornaments.

### Ethnohistoric Background

Prior to Euroamerican settlement, speakers of the Wintu language occupied the Trinity River drainage and portions of the Sacramento River drainage (Lapena, 1978:324–340). They lived in permanent villages along the river and, during summer and fall months, moved into hill or mountain areas following a typical seasonal subsistence mode. Salmon was a dietary staple, but other fish species, deer, bear, rabbits, and other small mammals contributed to their diet. Acorns, preferably nuts from the blue oak or black oak, were collected and stored for year round consumption. Other vegetal foods included buckeye, pine nuts, berries, wild onion, bulbs, tubers,

greens, and grasses. People traded locally available materials for imported objects or for access to resources such as obsidian at Glass Mountain to the east. Among the Wintu, inter-village or inter-tribelet trade was more common than intertribal trade. Wintu peoples living along the McCloud River traded salmon to the Achumawi for salt and to the Bald Hills Wintu for acorns and seeds or clam shell disks. Clam shell disks were traded from the south, growing more valuable the further north they were imported. Wintu peoples traded deer hides, pine nut necklaces, acorns, and woodpecker scalps to the Shasta in the north for dentalia and some obsidian.

### Historic-period Setting

This section has been adapted from Medin and Allen (1998).

#### *Early Exploration and Settlement*

The first Euroamerican contact in the region occurred when Jedediah Smith's expedition blazed a trail to southern Oregon in 1828. Early Euroamerican activity in the Trinity County area was limited to casual exploration or traversing the region en route to the Willamette Valley or to Sacramento (Colby 1982). The first settler in the area was Pearson B. Reading. In 1845 he received a Mexican land grant near Redding and named it Rancho Buena Ventura. Reading built a house, ran cattle, planted fruit trees, and planted the first grapevines north of Sacramento (Lawson 1986:22). Reading was one of the first to explore the Trinity River system.

During the 1830s and 1840s settlers in the Trinity County area found their occupational opportunities limited to trapping, ranching and lumbering (Colby 1982:16). Agricultural production was geared to personal consumption rather than for market sale. As California's Euroamerican population grew, settlers established more regularized exchange routes and sold their surplus to newly arriving immigrants. This rural agrarian lifestyle was disrupted in 1848 with the discovery of gold at Sutter's Mill in Coloma and the subsequent influx of people into northern California. In 1848, Reading mined the Trinity River near Douglas City, at what is now Readings Bar. His return route blazed the Shasta-Weaverville Road, traveling from the Weaverville basin up Rush Creek to the Lewiston area, over Trinity Mountain, then down to Shasta (Colby 1982:16, 32). News of Reading's success drew miners to the remote diggings in Trinity County.

#### *Settlement and Growth in Weaverville*

In 1850, Sacramento newspapers publicized the diggings along Weaver Creek and miners rushed to the area. The town and creek were named for a prospector (either John or George Weaver) who is credited with building the first cabin in the basin (Gudde, 1975:365). In 1851, Weaverville consisted of one round tent and four log cabins. Two years later a school and hospital were established (Cox, 1940:138). Townspeople made their first attempt at officially incorporating Weaverville in 1855, electing city officers (Brott, 1982:13). Fire caused much destruction during the town's beginnings. An 1853 fire burned nearly half the town and two years later another burned 29 houses. Only two months later, in December 1855, a third fire destroyed many more buildings. Danger would have been greater, but townspeople had begun to construct buildings with brick (Cox, 1940:138). Twenty brick buildings dotted the town streets by 1859 (Jones, 1981:54). By 1862 Weaverville was served by 28 saloons.

Weaverville residents mined the surrounding area using available mining technology. The 1850s saw the use of “gold pans, long toms, rockers, and ground sluicing” (Jones, 1981:54). Many miners considered the ground to be worked out and abandoned their claims. It was a common pattern for Chinese miners to move into the supposedly worked-out areas (Jones, 1981:224). The town was home to as many as 1,000 Chinese miners. In 1854, Hong Kong and Canton Tongs engaged in a “Tong War” over disputed gambling winnings encouraged by white spectators. The war made newspaper headlines throughout the northern part of the state (Brott, 1982:10). The Chinese community also constructed a temple (“Joss House”) in 1850, which burned in 1869, and was rebuilt in 1874—the oldest continuously used Chinese temple in California and today a historic landmark in Weaverville.

According to one newspaper account (Givin, 1898:32), the years 1855–1860 were the most prosperous in Trinity County. Low-lying areas near sources of water were extensively mined during this period when "Money was plentiful and times were good." Extensive construction of water conveyance systems -- ditches, hollowed wood logs, flumes, and penstocks -- allowed the mining of higher grounds above the creeks in the 1860s. As the gold became harder to extract, miners looked for ways of improving the local mining technology.

Isaac Woodbury was the first to use the new technology of hydraulic mining at his mine in Garden Gulch near Weaverville (Givin, 1898:32). The appearance of the monitor in 1870, and its use in hydraulic mining, forever changed the surrounding landscape and mining technology. Hydraulic technology allowed expansion of mining to high benches previously inaccessible or unprofitable due to their distance from water. A mining boom was the result of the new technology (Jones 1981:54). Around 1870, Weaverville shipped about 1.5 million dollars worth of gold annually (Gudde, 1975:365). By the end of the century, miners had named and exploited most of the watersheds around the town of Weaverville, including in the specific project area (**Figure CUL-1**).

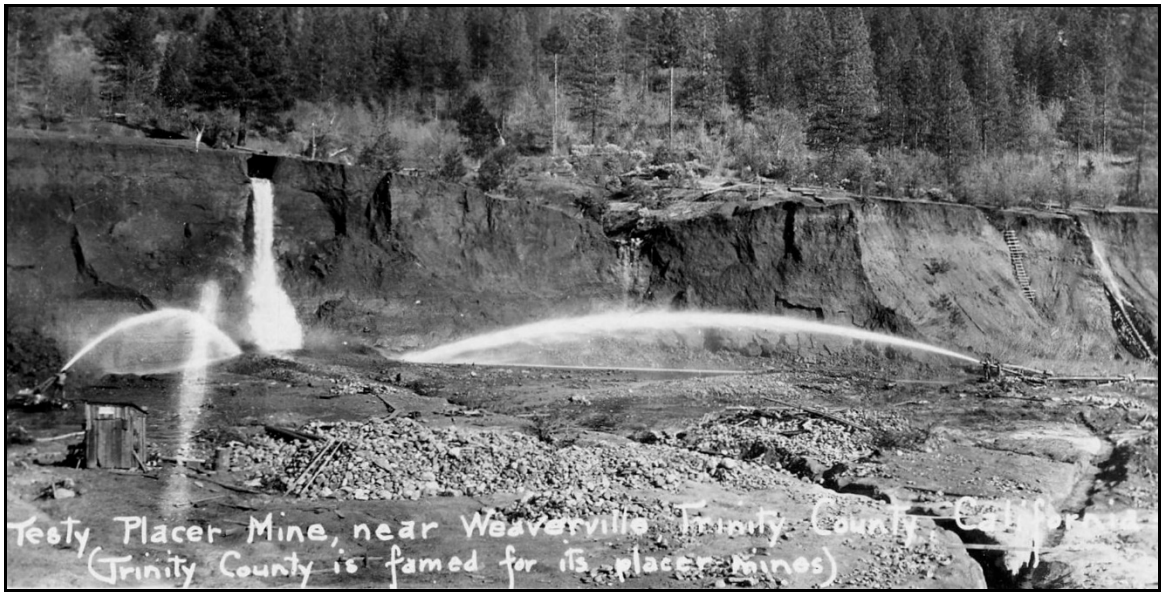


**Figure CUL-1**
Testy Placer Mine, near Weaverville

Most of the mines in operation around Weaverville were small, independent operations. Annual reports of the State Mineralogist do not list many mines in the Weaverville area. Posting a location notice was one of the first steps in staking a mining claim. The purpose of the notice was to indicate "to all other persons that the locator has found mineral therein, and has made a claim to a definite portion of the deposit and a definite amount of ground" (Stretch, 1907:167). If they thought an area was paying well, miners filed a claim at the local Weaverville County Recorder's, who for many years during the late 19th and early 20th centuries was R.L. Carter. Statutes of the United States defined a mining claim as:

> that portion of a vein or lode and of the adjoining surface, or of the surface and subjacent material, to which a claimant has acquired the right of possession by virtue of a compliance with the laws of the United States and the local and customs of miners, and must contain at least one known vein or lode; but the vein or lode is not the whole claim. It includes the exclusive right and enjoyment of all the surface within the lines of location (Ricketts, 1893:532).

Mining claims were made according to State law, although that law stated that local entities were entitled to make "rules and regulations not in conflict with the laws of the United States, or of the State or Territory." Miners, then, could to some extent dictate the form of their local mining district, especially with regard to rules "governing the location, manner of recording, and amount of work necessary to hold possession of a claim" (Ricketts, 1893:525). Placer claims could be located and patented on any public domain lands, including national forests and lands set aside for railroad grants (Gardner and Johnson, 1934a:21). Any citizen of the United States could make a mining claim, or even someone who stated their intention of becoming a citizen. State law specifically noted that this included "minors, females, and corporations." Another necessary prerequisite to mining claims was that a vein or lode must be present on the ground being worked (Ricketts, 1893:536–537). In order to patent their claim, miners had to show a certain amount of labor expended and improvements implemented in developing the mine.

In Weaverville, family members often filed claims together. For example, the Effie Belle Placer Mining Claim filed by J.W. Armentrout included his daughters and sons Harriet, Loag, Jemima, Everett, Effie B., and John Wesley as well as a family friend Orrin Lobdell. Many mines were owned by business partners, or combinations of family and friends.

The La Grange Mine near Weaverville, one of the largest in the state, is an example of mining holding consolidation. Many individual miners staked claims along Weaver Creek to Oregon Gulch. In 1873, Peter Paulsen and Orange Loveridge began the consolidation of these mines. In 1879, they sold their holdings to a group of Weaverville businessmen who sold it to Baron La Grange in 1892 for $250,000. The Baron brought in a French engineer who expanded the water conveyance system up to Stuart Fork. It eventually grew into a 29-mile system of ditches, flumes, and tunnels (Jones, 1981:146).

Mining was not the only industry in northern California, but it dominated the economy. In the early years of the Gold Rush, agriculture was confined to tilling small units of land. Cattle raising was practically the sole business of early settlers (Mansfield, 1918:40). As men left the mines for the fields, the State's population grew, transportation improved, and agriculture superseded

mining in the State's economy. Federal census data show this trend: in 1850, 75% of the work force were miners while farmers were only 1.5%; in 1860 miners were 36% of the work force while farmers were almost 10%; by 1870 miners were only 15% of work force while farmers represented 26% (Moore, 1970:39,47,49). Barley and hay were the first marketable crops. Other crops included wheat, oats, rye, com, peas, beans, potatoes, and onions. Farmers also produced butter, cheese, and eggs for market. Fruit trees also produced important crops, especially apple, peach, and plum trees (Cox, 1940:159). Farmers sold their produce to miners, large mule teams, great pack trains, stage companies, and local restaurants and hotels (Elliott and Moore, 1880:22).

Lumbering also was an important component to the economy. Mines used an enormous quantity of lumber in flumes, shoring, housing, and general equipment. Lumber production in Shasta and Trinity counties was limited to production for local markets. Rough lumber was hauled some distance over the early roads, but it was too expensive to haul logs any distance. With the development of the diesel truck and macadamized roads, the cost of transporting logs was low enough to offset the waste at the mill (Colby, 1982:55).

Widespread adoption of hydraulic technology also created a mini-industry in Weaverville focused on the manufacture of iron piping for the mines. Weaverville supplied local miners as well as those in nearby Douglas and Junction cities.

According to an early newspaper account (Givin, 1898:32), local miners did not attempt quartz mining in the area as they were not familiar with the methods of prospecting for mineral ore. The few attempts made at quartz mining in the 1870s around the Weaverville area were not successful. Quartz mining gained significance in the 1880s, and peaked around 1905. Intervening decades had seen the arrival of the automobile and electricity, the establishment of the Trinity Forest Reserve, a large fire in Chinatown, and the purchase of a town fire engine (Jones, 1981:57). By 1898, Trinity was fourth amongst the counties in California in gold production (Givin, 1898). Eastern United States capitalists invested $425,000 of needed capital in the La Grange Mine in 1905 and three years later La Grange bought out the Sweepstakes Mine. Some small mine operators were still working in the area.

The 1916 Report of the State Mineralogist lists the following active mines in the vicinity of the project area:

> Potilla, in Sec. 11, T. 33 N., R. 10 W., in the Weaverville mining district, 1 mile west of Weaverville. Owner, F. Potilla; comprises 30 acres, on Grub Gulch; slate bedrock; depth of gravel, 20 feet; water from Grub Gulch; through a ditch 1-1/2 mile long; equipment; giant and 800 feet of pipe; small producer; best values on bedrock.

Examples of other hydraulic mines in the vicinity were the *Meckel* mine (180 acres, with two men employed making repairs, and eight men during operating season), *Joss* mine (operated by William Lowdon, 139 acres), the *Horseshoe and Homestake* mine (formerly known as the Testy mine, 170 acres), *Poverty Flat* mine (operated by the Lorenz Brothers, comprising 30 acres), and the *Trinity Consolidated Hydraulic* (made up of 2,429 acres, employing 15–40 men). The largest of the placer gold hydraulic mines was the *La Grange*, made up of a consolidation of mines with more than 3000 acres, 3000-foot-long sluice boxes, 27 miles of ditches and flumes, its own

sawmill, ice plant, and electrical plant and 30 men employed all year round, with seasonal employees as needed. In total, there were 87 hydraulic mines in operation in Trinity County. The 1916 State Mineralogist report also lists more than 60 quartz mines, six ground sluicing placer mines, eight drift mines and two gold dredging fields in operation in Trinity County.

### *Miners and Townspeople*

The population of Weaverville miners was made up from a variety of ethnic backgrounds. Most miners were from European countries. French, German, English, Irish, Dutch, Swedish, Norwegian, and Portuguese immigrant miners could all be found in the Weaverville area in the 1850s. English and Irish miners dominated the scene. Of the U.S. citizens that came west to California, the majority of miners were of similar backgrounds to the European immigrants. Several minorities also came to the Weaverville area to become miners. Primary among these were the Chinese (Brott, 1982). Other groups included African Americans (Martin et al., 1981:27), Native Americans, and some Hispanic miners. Mexicans were also well known as pack-train drivers and were regarded for their experience and knowledge in driving mule teams (Martin et al., 1981:28). Minority groups often congregated in specific areas within the larger town. Chinatown in Weaverville is an example of this.

Many miners came into the area with the intention of mining, finding their fortune, and leaving. Mostly these were single men. This was particular true of immigrants to California such as the Chinese, but also included many of the Europeans. Others came to Weaverville with the intention of staying, and brought or raised a family there. Several miners actively mined with their grown children. Mining was generally restricted to the winter months, when water was running, and many found other occupations as well. Merchants, restaurant owners, surveyors, even lawyers were often part-time miners. As the population of miners in Weaverville grew, so did the number of careers necessary to support the miners.

### *World War I to the Present*

Economic factors associated with World War I caused the La Grange Mine to close in 1919 (Jones, 1981:176–179). One estimate puts the mine's total production at $8 million worth of gold (Clark, 1970:145). Not everyone saw the closing of the La Grange Mine as a hardship. Several small-time miners took advantage of the new accessibility to water, now that much of it was no longer being diverted to the large mine.

With the collapse of most mining activities with the arrival of World War I, however, Weaverville took an economic downturn. The town's population was at its lowest point, 500 inhabitants. Stock raising continued in the area, but the days of large-scale placer mining were over. Technological changes precipitated development of drag line and bucket dredges for mining gold in river beds.

Agriculture and logging dominated the economy of Trinity County through the 1920s. The Depression of the 1930s saw a marked increase in gold production. Many individuals found it profitable to rework tailings deposits from earlier mining periods. The Federal government, recognizing the economic benefit of this work, exempted claim owners from doing their annual assessment work in 1932 and 1933 (Gardner and Johnson, 1934a:22). The U.S. Bureau of Mines

Information Circular of 1934 described several mines in Trinity County with operating costs of 7 to 20 cents per day. These mines used existing ditches and often reworked tailings piles (Gardner and Johnson 1934b:41–46).

Renewed interest in mining spurred construction of dams on the American, Feather and Yuba Rivers in order to comply with the Sawyer Act (Hagwood, 1970). Congress was willing to fund these projects because of the potential to revive a profitable industry as well as the opportunity for public works projects (Kelley, 1959:298). Mining never revived to the extent hoped for by its advocates. Other economic activities continued to have more importance than mining. Many sawmills were established in Trinity County during the 1940s, including four in the Weaverville area (Belden, 1997).

The onset of World War II again limited gold production with the War Production Board actually forbidding mining. In 1944, gold production reached the lowest point since 1848. After the war, gold production increased slowly. Bucketline dredges resumed operations but not at the industrial scale as before the war (Clark, 1970:8). In the 1950s, the lumber industry grew to be a major force in Trinity and Shasta counties' economies.

Today, logging, mining, boating, and fishing all contribute to the local economy. A growing tourist industry and attraction to newcomers due to the town's attractive rural setting have also fostered the rebound of Weaverville and its steady growth over the past several decades. Currently, recreation and tourism have more economic influence than mining (Lawson, 1986: 135).

*Environmental Consequences of Mining*

The environmental impact of hydraulic mining was quite severe. Valley residents had long been complaining about the destructive consequences of mining, but their numbers were too small to carry any weight. Mud and gravel clogged rivers making them unnavigable, clogged the streams that irrigated crops, choked orchards, flooded towns, and buried tilled fields. Fanners and town merchants depended on miners for their livelihood. That dependence, together with the laissez faire attitude of the late 19th century, explains the lack of organized opposition to mining interests (Hagwood, 1970; Kelley 1959). As their numbers grew and their economic clout increased, farmers became more vocal regarding the impacts of hydraulic mining. Years of fighting produced little action until the issue was decided in court.

In 1882, Edwards Woodruff brought suit against the North Bloomfield and other mines along the Yuba River, claiming the mining companies had no right to dump their tailings into streams without regard for downstream landholders. The case went on for a year and a half, finally culminating in the famous Sawyer Decision of 1884. Judge Sawyer issued a decree prohibiting the dumping of debris into the Sacramento and San Joaquin Rivers and their tributaries (Clark, 1970:7). Sawyer also enjoined companies owning the ditches from allowing anyone to use their water supplies for hydraulic mining (Kelley, 1959:240).

Of course the legal decision did not result in the immediate cessation of hydraulic mining. Sawyer's decision only limited mines releasing their tailings into the Sacramento River system.

For mines in Trinity County, the Sawyer decision was irrelevant. The hydraulic mining run off flowed into the Trinity River which flowed in to the Klamath, then the ocean. As there were no downstream impacts to agriculture, mines on the Trinity River continued hydraulicking activities during the court battles. The La Grange Mine affected Weaver Creek and the Trinity River and did not fall under the decision (Woods, 1988:64).

There were several years of bitter struggle over enforcing the injunctions. Farmers continued to suffer during spring runoff and the people living along the Sacramento River continued to experience problems with flood control and navigation. Throughout this struggle, agriculture continued to expand and dominate the State's economy. More San Francisco merchants sold wheat from Central Valley farms than traded gold from Sierra mines, thus the farmer's concerns carried political weight. The public and the State legislature debated the issue and in 1893 passed the Caminetti Act. The Act placed all hydraulic mining in the Sierra Nevada under the control of the California Debris Commission. The Commission regulates hydraulic mining and is empowered to assess mines to build debris dams (Kelley, 1959:282). This compromise between mining and farming interests finally settled the controversy for the northern Sacramento Valley.

## *Cultural Survey Methods and Findings*

### Background Research Methods

ESA staff conducted a records search at the Northeast Information Center (NEIC) of the California Historical Resources Information System on October 27, 2014 (File No. W14-158). The purpose of the records search was to: (1) determine whether known cultural resources have previously been recorded in a ½-mile radius of the project site; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby resources; and (3) develop a context for the identification and preliminary evaluation of cultural resources. The records search consisted of an examination of the following documents:

- **NEIC base maps** (USGS Weaverville, California 7.5-minute topographic map), to identify recorded archaeological sites and studies within a ½-mile radius of the project site.
- **NEIC base maps** (USGS Weaverville, California 7.5-minute topographic maps), to identify recorded architectural and structural resources and studies within or immediately adjacent to the project site.
- **Resource Inventories**: *California Inventory of Historical Resources. Historic Properties Directory Listing for Trinity County* (through April 2013); Caltrans' *Historic Bridge Inventory*.
- **Historic Maps:** Official Map of Trinity County, 1894; USGS Redbluff 15-minute topographic quadrangle, 1890; Weaverville 7.5-minute topographic quadrangle 1913, 1950.

Twenty-five (25) historic-era cultural resources have been previously identified with the records search radius; nearly all mining-related, primarily tailing piles, sluice cuts, pipe segments, water conveyance features, and artifact concentrations. Sixteen (16) resources are contributing elements to the West Weaver Creek Mining Landscape Historic District. Previous studies also resulted in

the identification of one prehistoric artifact within the records search radius—an isolated obsidian biface base identified within the boundaries of a large historic-era mining complex.

### Background Research Results

*P-53-001711 – West Weaver Creek Mining Landscape Historic District*

The West Weaver Creek Mining Landscape Historic District is immediately south of the project site, encompassing the watersheds of West Weaver Creek and Grub Gulch. The District incorporates 34 resources. Twenty-three (23) have been evaluated as contributing elements consisting of mining-related tailing piles, hydraulicking cuts, prospect pits, roads, habitation areas, and water conveyance features such as ditches. Eleven (11) resources have been determined non-contributing elements including isolates, can scatters, tailing piles, roads, and house pads due to a lack of integrity or historical association.

The District has been recommended eligible for the National Register of Historic Places (National Register) under criteria A, C, and D (KEA, 1998). Elements of the District are associated with events that have made a significant contribution to history (criterion A), as a representative of mining activity in the historic Weaverville Mining District. The District also encompasses features that embody a distinctive characteristic of a cultural type (criterion C), by conveying historic mining land use patterns through a large number of interrelated features that have survived with integrity. Additionally, the District contains several archaeological sites that have the ability to yield information about the historic mining past (criterion D). Archaeologists completed the evaluation for a survey of specific BLM units as part of a proposed land exchange. The District boundaries included both federal lands and private property by considering topography and historic land use; however specific features outside of BLM property were not accessed. This included the current project site north of the confluence of Grub Gulch and West Weaver Creek where, it was noted, KEA archaeologists, BLM archaeologists, and Forest Service archaeologists were aware of extensive unrecorded mining remains on Forest Service lands and private property. The authors suggested that if those resources were found to be contributing elements, the District boundary may be expanded.

*CA-TRI-1936H (P-53-001936) – West Weaver Slick and Sluice*

South and west of the project site is CA-TRI-1936H or the “West Weaver Slick and Sluice” mining area. The site is primarily on the on the west side of West Weaver Creek with some tailing pile features on the east side of the creek (south of the project site and Grub Gulch). The site consists of an extensive area at the confluence of West Weaver Creek and Grub Gulch with evidence of hydraulic mining and ground sluicing. The site is described as “piles of rock tailings as far as the eye can see” (Kerrigan, 1981a). Also within the site boundaries are several ditches and five large artifact concentrations primarily consisting of metal artifacts such as pipe lengths, shovel heads, stove parts, and pots, as well as ceramic and glass fragments. According to Jackson and Smyth (2002), this general area may be part of the Grub Gulch Claim, which encompassed portions of Sections 2, 3, and 11 in Township 33 North, Range 10 West. The claim was owned by a number of parties over the years including: La Grange Placer Mining Co. (1895–1946), Byron Stookey (1847–1958), Unknown (1958–1965), R.W. Brandes & E.J. Regan (1966–1975), Raul Edgren (1976–1977), and Mel J. Simmons (1977–?) (Kerrigan, 1981a).

*CA-TRI-1940H (P-53-001940) – West Weaver Can Dump*

Partially within the project site is CA-TRI-1940H or the "West Weaver Can Dump" (Kerrigan, 1981b). The site was recorded separately from CA-TRI-1936H presumably because site constituents are all on the east side of West Weaver Creek. The site consists of a concentration of cans, pipe fragments, a wash basin, a saw blade, plastic pieces, and glass fragments. Diagnostic cans and glass date from the 1880s to the present. Two tailing piles are also within the site boundaries. This site was relocated during the current survey effort and is described in the Results section below.

### Native American Communication

ESA contacted the Native American Heritage Commission (NAHC) on November 25, 2014 to request a search of their sacred land file and a list of Native Americans in the vicinity who may have an interest in the proposed project. On December 19, 2014 the NAHC responded that a search of the sacred land file failed to indicate the presence of Native American cultural resources in the immediate project area. The NAHC also provided contacts for additional information. ESA sent a letter to each individual on January 15, 2015 requesting information and comments about cultural resources in the project area. No comments have been received as of this writing. USFS will conduct additional Native American consultation as required by Section 106 of the National Historic Preservation Act.

### Survey Methods

ESA archaeologist R. Scott Baxter conducted a surface survey of the project site on November 2, 2014. Scott surveyed in 10-meter transects trending north-south. The irregular terrain required adapting this methodology to some extent. Groundcover was composed of fairly dense grasses providing less than 25% ground visibility. Along West Weaver Creek dense riparian shrubs and trees completely obscured the ground surface. Exceptions to this were the tailing piles, which were devoid of soils and vegetation, as well as the vertical surfaces of some of the mining excavations. Cultural resources were documented using a Nikon digital camera and were recorded on a Department of Parks and Recreation (DPR) form 523.

### Survey Results

*Prehistoric Resources*

No prehistoric archaeological resources including midden soils, artifacts, or faunal remains were identified as part of the records search or during the survey. No features such as bedrock milling features were identified.

*Historic-period Resources*

Originally designated as the West Weaver Can Dump (CA-TRI-1940H) by Kerrigan (1981), ESA updated the site record to better reflect the mining and habitation within the project site.

The entire project site has been subject to mining activities. The most obvious remains of this activity are a series of deep hydraulic cuts and associated tailing piles originally recorded as part of CA-TRI-1940H. These are mostly concentrated just down slope (west) of State Highway 299. Both the cuts and the tailing piles trend to the east-west, cutting upslope, roughly perpendicular to the creek. The deepest cuts are 12–15 feet deep. The tailing piles are formed of 6- to 18-inch-

diameter rounded cobbles. A short segment of a ditch was identified between two of these cuts, and appears to have been truncated by later mining activity.

Also present in the project site, and associated with CA-TRI-1940H, are two locations that may be the remains of small structures. One is a small rectangular depression, measuring approximately 10 feet per side and three feet deep. The other is a rectangular rock alignment measuring approximately 9 by 11 feet. The 1950 USGS Weaverville 7.5-minute topographic quadrangle shows a road and structure. The road cut is still apparent on the landscape. The structure may be represented by one or another of the remains of small structures documented during the survey effort, but the archaeological evidence is not sufficient to pinpoint the association.

Adjacent to the small rectangular depression is a small refuse scatter or can dump, measuring approximately 40 feet in diameter. This feature includes approximately 60 cans of various types, bottle glass, iron stove fragments, and automobile parts. The material appears to date to the 1930s or later.

The site area has been impacted by the cutting of several relatively recent roads used during fire fighting activities. The site area has also been subject to modern dumping activity, most notably a circa 1970 automobile. These impacts have disturbed the site's ability to convey historic mining, and the introduction of more recent artifacts has confused/clouded the site's history based on study of the artifacts present.

#### Cultural Evaluations and Recommendations for Significance

To be eligible for listing in the National Register or the California Register of Historical Resources (California Register), a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria to be eligible for listing in the National Register:

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least fifty years old to be eligible for National Register listing (NPS, 1990).

An historic property must retain sufficient integrity to convey the reasons for its significance (NPS, 1990). The National Register lists seven types of integrity that must be sufficiently

demonstrated by a resource. These are location, design, setting, materials, workmanship, feeling, and association. The criteria for eligibility for listing in the California Register include criteria 1–4, which closely parallel National Register criteria A–D, as well as a similar integrity requirement.

*Recommendations for the National and California Registers*

Medin and Allen (1998:93) identified ditches, roads, hydraulicking cuts, prospecting pits, mining complexes, and multi-component sites as part of the larger West Weaver Creek Mining Landscape Historic District. Contributing elements to this District included features and sites that have strong historic associations, can address larger research questions, and illustrate the interconnectedness of the landscape elements. Contributing elements within this District must also retain sufficient characteristic of integrity to convey the past, particularly with regard to location, materials, and association.

CA-TRI-1940H includes features that represent over 160 years of placer mining activity. The site area has been impacted by road building and fire fighting activities, as well as modern dumping. In short, the historic mining features have been disturbed by more recent intrusions and artifacts.

Historical research did not reveal specific documentary data in regards to the mining features within the project site. Minedat.org and the USGS Mineral Resource Data System did not have reference to the specific area north of the confluence of West Weaver Creek and Grub Gulch. Gold Districts of California (Clark, 1970) also does not reference the area. The Official Map of Trinity County (1894) shows the names, areas, and owners of the principal mines in Trinity County; nothing is listed for the vicinity of the project site. The area might be part of the Grub Gulch Claim but this has not been substantiated. Although the mining features are part of the history of mining in the Weaverville area, perhaps as early as the 1850s, and as late as the 1930s, no specific historic association can be made through the archival record or the archaeological evidence.

Due to a lack of design, setting, materials, feeling, and historical association, ESA recommends CA-TRI-1940H as not individually eligible for listing in the National Register. There are more substantial and more intact and better documented examples of historic hydraulic mining in the immediate vicinity, most notably the La Grange Mine (California Registered Historical Landmark No. 778), found 1 mile to the west of the project site. There are also better documented mining-related features immediately across from the project site on the west side of West Weaver Creek (CA-TRI-1936H).

Components of CA-TRI-1940H are consistent with the type and quality of resources that comprise elements of the overall Historic District. Given the lack of specific historical association, and disturbance in the area from more recent activities including modern refuse, road building, and fire fighting activities, the integrity and historical relevance of features within the project site is compromised. ESA recommends that the site is not a contributing component to the West Weaver Creek Mining Landscape Historic District.

## Discussion

a) Archaeological resources that are also considered historical resources or historic properties are considered below under (b). There are no architectural resources of the built environment in the proposed project site. As such, the proposed project would not have an impact on historical resources or historic properties of the built environment. Therefore, the proposed project would result in **no impact**.

b) As discussed above in Cultural Evaluations and Recommendations for Significance, due to a lack of design, setting, materials, feeling, and historical association, ESA recommends CA-TRI-1940H as not individually eligible for listing in the National or California Registers. In addition, given the lack of specific historical association, and disturbance in the area from more recent activities including modern refuse, road building, and fire fighting activities, the integrity and historical relevance of features within the project site is compromised. ESA recommends that the site is not a contributing component to the West Weaver Creek Mining Landscape Historic District. These cultural resources are not considered historical resources for the purposes of CEQA. No additional consideration is necessary.

Based on the background research, surface survey, and evaluation of cultural resources, there is a low potential to uncover significant, unrecorded, buried archaeological resources during ground disturbing activities. Despite the low potential, the discovery of unrecorded buried archaeological resources during project implementation cannot be entirely discounted. The inadvertent discovery of archaeological resources could be a **significant impact**. Implementation of **Mitigation Measure CUL-1 (Inadvertent Discovery of Cultural Resources)** would ensure that work would halt in the vicinity of an unanticipated find so that a qualified archaeologist (and Native American representative if the site is a prehistoric archaeological resource) can make additional recommendations to reduce potential impacts to a **less than significant** level.

c) While no known human remains have been documented in the vicinity of the project site, the possibility of uncovering human remains cannot be entirely discounted. The inadvertent discovery of human remains could be a **significant impact**. Implementation of **Mitigation Measure CUL-2 (Inadvertent Discovery of Human Remains)** would ensure that if human remains are uncovered during project ground disturbing activities the Coroner is contacted and, if the remains are determined to be Native American, the remains are treated per the recommendations of the Most Likely Descendent. This mitigation measure would reduce potential impacts to a **less than significant** level.

d) As discussed above in the Native American Communication section, the NAHC does not have information of tribal cultural resources in their Sacred Lands File. Based on the background research at the NEIC and the results of the surface survey described above there do not appear to be tribal cultural resources in the project site. If an archaeological resource that is determined to be a tribal cultural resource is identified during ground disturbing activities disturbance could be a **significant impact**. Implementation of **Mitigation Measure CUL-1 (Inadvertent Discovery of Cultural Resources)** would

ensure that work would halt in the vicinity of an unanticipated find so that a qualified archaeologist (and Native American representative if the site is prehistoric) can make additional recommendations to reduce potential impacts to a **less than significant** level.

e) As discussed above in the Paleontological Setting, the SVP has established professional standards for evaluating the potential for paleontological resources based on the type of geologic unit, the previous discovery of fossils within the geologic unit and within or in close proximity to the proposed project, and whether the fossils are uncommon. Geologically the area is underlain by a series of folded and faulted metamorphic rocks of Paleozoic and Mesozoic age that have been invaded by batholiths of Late Jurassic and possibly Early Cretaceous age (Clark, 1970:132). While no known discoveries have occurred within the general project area, based on the SVP criteria there is a high potential to uncover paleontological resources in this geologic context. The inadvertent discovery of paleontological resources could be a **significant impact**. Implementation of **Mitigation Measure CUL-3 (Inadvertent Discovery of Paleontological Resources)** would ensure that if paleontological resources are uncovered during project ground disturbing activities a qualified paleontologist is notified to assess the find and make additional recommendations to reduce potential impacts. This mitigation measure would reduce potential impacts to a **less than significant** level

## Mitigation Measures

**Mitigation Measure CUL-1: Inadvertent Discovery of Cultural Resources.** If an inadvertent discovery of archaeological resources is made during the project, the USFS will require ground disturbing activities in the vicinity of the discovery to cease. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include refuse-filled privies or wells. After cessation of excavation the contractor shall immediately contact the USFS. The contractor shall not resume work until authorization is received from the USFS.

In the event of unanticipated discovery of archaeological materials during project implementation, the USFS shall retain the services of a Secretary of the Interior-qualified archaeologist (and a Native American representative if the site is prehistoric) to evaluate the significance of the find prior to resuming any activities that could impact the site.

In the case of an unanticipated archaeological discovery, if it is determined that the find is potentially eligible for listing in the California or National Register, and the site cannot be avoided, the USFS shall provide a research design and treatment plan, prepared by a qualified archaeologist, outlining data recovery to be performed on the resource, analysis, and reporting of the find. The research design and treatment plan shall be submitted to and approved by the USFS, the State Historic Preservation Officer, and appropriate Native American organizations prior to construction being resumed.

**Mitigation Measure CUL-2: Inadvertent Discovery of Human Remains.** If potential human remains are encountered, ground disturbing activities in the vicinity of the discovery shall cease and the Trinity County Coroner shall be contacted in accordance with Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5. If the Coroner determines the remains are Native American, the Coroner will contact the Native American Heritage Commission (NAHC). As provided in Public Resources Code Section 5097.98, the NAHC will identify the person or persons believed to be most likely descended from the deceased Native American. The Most Likely Descendent will make recommendations for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

**Mitigation Measure CUL-3: Inadvertent Discovery of Paleontological Resources.** If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the qualified paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the fossil. The qualified paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations shall be consistent with Society of Vertebrate Paleontology (SVP) 1995, and currently accepted scientific practice. If required, treatment for fossil remains may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection [e.g., the University of California Museum of Paleontology (UCMP)], and may also include preparation of a report for publication describing the finds.

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# Geology, Soils, and Seismicity

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

## Affected Environment

### *Regional Geologic Conditions*

According to the Trinity County General Plan, the project site is situated within the Klamath Mountains geomorphic province where flat-topped ridges and glaciated peaks rise to elevations ranging from 6,000 to above 9,000 feet and generally drains westward. The principal rock units of the Klamath Mountains are older than Cretaceous period (Trinity County, 2002).

The topography and geology of West Weaver Creek is such that the steep terrain of the upper watershed (upstream of RM 3) produces a sediment supply that is deposited in the lower watershed (downstream of RM 3). The upper portion of the watershed has shallow soils underlain by igneous bedrock, and is prone to shallow mass wasting. The lower portion of the watershed is conglomerate bedrock overlain by alluvium in the channel and surrounding floodplains and shallow soils in the hill slopes. The underlying bedrock of the West Weaver Creek upper watershed is Salmon Hornblende Schist. The lower watershed is mostly Weaverville Formation,

with sections of Abrams Mica Schist, Serpentinized periodite, and mudstone/sandstone conglomerate (Irwin, 2010). Below is a description of each major formation (Madej, 2007):

- **Salmon Hornblende Schist:** Amphibolite-grade hornblende schist and gneiss; locally includes lenses of micaceous schist.
- **Abrams Mica Schist:** Schistose metasedimentary rocks; generally micaceous and quartzitic; discontinuous lenses of micaceous marble near base.
- **Weaverville Formation:** Lacustrine facies occur at the base of the Weaverville sequence and are overlain by alluvial floodplain sediments which include coarse channel fill deposits and bar conglomerates. Floodplain sediments and fluvial conglomerates are intercalated with debris flow deposits. The diverse assortment of clasts consists primarily of hornblende schist, mica schist, greenstone, serpentized periodotite, gabbro, sandstones and siltstones, with smaller percentages of granodiorites. The Weaverville Formation produces abundant fine material (0.5 to 3 millimeters [mm]) upon weathering (within the size range of concern for Trinity River TMDL).
- **Alluvium:** Unconsolidated silt, sand, and gravel in modern stream channels and on associated floodplains and low terraces.

The upper watershed (RM 3 and upstream) is prone to shallow mass wasting and contains failure-prone slopes (USFS, 2004). The typical mass wasting process in this area is rotational/ translational slides. Moderate to high hazards are defined for some translational/rotational areas, with a high probability of initiating some 1,000 to 10,000 cubic-yard landslides. Downstream of RM 3 in the area surrounding the channel (~250 to 1000 feet across) is a mass wasting deposit.

### *Soil Resources*

The soils in the watershed consist of Chawankee, Neuns, Forbes, and Deanwood soil series (USFS, 2004). The upper watershed (upstream of RM 3) is primarily Chawankee soil series, with Forbes and Neuns soils in the lower portion of the upper watershed (RM 3 to RM 4). Chawankee is a soil of shallow depth (10-20 inches), granitic parent material, low rock fragment and high erosivity. Forbes is a very deep (>60 inches), non-marine sediment, loam, high clay, low rock fragment, moderately highly erosive soil series whereas Neuns is a moderately deep (20-40 inches), metavolcanic, low clay, moderately high rock fragment, moderately erosive soil series. Small landslides are common on Forbes soils when at field capacity. The lower watershed (downstream of RM 3) is primarily Deadwood soil series. Deadwood is a shallow (10-20 inches), very gravelly loam, high rock fragment soil series that is moderately erosive.

The *Custom Soil Resource Report for West Weaver Creek, California* (NRCS, 2016) shows a single soil unit occurring within the project site. This soil unit is described below.

#### Deadwood-Neuns families complex, 20 to 40 percent slopes.

This soil is a complex of two different soil types, the Deadwood family and similar soils, and the Neuns family and similar soils. Included in this map unit are small inclusions of the Hugo soils, Goulding soils, Typic xerothents, and metamorphic rock outcrops. These soils types are located

on mountains and are formed in residuum weathered from metavolcanics, igneous, metamorphic, and sedimentary rock. This soil unit is well drained and permeability and runoff are moderate. The map unit composition is 30 percent Auburn Gravelly Loam, 60 percent Deadwood family and similar soils, 30 percent Neuns family and similar soils, and 10 percent minor components.

### *Faults and Seismicity*

A fault is defined as a "fracture or fracture zone in the earth's crust along which there has been displacement of the sides relative to one another". For the purpose of planning there are two types of faults, active and inactive. Active faults have experienced displacement in historic time, suggesting that future displacement may be expected. Inactive faults show no evidence of movement in recent geologic time, suggesting that these faults are dormant. Ground-shaking is motion that occurs as a result of energy released during faulting. The damage or collapse of buildings and other structures caused by ground-shaking is among the most serious seismic hazards. The project site lies in the eastern foothills of the Klamath Mountains, an area experiencing relatively low seismic activity. No active faults or Earthquake Fault Zones (Special Studies Zones) are located within or adjacent to the project area (California Department of Conservation, 2016).

### *Liquefaction Potential*

Liquefaction is a type of ground failure most likely to occur in water-saturated silts, sands, and gravels, having low to medium density. When a soil of this type is subjected to vibration, it tends to compact and decrease in volume. If the groundwater is unable to drain during the vibration, the tendency of the soil to decrease in volume results in an increase in pore-water pressure. When the pore-water pressure builds up to the point where it is equal to the over-burden pressure (effective weight of overlying soil), the effective stress becomes zero. In this condition, the soil loses its shear strength and assumes the properties of a heavy liquid. Based on the lack of published historic evidence of liquefaction in the area, the liquefaction potential of the site soils is considered low.

### *Tsunami, Seiche, and Volcanic Hazards*

Tsunamis are earthquake-generated waves within enclosed or restricted bodies of water, such as lakes, channels, and reservoirs. Seiches are waves generated by earthquakes, winds, or landslides that set up oscillatory waves in an enclosed basin. The project site is not located near any enclosed bodies of water; therefore there is no reasonable danger from tsunamis or seiches at the project site. There is no significant source of volcanism in proximity to the project site; therefore there is no reasonable danger from volcanic eruption hazards at the project site.

### *Subsidence*

Subsidence is the gradual settling or sinking of the earth's surface with little or no horizontal motion. Subsidence is caused by groundwater withdrawal, gas withdrawal, hydrocompaction or peat oxidation. Subsidence would not be expected to occur in the bedrock geology that characterizes the project site.

### *Expansive Soils*

Expansive soils are largely comprised of clays, which greatly increase in volume when water is absorbed and shrink when dried. When buildings are placed on expansive soils, foundations may rise each wet season and fall each dry season. This movement may result in cracking foundations, distortion of structures and warping of doors and windows. The soil at the project site has a low shrink-swell potential (NRCS, 2016). Consequently, expansive soils are not likely an issue at the project site.

## Discussion

a) According to the California Department of Conservation, Division of Mines and Geology, the project site is not located within a delineated Alquist-Priolo Earthquake Fault Zone or Landslide and Liquefaction Zone (California Department of Conservation, 2016). Implementation of the proposed project would not involve the construction of new structures or facilities. Because the proposed project is not located in an area considered at high seismic risk, it is not expected to expose people or structures to earthquake risk, including strong seismic ground shaking, seismic-related ground failure, liquefaction, or landslides. Therefore, the proposed project would result in **no impact**.

b) Construction of the project will require site preparation which would expose surface soil materials to rainfall, potentially resulting in the removal and transport of these materials to West Weaver Creek. The project area is subject to the North Coast Regional Water Quality Control Board (NCRWQCB) water quality standards. To minimize construction related water quality impacts, TCRCD will obtain a Storm Water Construction General Permit (General Permit 99-08-DWQ) from the NCRWQCB, which requires that a Storm Water Pollution Prevention Plan (SWPPP) be prepared for the site in accordance with National Pollutant Discharge Elimination System (NPDES) requirements (see Mitigation Measure HYDRO-1). The construction contractor will be required to protect surface water quality by preventing eroded material or contaminants from entering waterways during construction through the use of best management practices (BMPs). The SWPPP lists potential sources of impacts to surface waters and BMPs that are being used to minimize the likelihood of those impacts. Mitigation Measures required in Section 3.10, Hydrology and Water Quality, address erosion and sediment control measures. Therefore, erosion related impacts would be reduced to a **less than significant** level.

c) As more fully described above, the proposed project is not located within a delineated Alquist-Priolo Earthquake Fault Zone. Additionally, the probability of soil liquefaction actually taking place on the project area is considered to be low. With adherence to all applicable codes and regulations, geologic hazard impacts associated with on-or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse would be minimized. Therefore, the proposed project would result in a **less than significant** impact.

d) The proposed project will not construct any new buildings or habitable structures. Therefore there is no risk to life or property related to expansive soils. Therefore, the proposed project would result in **no impact**

e) The proposed project would not involve the generation of sewage or wastewater that would require onsite treatment and does not propose the use of septic tanks or alternative wastewater disposal systems. Therefore, the proposed project would result in **no impact**.

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# Hazards and Hazardous Materials

| Issues (and Supporting Information Sources): | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **7. 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? | ☐ | ☐ | ☒ | ☐ |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | ☐ | ☐ | ☒ | ☐ |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☒ | ☐ |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | ☐ | ☒ | ☐ | ☐ |

## Affected Environment

Materials and waste may be considered hazardous if they are poisonous (toxicity), can be ignited by open flame (ignitability), corrode other materials (corrosivity), or react violently, explode or generate vapors when mixed with water (reactivity). The term “hazardous material” is defined in law as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment.[3] In some cases, past industrial or commercial uses can result in spills or leaks of hazardous materials and petroleum to the ground, resulting in soil and groundwater contamination. Federal and state laws require that soils having concentrations of contaminants such as lead, gasoline, or industrial solvents that are higher than certain acceptable levels must be handled and disposed as hazardous waste during excavation, transportation, and disposal. The California Code of Regulations (CCR), Title 22, Section 66261.20-24 contains technical

[3] State of California, Health and Safety Code, Chapter 6.95, Section 25501(o).

descriptions of characteristics that would cause a soil to be classified as a hazardous waste. The use of hazardous materials and disposal of hazardous wastes are subject to numerous laws and regulations at all levels of government.

Under the CCR, Title 13, Section 1150-1194, and Code of Federal Regulations (CFR) Title 49, the California Highway Patrol (CHP) regulates the transport of hazardous materials. When a spill of hazardous material or waste occurs on a highway, the CHP is responsible for directing cleanup and enforcement (CCR Section 2450-2453b).

Information about hazardous materials sites in the project area was collected by conducting a review of the California Environmental Protection Agency's (Cal EPA) Cortese List Data Resources (Cortese List). The Cortese list includes the following data resources that provide information regarding the facilities or sites identified as meeting the Cortese list requirements: the list of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database; the list of Leaking Underground Storage Tank (LUST) sites from GeoTracker database; the list of solid waste disposal sites identified by Water Board; the list of active Cease and Desist Orders and Cleanup and Abatement Orders from Water Board; and the list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code identified by DTSC. The Cortese List is a reporting document used by the state, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. The Cortese List is updated at least annually, in compliance with California regulations (California Code Section 65964.6(a)(4)). The Cortese List includes federal superfund sites, state response sites, non-operating hazardous waste sites, voluntary cleanup sites, and school cleanup sites. Based on a review of the Cortese List conducted in October 2016, no listed sites are located within 0.5 miles of the project site (DTSC, 2016).

There are no public airports or private airstrips near the project site. The project site is partially located within an area that is designated as a Very High Fire Hazard Severity Zone on the Trinity County Fire Hazard Severity Zone maps (CalFire, 2007a,b).

## Discussion

a, b) Activities associated with the proposed project would utilize potentially hazardous materials associated with construction and operation of vehicles and construction equipment during proposed project implementation including diesel, gasoline, solvents, hydraulic fluid, grease, and oil. These materials are similar to those routinely used for other types of construction projects throughout Trinity County. Because federal, state, and local laws and regulations govern the transport, use, storage, handling and disposal of hazardous materials, use of hazardous materials associated with the proposed project construction would be minimized and/or avoided. Therefore, the proposed project would result in a **less than significant** impact.

c-f) The proposed project would not emit hazardous emissions or require handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of

an existing or proposed school. The proposed project is not located on a site included on a list of hazardous materials sites that would create a significant hazard to the public or the environment (DTSC, 2016), nor is it located within two miles of a public or private airport or airstrip. Therefore, the proposed project would result in **no impact**.

g) Construction traffic would include the mobilization and demobilization of construction equipment (e.g., excavator, loader, backhoe, hauler, bulldozer, and grader) to and from the project site over the course of the construction period. Once the equipment is on site, it would travel from the staging area to the restoration site within the restoration site footprint. Construction traffic would be limited to daily trips for personnel and routine service and supply vehicles to the site over the course of the restoration period. Construction activities would be managed to ensure that emergency response and evacuation plans are not impeded. The impacts created would be **less than significant**.

h) Construction traffic would include the mobilization and demobilization of construction equipment (e.g., excavator, loader, backhoe, hauler, bulldozer, and grader) to and from the project site over the course of the construction period. Once the equipment is on site, it would travel from the staging area to the restoration site within the restoration site footprint. Construction traffic would be limited to daily trips for personnel and routine service and supply vehicles to the site over the course of the restoration period. Construction activities would be managed to ensure that emergency response and evacuation plans are not impeded. The impacts created would be **less than significant**.

## Mitigation Measures

**Mitigation Measure HM-1:** During construction, staging areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles and heavy equipment. In addition, the Contractor will be required to enforce a Fire Plan, which requires adherence to the USFS Project Activity Level minimum requirements and restrictions for construction activity during wildfire season.

## References

California Department of Forestry and Fire Protect (CalFire), 2007a. Fire Hazard Severity Zones in SRA, Trinity County. November, 2007.

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California Department of Toxic Substances Control (DTSC), 2016. DTSC's Hazardous Waste and Substances Site List – Site Cleanup (Cortese List). Available: http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm. Accessed on October 20, 2016.

# Hydrology and Water Quality

| Issues (and Supporting Information Sources): | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **8. HYDROLOGY AND WATER QUALITY — Would the project:** | | | | |
| a) Violate any water quality standards or waste discharge requirements? | ☐ | ☒ | ☐ | ☐ |
| 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 pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | ☐ | ☐ | ☐ | ☒ |
| c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site? | ☐ | ☒ | ☐ | ☐ |
| d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site? | ☐ | ☒ | ☐ | ☐ |
| 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? | ☐ | ☒ | ☐ | ☐ |
| f) Otherwise substantially degrade water quality? | ☐ | ☒ | ☐ | ☐ |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | ☐ | ☐ | ☐ | ☒ |
| h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows? | ☐ | ☐ | ☐ | ☒ |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | ☐ | ☐ | ☐ | ☒ |
| j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

The West Weaver Creek watershed is located in the Klamath Mountain physiographic province of California, more specifically in the Trinity Mountains in Trinity County, California. West Weaver Creek is a branch of Weaver Creek, which itself is a tributary to the Trinity River with its confluence located downstream of Lewiston Dam at Trinity River Mile (RM) 93.8. The West Weaver Creek watershed lies just west of the town of Weaverville. The creek headwaters start northwest of Weaverville, flow south until the creek crosses under State Highway 299, and then flow in a southeasterly direction as the creek skirts the southwest side of Weaverville, connecting with East Weaver Creek just southeast of Weaverville, where the two become Weaver Creek.

## *Surface Water Hydrology*

### Basin Characteristics

The West Weaver Creek basin area is approximately 8.2 square miles. West Weaver Creek has an elongated, dendritic basin shape with about 8.5 river miles. There are no major tributaries entering West Weaver Creek, just a few "gulches" including Grub Gulch, Bear Gulch, and Austrian Gulch. Currently there is no operating flow gauges on either West Weaver Creek or Weaver Creek. Previously, discharge data was collected from Weaver Creak a mile upstream from the confluence with the Trinity River by the USGS from 1958-1969, then again 3 miles upstream of the confluence 2000-2005. Recently, flows have been measured 2008-present by the USFS Redwood Sciences Laboratory. As an example, a typical annual peak storm (February 4, 2010) from the time series had a time-to-peak of approximately 14 hours, lag time of approximately 15 hours, and a time of concentration of approximately 36 hours.

### Stream Classification

A second order perennial stream, the West Weaver Creek watershed drains mountainous terrain and confluences with East Weaver Creek in a mountain valley. A useful stream classification system for "channel-reach morphology in mountain drainage basins" is provided by Montgomery and Buffington (1997). Among other measureable parameters, the classification system organizes stream morphology into various classifications based in part on reach slope: cascade morphology is typified by slopes greater than 6.5 percent, step-pool morphology, 3-6.5 percent; plane-bed morphology, 1.5-3 percent; and riffle-pool morphology with slopes less than 1.5 percent. Plane bed is often found to be the transition bedform between step-pools and riffle-pools, and some variation can be expected around these averaged and generalized slopes and morphologies.

Based on this classification criterion and using the slope of the valley profile as a surrogate for stream slope, West Weaver Creek within the project site would be classified as cascade morphology and step-pool. The typical bed material for cascade morphology would be boulders, the pool spacing would be less than one channel width, the channel would typically be confined by the adjacent hillslopes, and the dominant sediment source would be hillslope, fluvial, and debris flows. In step-pool classifications the typical bed material would be mixed cobble and boulders, the pool spacing would be one to four channel widths, the channel would be confined, and the dominant sediment source would also be hillslopes, fluvial, and debris flows.

### Flows

There has never been an operational flow gauge on West Weaver Creek. The data collected by the Redwood Sciences Lab is not extensive enough for flow frequency analyses. Typically, for ungauged streams, the first option is to find a nearby gauged basin of similar size and shape for comparison. If a suitable basin does not exist, the next best option is to use regional regression equations. The closest gauged basins to the West Weaver Creek basin are the Weaver Creek gauge with ten years of data from 1958-1969, and Rush Creek with seven years of data from 2004 to present. Given the basin area at the outlet of West Weaver Creek is 8.2 square miles, it is not advisable to use the flow data from the Weaver Creek gauge which covers a basin area of 48.4 square miles. With a basin area, 22.3 square miles, and elongated shape, Rush Creek makes a better basin for comparison. However, given it only has seven years of flow data, regional

regression equations for the estimating return intervals for the basin, were averaged for analysis purposes.

Event flows at the watershed outlet were estimated for 2-, 5-, 10-, 25-, 50-, and 100-year return intervals using two different methods. First, event flows were estimated using USGS's Streamstats, an internet-based tool that will estimate streamflow statistics for un-gauged streams. For the California North Coast, Streamstats uses the Wannanen and Crippen regression equations. Next, event flows for the gauged Rush Creek (a neighboring basin with a similar elongated basin shape, but at 22.3 square miles is nearly three times the size of West Weaver Creek) were estimated from 7 years of discharge records using the HEC-SSP software utilizing the method B of Bulletin 17B (USGS, 1982). This method provides water yield as a unit-of-discharge per area, so that while the total area in the "paired basin" being compared is potentially different from the target basin, a unit-runoff per area can be generated. From these values, discharge levels for the West Weaver Creek outlet were estimated using the method outlined by Waananen and Crippen (1977) for paired basin discharge estimation. The estimated 2-, 5-, 10-, 25-, 50-, and 100-year return interval discharges are shown in **Table Hydro-1**. The results for each method were close (within a magnitude), especially for the larger flows. In most cases, it is preferable to use a paired-basin estimation; however, with the large difference in basin area between Rush Creek and West Weaver Creek, the average of the two methods was selected for use in the hydraulic analyses.

**TABLE HYDRO-1**
**ESTIMATED RETURN INTERVAL DISCHARGES AT WEST WEAVER CREEK BASIN OUTLET**

| Return Interval | Discharge Estimated from Streamstats' Waananen and Crippen Regression Equations (cfs) | Discharge Estimated from Rush Creek Bulletin 17B Results (cfs) | Percent Difference |
|---|---|---|---|
| 2-year | 431 | 171 | 60% |
| 5-year | 751 | 389 | 48% |
| 10-year | 1,070 | 657 | 39% |
| 25-year | 1,510 | 1,233 | 18% |
| 50-year | 2,300 | 1,918 | 17% |
| 100-year | 2,500 | 2,935 | -17% |

SOURCE: Waananen and Crippen. 1977; USGS, 1982

### *Water Quality*

State law defines beneficial uses of California's waters as uses that may be protected against quality degradation to include (and not be limited to) "...domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves" (Water Code Section 13050(f)). As defined by the North Coast Regional Water Quality Control Board (NCWQCB), waters in the Weaver Creek Hydrologic Subarea support numerous beneficial uses including municipal and domestic supply, agricultural supply, industrial service supply, groundwater recharge, freshwater replenishment, navigation, recreation, fishing, cold freshwater habitat for resident fishes, migration and spawning habitat, and habitat for wildlife (NCWQCB, 2011).

#### Trinity River Basin

Water quality in the Trinity River Basin ranges from the high quality, pristine waters that emerge from the Trinity Alps wilderness to various degrees of impairment in the main stem and southern tributaries, which are caused in part by human activity. Timber harvest, road construction, and associated activities are recognized as sources of sedimentation and high summer water temperatures. Mining for gold, both currently and historically, is also a source of impairment. Recreational instream suction dredging (mining) causes sedimentation, especially in the main stem and canyon areas, and legacy effects from historic gold mining include acid mine drainage and mercury pollution. Marijuana cultivation in the watershed has also become a source of pollutants that can affect water quality in a number of ways. Increased sediment load caused by land clearing and road building for marijuana farms causes increased turbidity and sediment deposition, both of which can have negative effects on salmonids (and other aquatic organisms) during multiple stages of their life cycle. Fertilizers cause increased nitrogen levels and can lead to algal blooms and decreased dissolved oxygen. Pesticides are toxic to many aquatic organisms. Water diversions for marijuana cultivation can cause cumulative impacts to streamflows and diminish cold water inputs, which are crucial for juvenile salmonids during the summer months. Note that the Trinity River is a Section 303(d) listed river for sediment.

#### West Weaver Creek

In West Weaver Creek, high water temperature and low flows can be limiting factors to fish, especially mid-summer to autumn (USFS, 2004). Water quality is generally very good in streams of the Weaverville watersheds (USFS, 2004); however, the cumulative watershed effects on West Weaver Creek water quality are above the threshold of concern mostly because of recent wildfire damage but also because of urbanization and increased road density. Also of concern are the water diversions from West Weaver Creek by the Weaverville Community Service District. Stream temperatures for West Weaver Creek in late July-early Aug (as reported in the 1990 Ebasco report) averaged 66.6 degrees F, with a range from 52 to 76 degrees F. The high end of the observed range exceeds 68 degrees F. High temperatures were most frequently observed in unshaded reaches of the creek, including those impacted by hydraulic mining and fire damage. The warmest temperatures were observed at the lowest portion of the watershed adjacent to mine tailings, and surrounded by increased urbanization. Recent measurements of water temperature indicate water temperature is of high quality within the project site, likely due the undeveloped nature of the watershed.

### *Groundwater*

Groundwater in the Trinity Mountains region is an inadequate and unreliable water supply for large-scale use. The geographic formations that constitute much of the Trinity Mountains are poorly suited to contain large quantities of groundwater. Water cannot penetrate the rocks unless there are fractures; where rock fractures are present, small amounts of water can be stored and made available to wells that intersect the fractures; groundwater may also be found in small scale aquifers where suitable sediments are present. Nevertheless, many rural homes, farms, and ranches throughout the region rely on groundwater supplied by individual wells.

## Discussion

a, f) Under the proposed project, the rehabilitation approach is to reconstruct the channel bed with alternating segments of riffle pool, step pool, and cascade geomorphic features. In addition, appropriately sized spawning gravels will be added to the riffle-pool segments to provide suitable substrate for spawning coho salmon and steelhead. Large wood flow forcing structures will be used in the channel to facilitate pool formation to maintain the riffle pool reach, and provide cover during summer rearing. The reconstructed bed will raise water surface elevations and improve connectivity to an existing floodplain. Additionally, two secondary channels and a lower floodplain terrace will be graded to improve off-channel connectivity.

Gravel placed in the creek would be obtained from a commercial source, and processed and sorted to minimize turbidity plumes. In-stream construction would proceed in a manner that minimizes sediment discharge. Regardless, instream work associated with bed reconstruction and placement of gravel in the creek would likely result in short-term turbidity plumes immediately downstream of the construction area that could exceed the permitted limits. Suspended solids and turbidity generally do not acutely affect aquatic organisms unless they reach high levels (i.e., levels of suspended solids reaching 25 mg/L).

Water quality impacts to West Weaver Creek could also occur if fuel, oil, other petroleum products were accidentally spilled as a result of construction activities and entered surface waters. Equipment would not operate in an active stream channel except as necessary to construct temporary stream crossings and place spawning gravel and in-stream habitat structures. When in-channel work is unavoidable, clean spawning gravel would be used where practical to create a pad in the channel from which equipment would operate. The primary alternative access route requires construction of a temporary creek crossing consisting of two (2) 18-inch diameter culverts and gravels. The existing grade will be demarcated with a material which will facilitate re-construction of original grade following removal of the culverts (e.g., filter fabric or a layer of mulch). Gravels associated with the access route will be removed from the channel following completion of the project. The gravels will be disposed of on-site; likely as non-engineered road surfacing on the landowner’s private road.

#### Post-Restoration

Flows along West Weaver Creek would remain unchanged from existing conditions following the implementation of the proposed project. Any re-suspension and re-deposition of instream sediments is expected to be localized and temporary and would not reach a level that would acutely affect aquatic organisms, due to timing of gravel augmentation to avoid sensitive life stages and implementation of BMPs.

All access and staging areas would be treated with erosion control measures after project completion each season. Erosion control measures would include placement of erosion control fabric on any slopes or ground areas disturbed by equipment travel, coir logs for roadside trapping of fine sediment from the roadway, and hay and straw over other

disturbed ground surfaces. After construction activities have been completed, portions of the disturbed areas will be revegetated with planting of live poles, container stock and seeding of select species found within the watershed. This effort will be in support of and in addition to seeding for erosion control and site stabilization.

Project construction would involve activities such as excavation that could generate loose, erodible soils that, if not properly managed, could cause sedimentation. This could cause an adverse water quality impact. To minimize construction related water quality impacts, the TCRCD will obtain a Storm Water Construction General Permit from the NCRWQCB, which requires that a stormwater pollution prevention plan (SWPPP) be prepared for the site in accordance with National Pollutant Discharge Elimination System (NPDES) requirements. The construction contractor will be required to protect surface water quality by preventing eroded material or contaminants from entering waterways during construction through the use of BMPs. In addition, the project must comply with the water quality and waste discharge requirements of the NCRWQCB. Conformance with these water quality standards, in addition to **Mitigation Measures HYDRO-1** and **HYDRO-2**, will reduce water quality impacts to a **less than significant** level and ensure that the project will not generate substantial additional sources of polluted runoff.

b) The proposed project would not convert natural and other non-paved surfaces to pavement, roadways, or other impervious surfaces, that could interfere with groundwater recharge. In addition, adjacent land surfaces would continue to provide infiltration capacity and groundwater recharge. Therefore, no significant change in groundwater infiltration or level is anticipated. Further, the proposed project would not result in the pumping of groundwater. Consequently, construction activities under the proposed project would result in **no impact**.

c, d, e) The existing drainage pattern of the site and area would remain similar through implementation of the proposed project. The existing drainage patterns of the project site will be temporarily altered during construction and could have potential erosion impacts in the disturbed work areas. Following project construction, drainage patterns in the site will be similar to pre-project conditions. Once dewatering operations are established, flows in West Weaver Creek will bypass the work area. The proposed project would not result in an increase in the impermeable surface area that would result in substantial erosion or siltation on-or off-site. The proposed project is not expected to result in any net loss of jurisdictional waters through creation of structures in or obstructions to the channel or the conversion of channel waters to uplands.

To avoid and/or minimize potential negative effects on anadromous fish, in-stream gravel placement activities would only occur during the period from June 15$^{th}$ to October 15$^{th}$. In-channel work and gravel augmentation would begin in mid-July and continue through October 15$^{th}$. Streamflows are expected to be relatively low in West Weaver Creek during this time, ranging from 12 cfs in early summer to 0.5 cfs in late summer. As such, temporary dewatering of the work area is expected to be required.

As discussed previously, BMPs described in **Mitigation Measures HYDRO-1** and **HYDRO-2** implemented with the proposed project would avoid and minimize impacts to water resources and water quality and to mitigate potentially significant impacts to water resources and water quality to less than significant level. Consequently, restoration activities under the proposed project would have a **less than significant** impact.

g, h) No housing would be placed within a 100-year flood hazard area nor would it result in any structures that would impede or redirect flood flows. Flood risk is minimal during the time construction activities would occur. Construction of the proposed in-channel structures and the addition of gravel to the channel would not contribute to increased flooding risk as the post-project channel and floodplain are expected to accommodate anticipated flows. Consequently, the proposed project would result in **no impact**.

i) The proposed project does not include the construction or modification of any dam, levee, or other facility that would have the potential to expose people or structures to loss, injury, or death as a result of flooding. Consequently, the proposed project would result in **no impact**.

j) The proposed project does not include construction of any facilities that are intended for human occupation. A seiche is a long wave-length, large-scale wave action set in a closed body of water such as a lake or reservoir. Seiches can occur during earthquakes and primarily appear to affect elongated and deep (relative to width) bodies of water. The waterways affected by the proposed project are not closed bodies of water; thus, seiches would not occur. Tsunamis are sea waves created by undersea fault movement. The project area is over 60 miles from the ocean. Therefore, the project area would not be affected by tsunamis. The project would not remove vegetation from large areas of unconsolidated sediment, nor place structures or other facilities in an area subject to mudflow. Consequently, the proposed project would result in **no impact**.

## Mitigation Measures

**Mitigation Measure HYDRO-1: Prepare and Implement a SWPPP.** Subject to requirements of Section 402 of the federal Clean Water Act, and the National Pollutant Discharge Elimination System (NPDES) permitting process, all construction projects that disturb more than one acre of land are required to prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP is incorporated into all project plans and specifications. The restoration construction contractor(s) will be required to post a copy of the SWPPP at the project location, file a notice of intent to discharge stormwater with the NCRWQCB, and implement all measures required by the SWPPP. A component of the SWPPP is a dewatering plan for in-channel activities. A Qualified SWPPP Practitioner (QSP) will be responsible for construction monitoring to ensure that the provisions of the SWPPP are effectively enforced. In the event of noncompliance, the QSP will have the authority to shut down the construction site or fine the responsible party or parties.

The SWPPP will include the following information and Best Management Practices (BMPs).

- A description of site characteristics, including runoff and drainage characteristics and soil erosion hazard.
- A description of proposed construction procedures and construction-site housekeeping BMPs, including prohibitions on discharging or washing potentially harmful materials into roads, drainages, or the creek.
- A description of BMPs that will be implemented for erosion and sediment control, including requirements to:
  - Conduct major construction activities involving excavation and spoils haulage during the dry season, to the extent possible.
  - Conduct all construction work in accordance with site-specific construction plans that minimize the potential for increased sediment inputs to \ surface waters.
  - Grade and stabilize spoils sites to minimize erosion and sediment input to surface waters and generation of airborne particulate matter.
  - Implement erosion control measures as appropriate to prevent sediment from entering surface waters to the extent feasible, including the use of silt fencing or fiber rolls to trap sediments.
- A Spill Prevention and Response Plan that identifies any hazardous materials to be used during construction; describes measures to prevent, control, and minimize spillage of hazardous substances; describes transport, storage and disposal procedures for these substances; and outlines procedures to be followed in case of a spill of a hazardous material. The Spill Prevention and Response Plan will require that hazardous and potentially hazardous substances stored onsite be kept in securely closed containers located away from drainage courses and areas where stormwater is allowed to infiltrate. Spill prevention kits will be required to be kept in close proximity to construction areas and workers will be trained in their use. It will also stipulate procedures, such as the use of spill containment pans, to minimize hazard during onsite fueling and servicing of construction equipment. Finally, the Spill Prevention and Response Plan will require that all agencies listed in the Spill Prevention and Response Plan be notified immediately of any substantial spill or release.
- A dewatering plan will be developed and designed so that any potential discharges to surface water will meet the water quality objectives provided in the *Water Quality Control Plan (Basin Plan) for the North Coast Region* (NCRWQCB, 2011). The Dewatering Plan will describe the procedures necessary to satisfy the requirements of the State of California's General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Storm Water Permit) and the RWQCB 401 water quality certification. The dewatering plan is required to include details on the proposed use of fish screens, intended to prevent entrainment or impingement of small fish (on the suction end of intake pipes), and measures to prevent erosion of sediments downstream.

**Mitigation Measure HYDRO-2: Water Quality Measures for In-Channel Work.**

- In-channel work, including all channel and bank modifications, will be restricted to the minimum necessary to support restoration success. In-channel work will be limited to the dry season (June 15$^{th}$ and October 15$^{th}$).

- The project will comply with Section 401 of the Clean Water Act and obtain certification for project-related activities to control sediment from entering West Weaver Creek during construction. To minimize risk from additional fine sediments, all trucks and equipment will be cleaned, and gravels will be processed away from flowing water.

- Throughout the construction period, water quality (turbidity, settleable material, and/or visible construction pollutants) will be monitored as required by Section 401 NCRWQCB certification requirements to ensure that it stays within acceptable limits. Construction pace will be slowed and/or stopped if turbidity exceeds criteria established by the NCRWQCB.

- Oil and grease used in equipment used in the channel of West Weaver Creek will be vegetable based.

- All equipment working within the stream corridor will be inspected daily for fuel, lubrication, and coolant leaks; and for leak potentials (e.g., cracked hoses, loose filling caps, stripped drain plugs); and, all equipment must be free of fuel, lubrication, and coolant leaks.

- Vehicles or equipment will be washed/cleaned only within staging areas or approved upland areas located at least 100 feet from the active stream channel. All equipment will be steam cleaned prior to working within the stream channel to remove contaminants that may enter the creek and adjacent lands. All equipment will be fueled and lubricated in a designated staging area located outside the stream channel and banks.

- Gravel will be appropriately screened prior to being placed in the creek to avoid introduction of fine material into West Weaver Creek. Gravels imported from a commercial source will be clean-washed and of appropriate size.

- In-stream construction will proceed in a manner that minimizes sediment discharge.

- During in-channel work, the contractor shall operate in a manner such that equipment operates from within the footprint of the in-channel feature

- Spawning gravel or the existing substrate will be used to construct any required in-stream crossings. Gravels and culvert structures associated with the temporary channel crossing of the primary access route will be removed from the channel following completion of the project.

## References

Ebasco Environmental, 1990. Trinity River Basin Restoration Program West Weaver Creek Fish Habitat Assessment. Prepared for U.S. Bureau of Reclamation (USBR).

Montgomery, D.R. and Buffington, J.M., 1997. Channel-reach morphology in mountain drainage basins. Geological Society of America Bulletin 109 (5), 596-611.

North Coast Regional Water Quality Control Board, 2011. Water Quality Control Plan for the North Coast Region. May, 2011.

United States Forest Service (USFS), 2004. Weaverville Watershed Analysis. Shasta-Trinity National Forest, Trinity River Management Unit.

U.S. Interagency Advisory Committee on Water Data, 1982, Guidelines for determining flood flow frequency, Bulletin 17-B of the Hydrology Subcommittee: Reston, Virginia, U.S. Geological Survey, Office of Water Data Coordination, [183 p.]. [Available from National Technical Information Service, Springfield VA 22161 as report no. PB 86 157 278 or from FEMA at http://www.fema.gov/mit/tsd/dl_flow.htm.

Waananen, A.O. and Crippen, J.R., 1977. Magnitude and frequency of floods in California: U.S. Geological Survey Water-Resources Investigations Report 77-21, 102p.

# Land Use

| Issues (and Supporting Information Sources): | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **9. LAND USE AND LAND USE PLANNING — Would the project:** | | | | |
| a) Physically divide an established community? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | ☐ | ☐ | ☐ | ☒ |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

Located in a relatively undeveloped area of Trinity County, the project area is characterized by mixed hardwood-conifer woodland (disturbed), riparian woodland, West Weaver Creek, and State Highway 299. Adjacent land uses include private residences and open space. The project site is in an area designated as Open Space and Rural Residential by the Trinity County General Plan. These designations allow for resource rehabilitation, including restoration projects. The Trinity County zoning designations within the project site are Open Space and Rural Residential, which allow for restoration projects.

## Discussion

a) The proposed project would consist of channel and floodplain rehabilitation on a degraded reach of West Weaver Creek for the purpose of improving fish passage through the project reach, improving instream conditions for spawning and summer/winter rearing for coho salmon and steelhead within the project reach, and promoting fine sediment deposition in the overbank areas, thus improving conditions for the establishment of riparian species and reducing downstream sediment input to the Trinity River. The proposed project would not divide an established community. Therefore, the proposed project would result in **no impact**.

b) The project is consistent with the goals, policies, and objectives of the Trinity County General Plan. Restoration projects are an allowable use on lands designated Open Space and Rural Residential by Trinity County. Additionally, the proposed project fits within acceptable uses for the Trinity County Zoning Designations for the project area. Project implementation would not interfere with, preclude, or conflict with existing land uses adjacent to the project area. Consequently, the proposed project would have **no impact**.

c) The project site is not located in an area covered by any habitat conservation plans or natural community conservation plans. Therefore, the proposed project would result in **no impact**.

## References

Trinity County, 1988. Trinity County General Plan Land Use Element. Adopted 1988.

# Mineral Resources

| *Issues (and Supporting Information Sources):* | *Potentially Significant Impact* | *Less Than Significant with Mitigation Incorporation* | *Less Than Significant Impact* | *No Impact* |
|---|---|---|---|---|
| **10. 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? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |

## Discussion

a, b) Trinity County contains a wide variety of mineral resources. Both the USGS and the California Geological Survey (CGS) have evaluated the potential locations and production capacity of various types of extractive resources throughout the area. No known mineral resource recovery sites have been identified in the immediate project area (USGS, 2016). The proposed project will not result in the loss of availability of a known mineral resource or affect a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan, resulting in **no impact** to mineral resources.

## References

United States Geological Survey. 2016. Mineral Resources Online Spatial Data. Available: http://mrdata.usgs.gov/mineral-resources/mrds-us.html. Page Last Modified: Thursday, 09-July-2015 08:02:33 MDT. Website accessed on October 18, 2016.

# Noise

| Issues (and Supporting Information Sources): | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **11. NOISE — Would the project:** | | | | |
| a) Result in 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? | ☐ | ☒ | ☐ | ☐ |
| b) Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels? | ☐ | ☐ | ☒ | ☐ |
| c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☐ | ☒ |
| d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☒ | ☐ | ☐ |
| e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |
| f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |

## Introduction

To describe noise environments and to assess impacts on noise-sensitive areas, a frequency weighting measure that simulates human perception is commonly used. It has been found that A-weighting of sound levels best reflects the human ear's reduced sensitivity to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that conveniently compare the wide range of sound intensities to which the human ear is sensitive. **Table Noise-1**, Typical Noise Levels, identifies decibel levels for common sounds heard in the environment.

Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are equivalent A-weighted sound level over a given time period (Leq); average day-night 24-hour average sound level (Ldn) with a nighttime increase of 10 dBA to account for sensitivity to noise during the nighttime; and community noise equivalent level (CNEL), also a 24-hour average that includes both an evening and a nighttime weighting. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 - 60 dBA range, and high above 60 dBA. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be adverse levels of noise with respect to public health because of sleep interference.

**TABLE NOISE-1**
**TYPICAL NOISE LEVELS**

| Noise Level (dBA) | Outdoor Activity | Indoor Activity |
|---|---|---|
| 90+ | Gas lawn mower at 3 feet, jet flyover at 1,000 feet | Rock Band |
| 80-90 | Diesel truck at 50 feet | Food blender at 3 feet |
| 70-80 | Gas lawn mower at 100 feet, noisy urban area | Garbage disposal at 3 feet, vacuum cleaner at 10 feet |
| 60-70 | Commercial area | Normal speech at 3 feet |
| 40-60 | Quiet urban daytime, heavy traffic at 300 feet | Large business office, dishwasher next room |
| 20-40 | Quiet rural, suburban nighttime | Concert hall (background), library, bedroom at night |
| 10-20 | None | Broadcast / recording studio |
| 0 | Lowest threshold of human hearing | Lowest threshold of human hearing |

SOURCE: Caltrans Technical Noise Supplement, 2009.

## Affected Environment

The proposed project is located in a rural area primarily surrounded by open space and rural residences. The project site is adjacent to State Highway 99, a two-lane road. Noise concerns are described in terms of sensitive receptors, or noise sensitive land uses within hearing range of the activity. Noise sensitive receptors include areas where an excessive amount of noise would interfere with normal activities. For this assessment, noise sensitive receptors include residential uses, public and private educational facilities, hospitals, convalescent homes, and daycare facilities. Aerial photography was used to identify two potential sensitive receptors near the proposed project area that could be exposed to restoration-related noise. These sensitive receptors consist of two residential homes located to the south of State Highway 299 (approximately 1,150 feet south of the proposed project staging areas) and four residential homes located to the north of State Highway 299 (approximately 1,000 feet southeast of the proposed project staging areas).

## Discussion

a, d) The restoration activities under the proposed project would consist of re-grading and rehabilitating river channel and an adjacent alluvial bar for the purpose of improving salmonid spawning and rearing habitat. The restoration approach is to excavate, grade and sort the alluvial bar and enhance existing in-river topography (e.g. build up degraded riffles), while reducing the amount of armoring on the adjacent alluvial bar. Restoration activities and hauling would be limited to between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday. Given the short construction window (July to October), construction work may also need to be performed outside these hours, including weekends or holidays. Construction is planned to start in July 2017 and be completed by October 2017. Construction would require approximately 6-8 weeks.

To accomplish the restoration work, four primary types of equipment would be used: excavator, loader, dump truck, and dozer. Equipment would travel from the staging area to the restoration site using private roads and easement areas associated with the restoration site footprint. In addition, a 20 cubic yard dump truck will be used to haul imported gravel to the site if needed. Representative noise levels for individual equipment are shown in **Table Noise-2**.

**TABLE NOISE-2**
**TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT OPERATIONS FROM A DISTANCE OF 50 FEET**

| Type of Equipment | $L_{max}$, dBA | Hourly $L_{eq}$, dBA/% Use[1] |
|---|---|---|
| Dump Truck | 84 | 80/40% |
| Dozer | 85 | 82/50% |
| Loader | 80 | 76/40% |
| Excavator | 85 | 81/40% |

1 Percent used during the given time period (usually an hour – hourly $L_{eq}$) were obtained from the FHWA Roadway Construction Noise Model User's Guide.

SOURCE: Federal Highway Administration, 2006. *FHWA Roadway Construction Noise Model*. January 2006.

Since all sensitive receptors near the proposed restoration area are located within a rural portion of Trinity County, the noise impacts during restoration activities are compared to the Trinity County General Plan Noise Element. Currently, the County of Trinity does not have any established construction noise thresholds in either its General Plan or County Code. In lieu of any construction-specific standards in the County's General Plan or County Code, the stationary noise standards presented in the County's General Plan are used as an assessment tool to determine whether the Proposed project would result in a substantial temporary increase in noise levels, which are presented in **Table Noise-3**.

**TABLE NOISE-3**
**COUNTY OF TRINITY**
**MAXIMUM ALLOWABLE NOISE EXPOSURE-STATIONARY NOISE SOURCES**

| Category[1,2,3,4] | Daytime (7:00 a.m. - 7:00 p.m.) | Evening (7:00 p.m. - 10:00 p.m.) | Nighttime (10:00 p.m. - 7:00 a.m.) |
|---|---|---|---|
| Hourly Equivalent Sound Level (Leq), dBA | 55 | 50 | 45 |
| Maximum Sound Level (Lmax), dBA | 75 | 70 | 65 |

1 As determined at outdoor activity areas. Where the location of outdoor activity areas is unknown or not applicable, the noise exposure standard shall be applied at the property line of the receiving land use.

2 For recurring impulsive noise sources the allowable maximum (Lmax) noise exposure shall be 70 dBA in the daytime, 65 dBA in the evening, and 60 dBA in the nighttime using "Fast" sound level near meter response.

3 For noise sources primarily comprised of speech and/or music, the allowable noise exposure in Table Noise-2 shall be reduced by 5 dB.

4 For noise sources that are found and declared by the Board of Supervisors to be from uses of such importance to the county of economic, environmental enhancement or movement of goods, services or people that the allowable noise exposure in the Noise-2 shall be increased by 10 dB.

SOURCE: Trinity County. Trinity county General Plan Noise Element. Table XII. October 2003.

The nearest residential land uses are located approximately 1,000 feet from the project site. Noise from restoration activities generally attenuates at a rate of 7.5 dBA per doubling of distance for soft sites (Caltrans, 2013). Assuming an attenuation rate of 7.5 dBA per doubling of distance and two of the loudest off-road equipment listed in Table Noise-2 operating at the same time, the nearest residential receptors 1,000 feet from the project site would be exposed to a noise level of approximately 55 dBA $L_{max}$/52 dBA $L_{eq}$. These calculated noise levels would likely be less, as noise attenuates even more rapidly through a forested area in steep terrain, such as the project vicinity.

Restoration-related construction activities are not expected to expose the nearest residences located 1,000 feet from the project area to noise levels that would exceed the County's stationary noise standards during the daytime hours. However, since restoration activities may be required outside of the County's designated daytime hours, the residences located 1,000 feet from the project area could be exposed to restoration-related construction noise that would exceed the County's evening and nighttime stationary noise thresholds (see Table Noise-3) that could result in a substantial noise increase over the existing ambient. Therefore, the short-term impact associated with intermittent restoration-related construction noise would result in a **significant impact.** However, implementation of **Mitigation Measure Noise-1** would reduce noise levels associated with restoration phase of the Proposed project.

b) Restoration activities under the proposed project would include site preparation, grading and soil excavation. According to data published in Federal Transit Administration's *Guidance Manual for Transit Noise and Vibration Impact Assessment*, construction equipment known to generate vibration levels that could expose nearby sensitive receptors to vibration levels that would result in either human annoyance or building damage include impact pile drivers, vibratory rollers, large bulldozers and jackhammers (FTA, 2006). Since onsite restoration activities would not require the use of off-road equipment known to generate high vibration levels, vibration generated by onsite restoration activities would not expose nearby sensitive receptors to perceivable vibration levels. Consequently, restoration activities under the proposed project would have a **less than significant impact**.

c) The proposed project would not result in permanent increases in ambient noise levels following completion of construction and revegetation. Therefore, this impact result in **no impact**.

e, f) The proposed project consists of the restoration of the West Weaver Creek and would not result in the placement of new sensitive land uses within the project area that could be exposed to aircraft noise. In addition, the nearest airport to the project area is the Weaverville Airport located approximately 2.2 miles east of the project site. Therefore, this would result in **no impact**.

## Mitigation Measures

**Mitigation Measure Noise-1:** To reduce daytime noise impacts due to onsite restoration, the project sponsor shall require contractors to implement the following measures:

- All restoration equipment shall be maintained and properly tuned in accordance with manufacturer's specifications and shall include appropriate mufflers.
- Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible.

## References

Federal Highway Administration (FHWA). *FHWA Roadway Construction Noise Model User's Guide*. January 2006.

Federal Transit Administration (FTA). *FTA Guidance manual for Transit Noise and Vibration Impact Assessment.* May, 20016.

Trinity County, 2003. *Trinity County General Plan Noise Element*. October 2003.

# Population and Housing

| *Issues (and Supporting Information Sources):* | *Potentially Significant Impact* | *Less Than Significant with Mitigation Incorporation* | *Less Than Significant Impact* | *No Impact* |
|---|---|---|---|---|
| **12. 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)? | ☐ | ☐ | ☒ | ☐ |
| b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |

## Discussion

a) The proposed project would provide temporary employment for several people during construction. The proposed project would not result in the permanent creation of new jobs that would induce substantial population growth. Additionally, the proposed project would not indirectly result in supporting population growth. This impact is **less than significant**.

b, c) The proposed project would be constructed on undeveloped land and would not displace any housing or people; consequently, replacement housing would not be required. There is **no impact**.

# Public Services

| Issues (and Supporting Information Sources): | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **13. PUBLIC SERVICES — Would the project:** | | | | |
| a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: | | | | |
| i) Fire protection? | ☐ | ☒ | ☐ | ☐ |
| ii) Police protection? | ☐ | ☐ | ☒ | ☐ |
| iii) Schools? | ☐ | ☐ | ☐ | ☒ |
| iv) Parks? | ☐ | ☐ | ☐ | ☒ |
| v) Other public facilities? | ☐ | ☐ | ☐ | ☒ |

## Discussion

a.i) The project site is located in an area of Trinity County designated as a State Responsible Area (SRA) for fire protection. SRAs are directly protected by the California Department of Forestry and Fire Protection (CalFire) fire engines responding from state-owned fire stations. The project area is serviced by the CalFire Shasta-Trinity Unit which has a station located in Weaverville (34400 Highway 3, Weaverville, CA 96093) approximately 2.1 miles east of the project site.

As discussed in the Hazards and Hazardous Waste Section (Section 3.9), construction activities are a potential source of wildfire ignition. Therefore, the short-term impact associated with wildland fire potential and behavior would result in a **significant impact.** However, implementation of **Mitigation Measure HM-1** would reduce the potential for wildfire associated with construction of the proposed project to a **less than significant** impact.

a.ii) The Trinity County Sheriff's Department provides law enforcement services for the unincorporated areas of Trinity County. The California Highway Patrol handles all traffic enforcement and automobile accident investigations for the unincorporated parts of Trinity County.

Construction of the proposed project may result in accidents or emergency incidents that would require police services; however, construction activities would be short-term and limited in scope. The proposed project is a salmon habitat restoration project that would not create additional demands on the local police district during operations. This is a **less than significant** impact.

a.iii-v) The proposed project is a salmonid habitat restoration project and would not generate any additional demand for schools, parks, or other public facilities. The proposed project will not create any new structures requiring fire or police service and it will not generate any additional residential population that will increase demand on other public services in the project area. There is **no impact**.

# Recreation

| *Issues (and Supporting Information Sources):* | *Potentially Significant Impact* | *Less Than Significant with Mitigation Incorporation* | *Less Than Significant Impact* | *No Impact* |
|---|---|---|---|---|
| **14. RECREATION — Would the project:** | | | | |
| a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated? | ☐ | ☐ | ☐ | ☒ |
| b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

The USFS manages approximately one-third of the land in the northern portion of the project site. The remaining land is private property, which include residential infrastructure and uses. Recreation use on these parcels is unknown, but is likely minimal as site access and recreational opportunities are limited. The project site may support very limited fishing use. There are no developed regional or neighborhood parks or other recreational facilities within or directly adjacent to the project site.

## Discussion

a, b) The proposed project is a salmon habitat restoration project; it would not contribute to an increase in the local population, and no additional demand on existing neighborhood or regional parks would be created. The project does not include any recreation facilities. Under the proposed project, beneficial impacts to recreation may result from increased fish populations, both locally and regionally. Therefore, the proposed project would result in **no impact**.

# Transportation and Traffic

| *Issues (and Supporting Information Sources):* | *Potentially Significant Impact* | *Less Than Significant with Mitigation Incorporation* | *Less Than Significant Impact* | *No Impact* |
|---|---|---|---|---|
| **15. TRANSPORTATION AND TRAFFIC — Would the project:** | | | | |
| a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)? | ☐ | ☐ | ☒ | ☐ |
| b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? | ☐ | ☐ | ☒ | ☐ |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks? | ☐ | ☐ | ☐ | ☒ |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☐ | ☐ | ☒ |
| e) Result in inadequate emergency access? | ☐ | ☐ | ☐ | ☒ |
| f) Result in inadequate parking capacity? | ☐ | ☐ | ☒ | ☐ |
| g) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | ☐ | ☐ | ☐ | ☒ |

## Affected Environment

Regional access to the project site is provided by State Highway 299. There are two alternative access routes for access to the project site. The primary alternative access route to the project site is on the west side of the creek is via a private road that connects to Oregon Street, which intersects with Highway 299 in the town of Weaverville. The secondary alternative access route is from the intersection of State Highway 299 and McCoy Lane with access to the work area is via an existing dirt access road along the east side of the creek. It is likely only the primary access route will be utilized. All public routes are two-lane surfaced roads. The private access roads are single lane.

The project area is relatively rural. Vehicle and heavy machinery access to the project area would occur on existing roads and parking for construction personnel would occur within proposed staging areas. Project traffic would arrive on Oregon Street (or McCoy Lane) after traveling through the more highly used and urbanized Highway 299 that provides regional access through the area. Delivery of heavy equipment and construction employee traffic would occur during construction activities. Trucks for transportation of water for dust control, construction workers and construction materials would also access the site daily.

## Discussion

a, b, f) The purpose of the proposed project is to provide adequate and safe vehicle access and provide a structure that would meet current design standards for the traffic utilizing this bridge. The proposed project would not increase the number of lanes and would not increase long-term traffic levels. The proposed project would not conflict with any plan or policy established for measuring the performance of the circulation system. Additionally, the proposed project would not result in impacts to level of service along La Grange Road. This is a ***less-than-significant*** impact, with no further mitigation measures required.

c) The proposed project does not include structures or uses that would affect air traffic patterns, nor is an airport located in proximity to the project site. Therefore, the proposed project would not result in substantial safety risks related to air traffic and would result in **no impact**.

d) The proposed project would not involve redesign or reconfiguration of roadways, and there would be no incompatible types of vehicles introduced. In addition, the project would not result in the introduction of any hindrances to pedestrian and bicycle movements in the area. Therefore, the proposed project would result in **no impact**.

e) The project does not alter the existing emergency access to the project area. Therefore, the proposed project would result in **no impact**.

g) The proposed project will not conflict with adopted policies, plans, or programs supporting alternative transportation. Therefore, the proposed project would result in **no impact**.

# Utilities and Service Systems

| *Issues (and Supporting Information Sources):* | *Potentially Significant Impact* | *Less Than Significant with Mitigation Incorporation* | *Less Than Significant Impact* | *No Impact* |
|---|---|---|---|---|
| **16. UTILITIES AND SERVICE SYSTEMS — Would the project:** | | | | |
| a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board? | ☐ | ☐ | ☐ | ☒ |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |
| c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | ☐ | ☐ | ☐ | ☒ |
| e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ☐ | ☒ |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | ☐ | ☐ | ☒ | ☐ |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | ☐ | ☐ | ☐ | ☒ |

## Discussion

a-e, g) The proposed project would not generate any wastewater or require the construction of additional wastewater or water treatment facilities. No drainage facilities currently exist; water drains into West Weaver Creek. No new water drainage facilities would be needed as a result of the proposed project. The proposed project does not propose the construction or use of any potable water connections within the project site. The proposed project will not result in the need for new or expanded water supply resources. The proposed project would comply with all federal, state, and local statutes and regulations related to solid waste. Therefore, the proposed project would result in **no impact**.

f) The proposed project would generate minimal waste from temporary construction activities. The landfills that serve the project area have the capacity to accept waste generated by the proposed project. Therefore, the proposed project would result in a **less than significant impact**.

# Mandatory Findings of Significance

| *Issues (and Supporting Information Sources):* | *Potentially Significant Impact* | *Less Than Significant with Mitigation Incorporation* | *Less Than Significant Impact* | *No Impact* |
|---|---|---|---|---|
| **17. MANDATORY FINDINGS OF SIGNIFICANCE — Would the project:** | | | | |
| a) 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? | ☐ | ☐ | ☒ | ☐ |
| b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | ☐ | ☐ | ☒ | ☐ |
| c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☐ | ☒ | ☐ |

## Discussion

a) Per the impact discussions above, the potential of the proposed project to substantially degrade the environment is **less than significant** with incorporated mitigation measures.

b) The impacts of the proposed project are mitigated to a less-than-significant level, limited to the construction phase of the proposed project, and generally site specific. No other projects are proposed that would overlap or interact with the proposed project. The cumulative impact of the proposed project is **less than significant**.

c) The proposed project will not result in any substantial adverse effects to human beings, either directly or indirectly, since each potentially significant impact can be reduced to a less-than-significant level with the implementation of the mitigation measures provided in this document. No other substantial adverse effects to human beings are anticipated as a result of this project, resulting in a **less-than-significant** impact.

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