

**Trinity River Channel Rehabilitation Sites: Bucktail  
(River Mile 105.3-106.35) and Lower Junction City (River Mile 78.8-79.8)**

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**Final Environmental Assessment/Initial Study  
DOI-BLM CA-N060-2014-014-EA and TR-EA0114**

**April 2014**

**This document has been split into six parts to reduce the size of the document for distribution via the internet.**

**This is Part 2 of 6**

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- Turbidity,
- Settleable material,
- Suspended material, and
- Chemical constituents.

The impacts would be associated with in-channel work including the placement and deconstruction of the low-flow channel crossing at the Bucktail site. Although the design elements and construction methods described in Appendix A are intended to minimize these impacts, the activities associated with construction, particularly in riverine and in-channel activity areas, would result in significant impacts.

### **Mitigation Measures**

Construction and maintenance of the Proposed Project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan. Therefore, mitigation measures identified above for Impacts 3.5-1, 3.5-2, and 3.5-3 and described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. These particular mitigation measures address potential impacts to multiple resources, but they are only listed once in an attempt to reduce the size of the document. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

## **3.6 Fishery Resources**

This section describes the fishery resources and aquatic habitats that are known to occur within the boundaries of the sites and evaluates the impacts of the Proposed Project on these resources. The TRFEFR (USFWS and HVT 1999) determined that lack of spawning and rearing habitat for juvenile salmonids is likely a primary factor in limiting the recovery of salmonid populations in the Trinity River. Activities at the Proposed Project sites are specifically designed to increase the abundance of habitat for Trinity River salmonids by reconnecting the river with its floodplain, increasing channel sinuosity, and providing shallow low velocity habitats in close proximity to the river's edge. The discussion of fisheries resources is based on a focused literature review, informal consultation with resource agencies, and observations made during site visits. These resources are discussed in the Master EIR (Section 4.6 and Appendix G). The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and Essential Fish Habitat (EFH) are also described in the Master EIR (Section 4.6).

### **3.6.1 Affected Environment/Environmental Setting**

#### **3.6.1.1 Native Anadromous Fish Species**

The native anadromous species of interest in the mainstem Trinity River and its tributaries are Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss irideus*) and Pacific lamprey (*Entosphenus tridentatus*). There are two spawning races of Chinook salmon (spring- and fall-run) and two spawning races of steelhead (winter- and summer-run). The life histories and fresh water habitat requirements of these and other species and their distinct spawning populations are described in Appendix G of the Master EIR.

#### **3.6.1.2 Resident Native and Non-Native Fish Species**

Resident native fish species found in the Trinity River Basin include game fish such as rainbow trout (*Oncorhynchus mykiss*) and non-game fish such as speckled dace (*Rhinichthys osculus*), Klamath smallscale sucker (*Catostomus rimiculus*), Klamath River lamprey (*Lampetra similis*), three-spined stickleback (*Gasterosteus aculeatus*), coast range sculpin (*Cottus aleuticus*), and marbled sculpin (*Cottus klamathensis*). The abundance of resident native species and the factors affecting their abundance within the basin are not well understood; however, all these species evolved and existed in the Trinity River prior to the TRD and are presumably adapted to those conditions.

Non-native fish species found in the Trinity and Klamath River Basins include American shad (*Alosa sapidissima*), brown bullhead (*Ameiurus nebulosus*), green sunfish (*Lepomis cyanellus*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*) (USFWS, unpublished data). American shad occur in the lowermost portions of the Trinity River Basin, but are primarily found in the Lower Klamath River Basin. Anadromous brown trout were propagated in the Trinity River Salmon and Steelhead Hatchery until 1977, when this practice was discontinued because of small numbers and the lack of anadromous characteristics of fish entering the hatchery. Currently, brown trout are largely limited to the upper portions of the river, although some brown trout exhibit anadromous characteristics. Brook trout provide a significant sport fishery in the tributary streams and high-elevation lakes of the Trinity River Basin. Its life cycle and habitat requirements are similar to those of brown trout. The structure and abundance of populations of these species in the Trinity and Lower Klamath River Basins are unknown.

### **3.6.1.3 Special Status Species**

Special status fish species with the potential to occur at rehabilitation sites in the Trinity River are discussed in the Master EIR (Section 4.6 and Appendix G) and are summarized below.

#### **Coho Salmon**

The Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) of coho salmon was listed as threatened pursuant to the federal Endangered Species Act (ESA) on April 25, 1997. This listing includes coho salmon from the Trinity River and Klamath River Basins. Critical habitat for the SONCC ESU coho salmon was designated on May 5, 1999; in the Trinity River Basin, designated critical habitat for this species consists of the water, substrate, and adjacent riparian zone of those estuarine and riverine reaches (including off-channel habitats and accessible tributaries) downstream of Lewiston Dam (Federal Register Vol. 64, No. 86, May 5, 1999, 24049-24062). The 2000 Biological Opinion on the Trinity River Mainstem Fishery Restoration EIS (NMFS 2000) found that the program “*is not likely to jeopardize the continued existence of the [SONCC ESU] coho salmon*”, and “*is not likely to destroy or adversely modify critical habitat for the [SONCC ESU] coho salmon.*”

Both Reclamation’s 2000 Biological Assessment and NMFS’ subsequent 2000 Biological Opinion acknowledged that construction at channel rehabilitation projects would not occur “within the wetted channel.” However, in-channel work would occur related to proposed activities at the Proposed Project sites. After considerable restoration planning and design work by TRRP staff, NMFS, with support from the TMC, now considers in-channel work a necessary component to successfully carry out and achieve program goals and objectives as detailed in the ROD. The TRRP concluded that reinitiation of formal consultation under Section 7 of the ESA was not warranted because effects to SONCC coho salmon were consistent with and not likely to rise above those that were considered in the original 2000 Biological Opinion. In May 2006, NMFS concurred that reinitiation of formal consultation was not warranted if bank rehabilitation activities were authorized within the wetted channel (NMFS 2006).

#### **Steelhead**

The KMP ESU of steelhead, which includes stocks from Trinity River, was proposed for federal listing as threatened on March 16, 1995; however, on February 7, 1998, NMFS determined that the population did not warrant threatened status, but that it did warrant candidate status (as defined by NMFS). Subsequent information on the KMP ESU steelhead was evaluated and NMFS made a final listing determination that the ESU did not warrant listing in April 2001 (Federal Register Vol. 66, No. 65, April 4, 2001, 17845-17856). The summer-run population segment of this ESU remains a California Species of Special Concern, as well as a USFS sensitive species (Moyle et al. 1995; USFWS 1995).

#### **Chinook**

Similarly, in a 1998 status review of all west coast Chinook salmon stocks (Myers et al. 1998), the Upper Klamath-Trinity Rivers ESU Chinook salmon was determined to not warrant listing as a threatened or

endangered species. However, spring-run Chinook salmon within the Klamath-Trinity Basin is a California Species of Special Concern (Moyle et al. 1995).

### ***Pacific Lamprey***

The Pacific lamprey, along with three other lamprey species, was petitioned for federal listing in 2003. On December 27, 2004, the USFWS announced that the petition along with additional information does not present substantial scientific or commercial information indicating that listing of these species may be warranted (Federal Register Vol. 69, No. 247, December 27, 2004, 77158-77167). BLM lists the Pacific lamprey as a sensitive species (USDI BLM 2008).

### **Local Aquatic Habitat**

The aquatic environment in the general vicinity of the Proposed Project sites is characterized by a sequence of aquatic mesohabitat types. Each of these habitat types consists of distinctive combinations of depth, water velocity, water temperature, cover, substrate composition (bedrock, cobble, gravel, sand, silt, etc.), and adjacent riparian vegetation. Figures 8 and 9 illustrate aquatic mesohabitat as qualitatively defined by the USFWS in a 2002 survey.

In general, moderate slope (near riffle) and low slope (glide) areas equate to faster reaches than deep pools, and runs, which are intermediate in depth. A low slope area may alternatively be named a glide and moderate slope areas (near riffle) often include aerated waters. Riparian vegetation directly adjacent to the river is referred to as shaded riverine aquatic (SRA) habitat and is included as a component of designated critical habitat for coho salmon, as well as a component of EFH for both coho and Chinook salmon. Juvenile coho are expected to utilize suitable habitats in the 40-mile reach of the mainstem Trinity River below Lewiston Dam year-round (North Coast Regional Water Board and Reclamation 2009). Pool habitat associated with boulders and LWD is particularly preferred by rearing coho salmon (Hassler 1987; Sandercock 1991; Moyle 2002).

In 2003, a radio-telemetry study of migration and behavioral thermoregulation of adult spring-run Chinook salmon was conducted in the upper Trinity River (Marine and Lyons 2004). Tagged fish used available run and glide habitats that were typically large (surface area) and offered depths up to 4 feet. These habitats held fish for longer periods than other portions of the study reach.

Adult summer/fall-run steelhead migrate to, and hold in, the deeper pools, runs, and glides along the river between April and January (Leidy and Leidy 1984; Moyle 2002). These fish are active throughout the salmon spawning season, and migrate to the upper-most river reaches and into tributaries to spawn from February through April. Winter-run steelheads migrate to spawning grounds from November through April and spawn during the same time as the summer/fall run. Suitable steelhead spawning habitat occurs in riffles throughout the river. Suitable juvenile steelhead rearing habitat also occurs in the river. Fry and juvenile steelhead of both runs may be expected in the riffles and run/pool habitats year-round, especially those associated with abundant SRA and large cobble/boulder habitat, including LWD (Hampton 1988; Moyle 2002).

The proposed rehabilitation sites are located downstream of several major tributaries, including Canyon and Reading creeks. These tributaries provide water and sediment to the mainstem year-round, but especially during winter floods. A review of historic aerial photographs between 1944 and 2012 provides insight into channel changes over time at the Bucktail site. These photographs show a dramatic decrease in bankfull channel width between 1944 and 2012 (HVT et al. 2013c). Reduced flows from Trinity Dam operations narrowed the existing bankfull channel width of 200-250 feet down to its current bankfull width of between 100 and 120 feet. Safety of Dam releases, tributary floods, and ROD high flow releases have exacerbated the problem, depositing additional fine sediment along the left bank and scouring the channel into its current rectangular form with near vertical banks. The channel upstream of RM 105 is primarily comprised of gravel and cobble (HVT et al. 2013c).

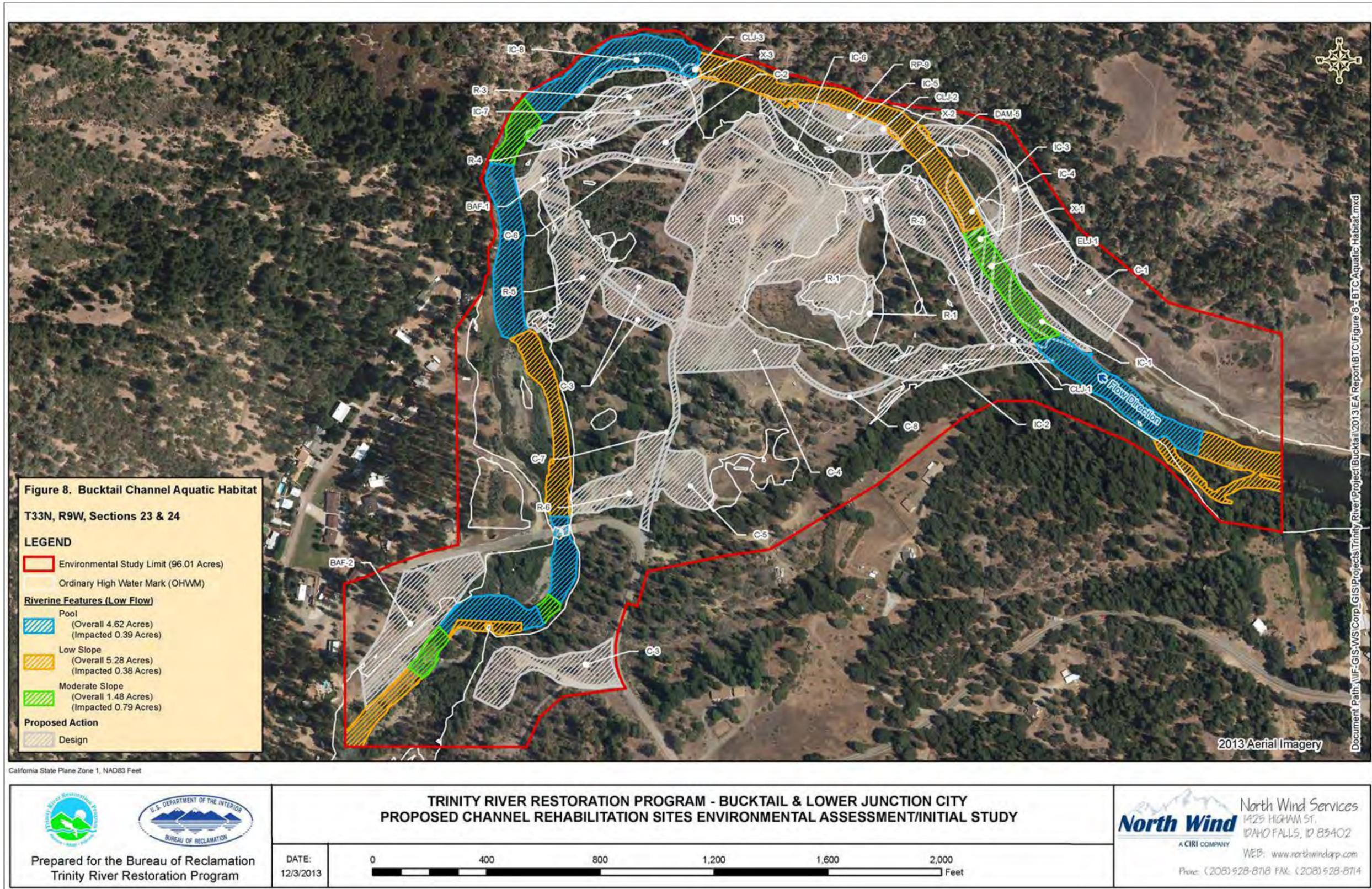


Figure 8. Aquatic Habitat and Potential Project Impacts at the Bucktail Rehabilitation Site.

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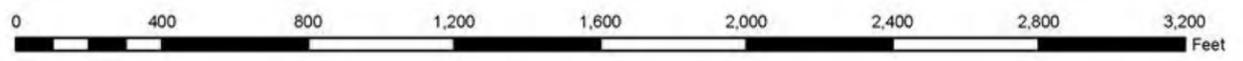
 <p>Prepared for the Bureau of Reclamation Trinity River Restoration Program</p>	<b>TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL &amp; LOWER JUNCTION CITY          PROPOSED CHANNEL REHABILITATION SITES ENVIRONMENTAL ASSESSMENT/INITIAL STUDY</b>		 <p>North Wind Services 1425 HIGHWAY ST. IDAHO FALLS, ID 83402 A CIRI COMPANY WEB: www.northwindapp.com Phone: (208) 528-8718 FAX: (208) 528-8714</p>
	DATE: 12/3/2013		

Figure 9. Aquatic Habitat and Potential Project Impacts at the Lower Junction City Rehabilitation Site.

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Suitable spawning habitat for anadromous salmonids occurs in most riffles, particularly in low-slope riffles and tail-outs of pools and deep run/glide habitats. Salmon spawning surveys in the upper Trinity River conducted annually by the CDFW (in cooperation with the YT, USFWS, and USFS) report that the greatest concentration of Chinook and coho salmon spawning occurs in the upper survey sections, which range from Lewiston Dam to Old Lewiston Bridge and Old Lewiston Bridge to Bucktail Bridge. Approximately 15 Chinook redd locations were mapped in the Bucktail reach in 2012 (HVT et al. 2013c). The Bucktail reach provides approximately 97,390 square feet of Chinook pre-smolt habitat and 61,660 square feet of Chinook fry habitat at 300 cfs. At 1,200 cfs the reach provides approximately 80,990 square feet of pre-smolt habitat and 38,600 square feet of fry habitat, and at 2,000 cfs there is 162,600 square feet of pre-smolt habitat and 88,150 square feet of fry habitat (HVT et al. 2013c).

Some areas of the Lower Junction City site provide spawning and rearing habitat for salmonids. Spawning activity at the site occurs at relatively low density along the straight portion of channel between the Dutch Creek Bridge and Junction City Hole, and on the tail-out of the Junction City Hole. Relatively high density spawning occurs (at least in recent years) on and upstream of the Canyon Creek Delta. Deep adult salmon holding habitat currently occurs within the Junction City Hole. Approximately 76 redd locations were mapped in the Lower Junction City reach in 2012 (Reclamation et al. 2013). As mapped at summer baseflows, the Lower Junction City site has approximately 32,290 square feet of fry habitat and 44,130 square feet of presmolt habitat (Reclamation et al. 2013).

### ***Habitat Conditions***

Construction and operation of the TRD, combined with watershed erosion, large-scale gold dredging, and other human-caused disturbances, have resulted in major changes in habitat conditions in the Trinity River. Factors that have resulted in adverse effects on fish habitat include:

- Obstruction to river reaches upstream of the TRD (Lewiston Dam);
- Changes to quantity and timing of flows;
- Changes in channel geomorphology;
- Changes in substrate composition caused by the addition of fine sediments and restriction of gravel recruitment; and
- Changes in water temperature.

These factors are addressed in other sections of this document, specifically Section 3.3, Geology, Fluvial Geomorphology, and Soils; Section 3.4, Water Resources; and Section 3.5, Water Quality, as well as in the respective sections of the Master EIR. The relationship between these factors and fish is summarized in the following paragraphs.

The TRD blocked access to 59 miles of Chinook salmon habitat, 109 miles of steelhead habitat, and an undetermined amount of coho salmon habitat (USFWS 1994). Much of this habitat is thought to have been prime spawning and rearing habitat. In the case of Chinook salmon, it represented about 50 percent of the suitable spawning habitat in the upper Trinity River Basin. As early as 1980, the overall decline in spawning habitat was estimated at 80 to 90 percent (USFWS 1980). Furthermore, the blocking of salmon access to upstream reaches greatly reduced the diversity of habitats available to salmon in the Trinity River.

For the first 21 years of TRD operations (1964 to 1985), Lewiston Dam releases to the Trinity River averaged only 21 percent of the natural river inflow. The reduction in flows led to a reduction in habitat and declining quality in the remaining habitat. For example, spawning habitat losses in the mainstem Trinity River below the Grass Valley Creek confluence have been estimated to be 80 percent in the first 2 miles and up to 50 percent overall in the 6 miles downstream of that confluence (USFWS 1994).

The altered patterns of fluvial geomorphic processes in the upper Trinity River have resulted in a reduction in the number of alternate gravel bar sequences with a resultant change in substrate quality and a loss of important salmonid habitats associated with the alternate bars (e.g., pools, riffles, open gravel/cobble bars,

and slack-water habitats). Additionally, functional side-channel habitat has also been affected by modifications to alluvial deposits.

Changes in substrate composition occur in conjunction with upland and riverine processes. The construction and operation of the TRD have modified the sediment regime of the mainstem Trinity River, particularly the 40-mile reach below Lewiston Dam. The thermal environment of the Trinity River has also changed as a combined result of the construction and operation of the TRD and the subsequently altered geomorphic patterns of the river downstream. In comparison to pre-TRD conditions, water temperatures below Lewiston Dam today are cooler in the summer and warmer in the winter.

### ***Habitat Restoration Projects***

Since the early 1980s, the Trinity River Basin Fish and Wildlife Restoration Program has conducted a variety of restoration activities in the mainstem Trinity River and its tributaries. Restoration activities in the mainstem Trinity River have included coarse sediment (spawning gravel) supplementation, pool dredging to remove fine sediment and restore valuable holding habitat and construction of several channel rehabilitation projects (side channels and bank rehabilitation of point bars).

From 1990 through 1993, the Trinity River Basin Fish and Wildlife Restoration Program constructed 29 channel rehabilitation projects on the mainstem Trinity River between Lewiston Dam and the North Fork Trinity River, 20 side-channel projects, and nine bank rehabilitation projects (also known as feathered-edge projects). Monitoring of the previous channel rehabilitation projects has documented Chinook salmon spawning within the constructed side-channels and along some “feathered-edge” sites (Regional Water Board and Reclamation 2009; USFWS, unpublished data). An evaluation of the monitoring results associated with early restoration efforts concluded that “when properly constructed, bank rehabilitation can effectively increase the amount of salmonid fry rearing habitat in the Trinity River” (USFWS and HVT 1999).

## **3.6.2 Environmental Consequences/Impacts and Mitigation Measures**

### ***3.6.2.1 Methodology***

The analytic methods used to assess potential impacts of the Proposed Project on fisheries resources included a comprehensive literature search and focused field surveys. Evaluation of the presence of special status fish species and sensitive habitats within the boundaries of the site was conducted by performing a database search of the California Natural Diversity Database (CNDDDB), informally consulting with resource agencies (e.g., CDFW, NMFS, and USFWS), and reviewing environmental documents and technical studies prepared for projects in the vicinity. Aquatic habitat within the 40-mile reach below Lewiston Dam was identified and characterized based on the USFWS mesohabitat delineations map, reconnaissance-level site visits, consultation with local fishery biologists, and review of pertinent literature and data. These efforts were conducted to provide an overview of the quality and character of potential suitable spawning, holding, and rearing habitat present within these reaches.

### ***3.6.2.2 Significance Criteria***

Significance criteria used to assess the potential impacts of the Proposed Project on fisheries resources are based on the current scientific understanding of the biological requirements and ecological status of the species of interest, and the regulatory standards of county, state, and federal agencies, including the CEQA Guidelines. A significant impact on anadromous salmonids and other native fish would occur if the Project would result in any of the following:

- Potential to substantially reduce the number or restrict the range of an endangered or threatened native fish species or a native fish species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- Potential for substantial reductions in the habitat of any native fish species other than those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- Potential for causing a native fish population to drop below self-sustaining levels;

- Substantial adverse effect, either directly or through habitat modifications, on any native anadromous species identified as a sensitive or special status fish species in local or regional plans, policies, or regulations;
- Substantial interference with the movement of any native anadromous or resident fish species;
- A conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan relating to the protection of native anadromous species or resident fish species;
- Mortality of state or federally listed fish species, or species that are candidates for listing or proposed for listing;
- Reductions in the size of the population of a native fish species sufficient to jeopardize its long-term persistence;
- Temporary impacts to habitats such that native fish species suffer increased mortality or lowered reproductive success that jeopardizes the long-term persistence of those local populations;
- Permanent loss of designated critical habitat and/or essential habitat of a listed species or special status native fish species; or
- Reduction in the quantity or quality of habitats in which native fish species populations occur sufficient to reduce the long-term abundance and productivity of local populations.

### 3.6.2.3 Impacts and Mitigation Measures

Table 10 summarizes the potential fisheries impacts that would result from the No-Project and Proposed Project alternatives.

<b>Table 10. Summary of Potential Fishery Resource Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>No-Project Alternative</b>	<b>Proposed Project</b>	<b>Proposed Project With Mitigation</b>
Impact 3.6-1. Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-2. Implementation of the project could result in increased erosion and sedimentation that could adversely affect fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-3. Construction activities associated with the project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-4. Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-5. Implementation of the project would result in the permanent and temporary loss of SRA habitat for anadromous salmonids.		
No impact	Significant	Less than significant
Impact 3.6-6. Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.		
No impact	Significant	Less than significant

Impact 3.6-1: Implementation of the Proposed Project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon.

## ***No-Project Alternative***

Under the No-Project alternative, there would be no effects on spawning and rearing habitat other than those associated with current ongoing actions because the Project would not be constructed. As described in Chapter 1, the TRRP and other entities have been implementing channel rehabilitation projects for several years. These projects continue to affect the Trinity River with regards to flows, sediments, channel morphology, and riparian vegetation.

These effects would continue to influence the spawning and rearing habitat for anadromous fishes, irrespective of this alternative.

## ***Proposed Project***

Features proposed at both sites would have beneficial effects on fisheries as described below. At the Bucktail site, IC-1 would increase channel complexity and shallow low velocity refugia at a variety of flows. Area IC-2 combined with IC-6 would provide up to 60,000 square feet of fry and juvenile rearing habitat that meets depth, and velocity, as well as cover from the placement of habitat structures. Constructed riffles within Area IC-2 would provide adult salmonid spawning areas and productive BMI habitat that increases food resources for fry and juvenile salmonids during critical winter and spring rearing periods. Area IC-4 would increase channel sinuosity and channel complexity, providing fry and juvenile rearing opportunities at a wide range of flows over existing conditions as well as improving adult spawning opportunities. Area IC-5 would double the mainstem channel length providing additional fry and juvenile rearing opportunities as well as improving adult spawning opportunities. Area IC-7 would provide fry and juvenile rearing habitat from 300 cfs - 4,500 cfs that meets cover, depth, and velocity criteria. Area IC-8 would provide slow shallow rearing habitat from 300 - 4,500 cfs and maintain a pool on the outside of a bend along the right bank bedrock to maintain adult holding opportunities. Areas R-1, R-3, R-4, and R-5 would provide slow shallow rearing habitat for streamflows ranging from 1,500 cfs to 4,500 cfs and area R-6 would provide slow shallow rearing habitat for streamflows ranging from 450 cfs to 2,500 cfs.

Wood habitat structures proposed at the Bucktail site would provide immediate cover, depth, and velocity refugia for all salmonid life stages over flows of 300 cfs to 2,000 cfs. CLJ-1 would provide adequate summer rearing habitat for juvenile salmonids, enhance hydraulic and escape cover along the channel margin and reduce the distance to cover from adjacent spawning areas (IC-2 and IC-4). ELJ-1 would add hydraulic and escape cover for fish. The structure also creates physical complexity by creating refugia for juvenile residents and salmonids. The structure would serve to clean and sort spawning gravels, scour sand out of pools, and provide adequate temperature and habitat conditions for fish. The scour pool and cover provided by the wood placed at the apex of the gravel bar would create summer rearing habitat in the form of feeding stations and holding features. CLJ-2 would provide suitable habitat where juvenile salmonids can rest in low velocity water and enhance summer rearing habitat for juvenile salmonids. The structure would provide adequate temperature and habitat conditions for salmonids. CLJ-3 would provide adequate summer rearing habitat for juvenile salmonids. It would enhance hydraulic and escape cover along the channel margin and reduce the distance to cover from adjacent wood structures as well as providing adequate temperature and habitat conditions for fish. Area DAM-5 would backwater areas that would provide velocity, depth, and cover criteria for fry and juvenile salmonid rearing habitat.

At the Lower Junction City site, the IC-1, IC-2, IC-3 meander complex feature would be composed of three distinct elements: an excavated bend along the right bank (IC-1), a constructed diagonal riffle (IC-2), and a constructed point bar (IC-3). This hydraulic diversity translates directly into a suite of diverse physical habitats in an area that presently offers a narrow range of habitat conditions. The R-1, R2 area adjacent to the IC-1, IC-2, IC-3 meander would be lowered to create a new floodplain area that progressively inundates over a flow range from near baseflow to about 8,000 cfs. The R-1, R-2 floodplain would provide an increasingly large area of slow water habitat with increasing discharge. The area would eventually provide wood and allochthonous trophic production to the aquatic ecosystem, as well serve as a high-flow refugia with abundant cover. The R-3 floodplain feature involves lowering of an existing floodplain and low terrace area adjacent to the Junction City Hole. The area would provide fry and juvenile salmonid rearing habitat at discharges of

2000 cfs and up. The area would eventually provide wood and allochthonous trophic production to the aquatic ecosystem, as well serve as a high-flow refugia with abundant cover. Creation of the IC-4 bar expansion and chute would create additional habitat immediately by increasing low-flow edge length, woody cover, and reducing average flow velocities in the channel. The R-4 floodplain would create an additional connected floodplain surface that would eventually provide allochthonous trophic production to the aquatic ecosystem and slow-water habitat with cover during periods of moderately high flow. The IC-5 and IC-6 wood habitat structures would provide highly complex cover habitat and encourage scour that would diversify the local bed topography and hydraulic conditions.

### **Coho Salmon**

Under the Proposed Project, no permanent adverse effects to coho salmon spawning habitat would occur within the rehabilitation sites. Instead, the Proposed Project is expected to result in immediate as well as long-term improvements. Figures 8 and 9 illustrate the extent of the grading, excavating, and coarse sediment addition that would occur below the OHWM in riverine habitat at each of the sites. It is anticipated that implementation of the Proposed Project along with the flow management regime implemented by the TRRP would reactivate channel migration across the floodplain within the boundaries of the sites. This dynamic fluvial channel would result in a net increase in point bar surface area through coarse sediment deposition, increasing spawning habitat within the boundaries of the sites. The addition of coarse sediment would immediately provide suitable sized spawning gravels to coho and other salmonids.

Adverse effects on spawning habitat are expected to be limited to short-term, localized sedimentation caused by settling of silt disturbed by bank-side excavation activities; and the addition of coarse sediment material, including contouring and grading in the low-flow channel. Any salmon redds on or near the in-channel work could be destroyed or disturbed by these construction activities. Silt suspended by these activities may be dispersed and re-settle on downstream suitable spawning areas near the construction area. However, all in-channel work would be conducted only during late-summer (July 15-September 15) low-flow conditions, as authorized by NMFS and CDFW, to avoid impacts to spawning anadromous salmonids.

Additionally, installation of temporary crossings at the Bucktail site for heavy equipment across the low-flow channel could introduce a small amount of silt and cause stream bed disturbance, resulting in re-suspension of fine substrate materials (i.e., silt) and create short-term, localized increases in turbidity and suspended sediments. Crossing locations were selected based on spawning data provided by members of the TMC. In essence, this information indicated that these locations have not been utilized by spawning salmonids. River crossings would occur only during low flow conditions (Trinity River flows of < 1,500 cfs) which typically take place from July through December, but a few equipment crossings at low flow conditions during other months (e.g., late winter/early spring) might also be required. Although the amount of silt mobilized by construction of these crossings is expected to be minimal, this silt could be deposited on either spawning habitat and/or on salmon redds downstream of the activity areas.

Some temporary effects on the quality of habitat for juvenile salmonids would occur through removal of riparian vegetation that contributes to SRA habitat in the Project reaches. The principal effects of in-channel work on fish include displacement of rearing salmonid fishes from their habitat and increased predation risk or reduced feeding efficiency through the loss of the cover function provided by the SRA habitat (Michney and Hampton 1984; Michney and Deibel 1986). However, it is expected that all displaced juvenile fish, including coho salmon, would find suitable habitat within river reaches upstream or downstream of the sites, because juvenile rearing habitat within the mainstem Trinity River is likely under-saturated during summer and fall months (NMFS 2006). The potential direct and indirect effects to fish resulting from increased suspended sediment and turbidity levels are addressed further under Impact 3.6-2.

The adverse impacts on habitat are expected to be offset in the long term by benefits associated with Project implementation. These benefits would accrue from: 1) the constructed inundation surfaces; 2) overall reconnection of inundated surfaces to the river at low flows; 3) increased bed mobility and potential channel migration through the alluvial surfaces; and 4) revegetation of these surfaces with native plant species that would contribute shade and large wood to the river channel. Improved connectivity, particularly during high

flows is expected to increase areas of slow, shallow-water habitat preferred by salmonid fry. The process of channel migration may also create new point bars, further increasing the availability of this preferred habitat. The constructed side channels and alcove habitats and potential channel migration processes would collectively increase the relative abundance of rearing habitat, compared to the existing condition. Approximately 0.38 acres of low slope (glide) habitat would be impacted by in-channel and riverine work at the Bucktail Rehabilitation Site (Figure 8). In addition, 0.79 acres of moderate slope habitat and 0.39 acres of pool habitat would be impacted. At the Lower Junction City Rehabilitation Site, approximately 0.04 acres of low slope (glide) habitat would be impacted by in-channel and riverine work (Figure 9).

In addition, 0.10 acres of moderate slope habitat, 0.01 acres of run habitat, and 0.45 acres of pool habitat would be impacted.

Ultimately, the collective changes in channel morphology as a result of the Proposed Project would improve rearing habitat diversity and abundance, for all anadromous salmonids. LWD would be strategically placed to provide complex physical habitat for juvenile and adult fish in the Trinity River. Large wood hydraulic and habitat structures would create spawning and rearing habitat, increase nutrient and organic matter retention (which increases food production in the system), and provide refuge from predators and cover during high winter flows (Bustard and Narver 1975; Lestelle 1978; Lestelle and Cederholm 1982; Hicks et al. 1991; Cederholm et al. 1997).

### ***Chinook Salmon***

Potential impacts and benefits to Chinook would be generally similar to those previously described for coho salmon. Spring- and fall-run salmon potentially spawn and rear within the sites. Juvenile spring-run Chinook salmon would be expected to rear year-round within the sites and may be displaced by in-river work activities. Additionally, prior to spawning, adult spring-run Chinook salmon may utilize holding habitat offered by run, glide, and pool areas within the sites. No permanent adverse impacts to spring-run Chinook salmon holding habitat would occur. The Proposed Project does not include activities that would directly fill, modify, or otherwise affect the quality or quantity of spring-run holding habitat. Temporary effects on spring-run Chinook holding habitat associated with construction of the Proposed Project would be limited to short-term, localized increases in transient turbidity caused by bank-side excavation activities; main channel split flow construction; island construction; and contouring and grading in the low flow channel. The potential effects of increased suspended sediment and turbidity to holding adult spring-run Chinook salmon are addressed under Impact 3.6-2.

### ***Steelhead***

Potential impacts and benefits to steelhead resulting from implementation of the Proposed Project would be generally similar to those previously described for coho and Chinook salmon. Summer, fall, and winter runs of steelhead may migrate and stage within or near the sites and may spawn (as adults) and rear (as juveniles).

### ***Pacific Lamprey***

Potential impacts and benefits to Pacific lamprey resulting from implementation of the Proposed Project would be similar to those previously described for coho salmon and other anadromous salmonids. The removal of riparian vegetation that contributes to SRA habitat within the sites could have a temporary impact on adult Pacific lamprey by reducing holding and hiding habitat, which is particularly important for upstream migrant adults. However, the implementation of the Riparian Revegetation and Monitoring Plan, described in Appendix A, would lessen this impact over the longer term.

Although the impacts to coho salmon and other anadromous fish under the Proposed Project would be temporary and localized, they would be significant.

### ***Mitigation Measures***

Implementation of the Project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon. Therefore, mitigation measures 4.6-1a and 4.6-1b described in Appendix A will be implemented to reduce the potential for impacts associated

with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-2: Implementation of the Proposed Project could result in increased erosion and sedimentation levels that could adversely affect fishes, including the federally and state-listed coho salmon.

### ***No-Project Alternative***

Under the No-Project alternative, there would be no increase in erosion or sedimentation levels that could adversely affect fish species because the Project would not be constructed. Similar to previous discussions, this alternative acknowledges that a number of restoration activities that are intended to restore the fishery resources and functional values offered by the mainstem Trinity River have been implemented or are ongoing. While some of these activities may result in changes to erosional processes and sedimentation levels, these changes are taken into account in the evaluation of this alternative. The No-Project alternative would not result in an impact with respect to this issue.

### ***Proposed Project***

#### ***Coho Salmon***

Activities related to implementation of the Proposed Project would result in the localized loss of vegetation and general disturbance to the bed and banks of the Trinity River. Removal of vegetation and soil could accelerate erosion processes within the boundaries of the rehabilitation sites and increase the potential for sediment delivery to the Trinity River. The turbidity of a water body is related to the concentration of suspended solids. Suspended solids and turbidity generally do not acutely affect aquatic organisms unless they reach extremely high levels (i.e., levels of suspended solids reaching 25 mg/L). At these high levels, suspended solids can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd 1980).

In-channel and riverine activities including temporary crossings would disturb the alluvial materials that constitute the bed and banks of the Trinity River. Exposed soils on the upland and staging areas are susceptible to mobilization from rainfall during early season runoff events. In-river excavation is planned as part of the Proposed Project; therefore, it is expected that excavation and operation of heavy equipment would resuspend silt and sand, and result in localized and temporary increases of suspended sediment and turbidity.

Operation of heavy equipment in the active channel during these activities would likely resuspend streambed sediments. Any juvenile coho salmon rearing in the area during in-channel construction may be temporarily displaced or their social behavior may be temporarily disrupted by turbidity created during this activity.

Mainstem Trinity River main channel habitat would be temporarily impacted during construction at the Bucktail site, by installation of the X-1, X-2, and X-3 channel crossings for occasional equipment crossing. Removal and spreading of gravels composing the temporary low-flow channel crossings after construction would restore stream channels to original contours. These activities would likely resuspend streambed sediments but are not likely to add silt material to the river. Use of washed, spawning-sized gravels and the cleaning of vehicle wheels prior to crossing the channel would minimize the effects of this action on fish habitat. Any juvenile coho salmon rearing in the area during gravel placement or vehicle crossings may be temporarily displaced or their social behavior may be temporarily disrupted by turbidity created during this activity.

Erosion and deposition of fine sediments associated with implementation of the Proposed Project are expected to be localized and temporary. Some fine-textured materials may settle near or on spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning. Excavation, grading, and coarse sediment addition within the channel would occur only during low-flow conditions between July 15 and September 15, minimizing the potential for adverse effects on all

life stages of coho salmon. Any juvenile coho salmon rearing in the area during this timeframe could be temporarily displaced or their social behavior could be temporarily disrupted by an increase in turbidity. Behavioral disruption, even temporarily, could result in some increased vulnerability to competitive interactions or predation for juvenile coho salmon (Berg and Northcote 1985). These temporary impacts were anticipated and addressed in the 2000 Biological Opinion and associated incidental take statement for the ROD and amended Biological Opinion for in-river work.

### ***Chinook Salmon***

Potential impacts to Chinook salmon populations in the Trinity River resulting from Project implementation would be generally similar to those described for coho salmon. Consequently, re-suspension of fine-textured sediment, potential erosion and sediment runoff, and elevated turbidity for short distances downstream could occur during the migration, spawning, and rearing seasons. Spring- and fall-run Chinook salmon are known to spawn in suitable habitats within and adjacent to the sites. Construction activities are proposed during the spawning period, and in-river construction including temporary crossings may temporarily displace holding adult salmonids. Some fine-textured materials may settle near or on known spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning. Juvenile spring-run Chinook salmon are expected to rear throughout the year within or adjacent to the sites' boundaries, and transient increases in turbidity and re-suspension of sediments would be likely to have similar effects on juvenile Chinook salmon as on coho salmon. Adult spring-run Chinook salmon using holding habitat during the summer months may be displaced to other holding habitats either upstream or downstream by transient turbidity and sediment plumes created by construction activity.

### ***Steelhead***

Potential impacts to steelhead populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho and Chinook salmon. Summer and winter runs of KMP ESU steelhead are known to migrate, stage (as adults), and rear (as juveniles) in the Trinity River throughout the proposed construction season. Both runs generally spawn during the winter.

### ***Pacific Lamprey***

Potential impacts to Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho salmon and other anadromous salmonids. Adult Pacific lamprey migrate upstream from spring through early summer and again in the fall to spawn. Larval lampreys inhabit the river year-round. Siltation of nests that may be built in suitable habitats (i.e., low-slope riffles) could occur. Filter feeding by larval lampreys could be disrupted by an increase in suspended sediments caused by construction-related erosion, although this impact would be very localized and temporary.

While the Proposed Project would increase aquatic habitat within the boundaries of the sites, the proposed construction activities would result in an increase in erosion and sedimentation in the short-term. While the long-term impact would be beneficial, the short-term impacts on fishes within the Trinity River would be significant.

### ***Mitigation Measures***

Implementation of the Project could result in increased erosion and sedimentation levels that could adversely affect fishes, including the federally and state-listed coho salmon. Therefore, mitigation measures 4.6-2a, 4.6-2b, 4.6-2c, 4.6-2d, and 4.6-2e described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-3: Construction activities associated with the Proposed Project could result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon.

### ***No-Project Alternative***

Under the No-Project alternative, there would be no risk of accidental spills of hazardous material because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

#### ***Coho Salmon, Chinook Salmon, Steelhead, and Pacific Lamprey***

Construction activities typically include the refueling of construction equipment on location. The Proposed Project also includes activities that would place mechanized equipment (e.g., trucks, excavators) within the active channel for short periods. As a result, minor fuel and oil spills could occur and there would be a risk of larger releases. Without rapid containment and clean up, these materials could be toxic, depending on the location of the spill in proximity to surface water features, including the Trinity River. Oils, fuels, and other contaminants could have deleterious effects on all life stages of salmonids and other anadromous fish within close proximity to construction activities. Although short-term, these impacts are considered significant.

### ***Mitigation Measures***

Construction activities associated with the Proposed Project could result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon. Therefore, mitigation measure 4.6-3a described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impact to less than significant. Section 3.5, Water Quality, and Section 3.13, Hazards and Hazardous Materials, provide additional details on mitigation measures developed for water quality standards, hazards, and hazardous materials.

Impact 3.6-4: Construction activities associated with the Proposed Project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon.

### ***No-Project Alternative***

Under the No-Project alternative, construction-related mortality to rearing salmonids would not occur because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

#### ***Coho Salmon***

Coho salmon are known to occur throughout the Trinity River. Suitable coho salmon rearing habitat exists within the boundaries of the rehabilitation sites, and juvenile coho salmon may rear within these boundaries year-round. Adult coho migrate through the sites and use suitable spawning habitat throughout the 40-mile reach of the Trinity River below Lewiston Dam. Direct injury to, or mortality of, coho salmon could occur during in-river construction and construction of the low-flow channel crossings planned under the Proposed Project. These activities would be conducted only during late-summer low-flow conditions (e.g., July 15 – September 15), thus, minimizing the potential for direct mortality to rearing coho, because this period corresponds to a time of the year when the fewest number of juvenile coho salmon are known to occur in Project reaches.

NMFS expects that all displaced juvenile fish, including coho salmon, would find suitable habitat within river reaches upstream or downstream of the sites, because juvenile rearing habitat within the mainstem Trinity River is likely under-saturated during summer and fall months (NMFS 2006). The construction period identified above would completely avoid the spawning period for coho salmon; therefore, direct impacts to adult coho salmon or their eggs/alevins (yolk-sac fry) would not occur.

A small, temporary, but uncertain level of stranding of coho salmon fry could occur on the newly constructed inundation surfaces and side channels during rapidly receding flood-flow periods in the winter and early spring when fry are emerging. Additionally, construction of side channel features could result in stranding conditions as flows recede, particularly if the downstream end fills with fine sediments, potentially stranding

coho salmon fry. Although stranding of fry under such receding flood conditions occurs on naturally shallow floodplains (Sommer et al. 2001), the constructed features could increase this process to varying degrees. As fluvial channel migration occurs through these surfaces, the potential for fry stranding is expected to equilibrate to that of a natural stranding risk. While the activities included in the Proposed Project are intended to benefit coho salmon, the short-term construction impacts would be significant.

### **Chinook Salmon**

Potential impacts to Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those described for coho salmon. Physical construction within and directly adjacent to the river channel could disturb holding spring-run Chinook salmon. The principal effect to spring-run Chinook is that they would be forced to relocate. The Proposed Project would not impair migration, and spring-run Chinook salmon would be able to locate and use suitable holding habitat outside of the disturbed areas. Water temperatures are the coolest in the reach of the Trinity River that encompasses the Proposed Project sites, and physiological effects, or ultimately death, are not expected as temperatures in these reaches of the Trinity River (55-59° F) are below the threshold observed where spring run Chinook can accumulate stresses. Based on studies on temperature tolerance, temperatures in other locations within this section of the Trinity River are sufficiently cool that spring-run Chinook are able to deal with stressors (e.g., relocation) without adverse effect (North State Resources 2005).

### **Steelhead and Pacific Lamprey**

Potential impacts to steelhead and lamprey populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho and other anadromous salmonids.

While the activities included in the Proposed Project are intended to benefit salmonids and other aquatic organisms, the short-term construction impacts would be significant.

### **Mitigation Measures**

Construction activities associated with the Proposed Project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon. Therefore, mitigation measures 4.6-4a, 4.6-4b, 4.6-4c, 4.6-4d, and 4.6-4f described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-5: Implementation of the Proposed Project would result in the permanent and temporary loss of SRA for anadromous salmonids.

### **No-Project Alternative**

Under the No-Project alternative, loss of SRA habitat would not occur because the Project would not be constructed. Therefore, there would be no impact.

### **Proposed Project**

As described in the Master EIR Section 4.6, Fishery Resources, the term *riparian habitat* encompasses the range of riparian vegetation conditions along the river corridor including rehabilitation sites. It does not have a specific legal description or definition. For the purposes of this document, the term riparian habitat encompasses the range of riparian vegetation conditions within the boundaries of the sites and is synonymous with SRA habitat.

### **Coho Salmon, Chinook Salmon, Steelhead, and Lamprey**

Removal of montane riparian wetland vegetation along the banks of the Trinity River could adversely affect the quality of SRA habitats used by rearing salmonids. Riparian vegetation is important to the maintenance of healthy fish habitat. Riparian areas provide shade and temperature benefits, sediment, nutrient and chemical regulation, stream bank stability, and inputs of LWD and organic matter to the channel. Riparian vegetation

that is adjacent to the river, a component of SRA habitat, is an element of designated critical habitat for coho salmon and a component of EFH for Chinook and coho salmon. Complexity in the riparian environment, an important component of fish habitat, would be increased over the long-term with construction at the Proposed Project sites.

To maintain overall SRA habitat values in the Project reach, the Proposed Project would be designed to minimize losses of riparian vegetation adjacent to the Trinity River channel, except where necessary to re-activate river access to floodplains. Boundary markers would be installed along all riparian areas outside of delineated activity areas. These markers would minimize impacts to riparian vegetation by preventing construction access. Removal of riparian berms and re-activation of adjacent floodplains within riverine activity areas would allow for natural revegetation of most of the riparian habitat that would be lost as a result of berm removal and floodplain contouring. Additionally, riparian habitat removed under the Project would be replaced during revegetation efforts consistent with requirements of the Riparian Revegetation and Monitoring Plan. While no permanent net loss of SRA features would necessarily occur, the short-term impact of removing riparian vegetation (Figures 10 and 11) is considered a significant impact.

### ***Mitigation Measures***

Proposed Project implementation would result in a permanent and temporary loss of SRA for anadromous salmonids. Therefore, mitigation measures 4.6-5a, 4.6-5b, and 4.6-5c described in Appendix A will be implemented to reduce the potential for impacts. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-6: Implementation of the Proposed Project would result in fish passage being temporarily impaired during the in-stream construction phase.

### ***No-Project Alternative***

Under the No-Project alternative, temporary impairment of fish passage would not occur because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

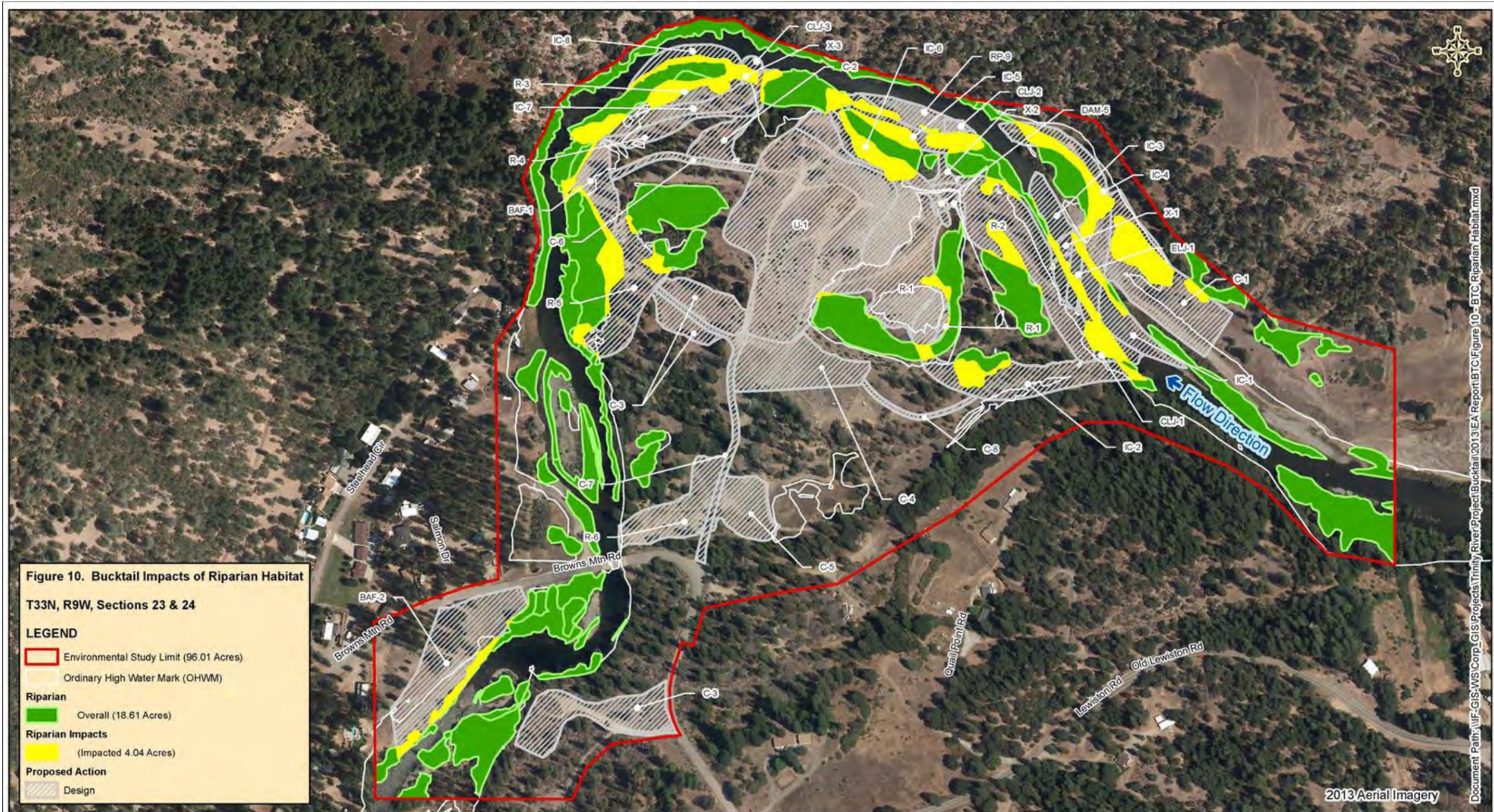
Construction activities at the Bucktail site would require temporary channel crossings to move heavy equipment across the low-flow channels. Implementation at the Bucktail site includes river crossings. These temporary crossings would provide access for in-channel work. The crossings would be constructed to maintain adequate water depths and velocities for fish passage.

### ***Coho Salmon***

Construction activities associated with the Proposed Project would require temporary placement of low-flow channel crossings. The crossings would be constructed in a manner that maintains adequate water depths and velocities for fish passage. The temporary crossings at the Bucktail site would provide access for in-channel work. Construction activities may require service vehicles to cross up to several times per week, otherwise vehicle crossing traffic would be kept to a minimum. The crossings are expected to be in place long enough to complete work at these activity areas and would be removed once work is completed.

The temporary crossings would only be constructed during late-summer, low-flow conditions (e.g., July 15–September 15). Use of river crossings could occur during the onset of the fall coho smolt emigration, depending on seasonal conditions (flow, temperatures, etc.) and would occur during the coho adult migration and spawning period. Upon completion of work in riverine areas requiring use of low-flow channel crossings, these crossings would be dismantled and materials would be contoured to the river bottom. Fill materials would consist of appropriately sized spawning gravel as specified by NMFS and CDFW. Use of the temporary crossings would be restricted to the timeframes outlined in the 2000 Biological Opinion (NMFS 2000).

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**Figure 10. Bucktail Impacts of Riparian Habitat**  
**T33N, R9W, Sections 23 & 24**

**LEGEND**

- Environmental Study Limit (96.01 Acres)
- Ordinary High Water Mark (OHWM)
- Riparian**
- Overall (18.61 Acres)
- Riparian Impacts**
- (Impacted 4.04 Acres)
- Proposed Action**
- Design

California State Plane Zone 1, NAD83 Feet

Prepared for the Bureau of Reclamation  
 Trinity River Restoration Program

**TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL & LOWER JUNCTION CITY**  
**PROPOSED CHANNEL REHABILITATION SITES ENVIRONMENTAL ASSESSMENT/INITIAL STUDY**

DATE: 12/3/2013

0      400      800      1,200      1,600      2,000  
 Feet

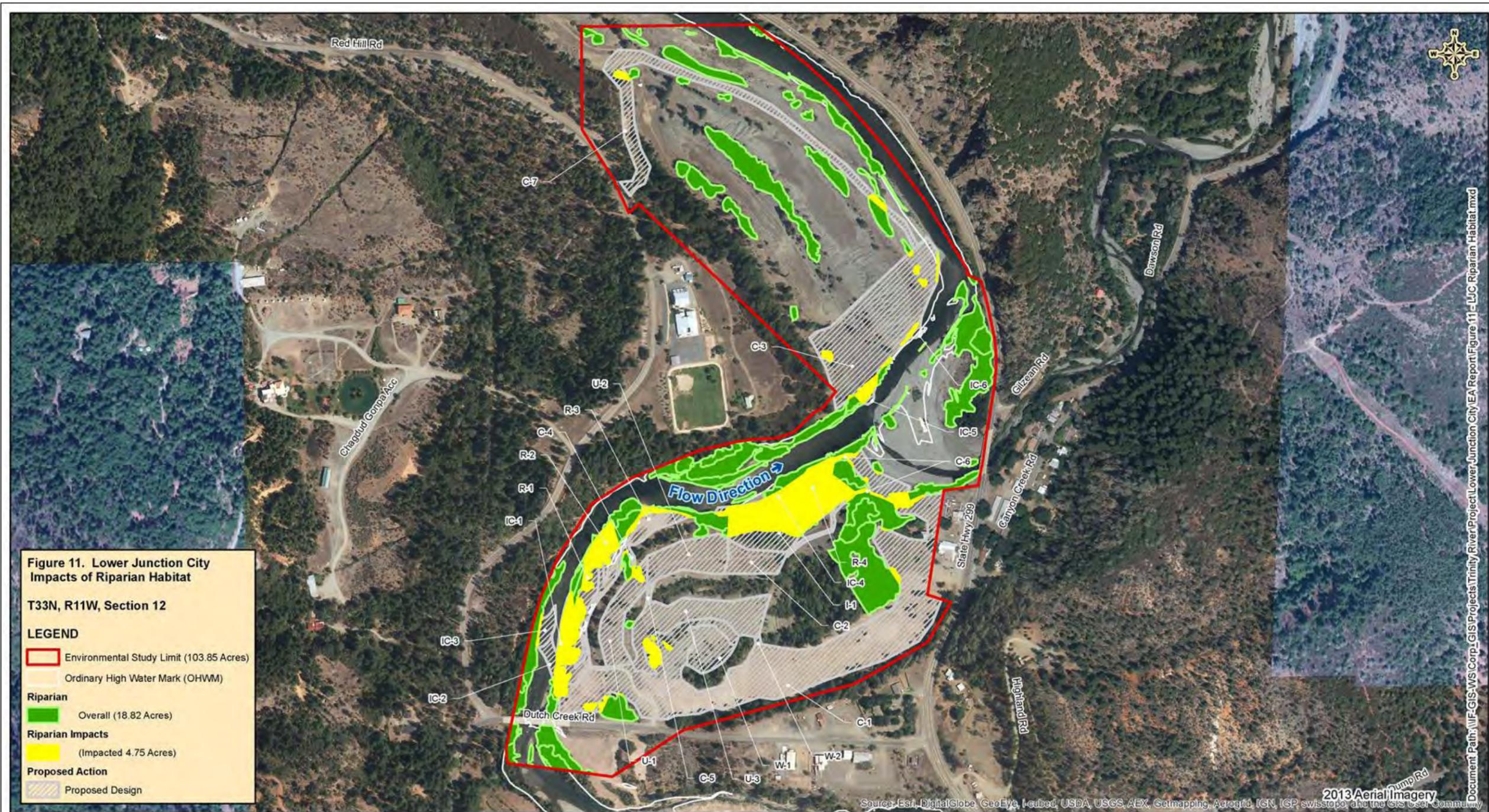
**North Wind** Services  
 1425 HIGHAM ST.  
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 A CTRI COMPANY  
 WEB: www.northwindgrp.com  
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Document Path: \\F:\GIS\WS\Corp\_GIS\Projects\Trinity River\Project\Bucktail\2013\EA\_Report\Bucktail\Figure 10 - BTC Riparian Habitat.mxd

2013 Aerial Imagery

Figure 10. Impacts of the Proposed Project on Riparian Area Habitat at the Bucktail Rehabilitation Site.

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**Figure 11. Lower Junction City Impacts of Riparian Habitat**  
**T33N, R11W, Section 12**

**LEGEND**

- Environmental Study Limit (103.85 Acres)
- Ordinary High Water Mark (OHWM)
- Riparian**
- Overall (18.82 Acres)
- Riparian Impacts**
- (Impacted 4.75 Acres)
- Proposed Action**
- Proposed Design

California State Plane Zone 1, NAD83 Feet 2013 Aerial Imagery

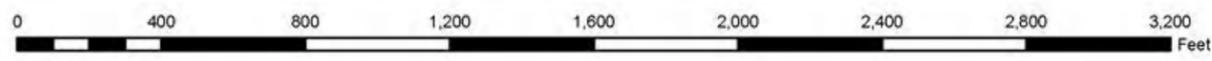
 Prepared for the Bureau of Reclamation Trinity River Restoration Program	 U.S. DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION	<b>TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL &amp; LOWER JUNCTION CITY          PROPOSED CHANNEL REHABILITATION SITES ENVIRONMENTAL ASSESSMENT/INITIAL STUDY</b>	 North Wind Services 1425 HIGHWAY ST. IDAHO FALLS, ID 83402 A CTRI COMPANY WEB: www.northwindgrp.com Phone: (208) 528-8718 FAX: (208) 528-8714
DATE: 12/3/2013			

Figure 11. Impacts of the Proposed Project on Riparian Area Habitat at the Lower Junction City Rehabilitation Site.

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Fish passage design is normally based on the weakest species or life stage present that requires upstream access and should accommodate the weakest individual within that group. For the Proposed Project, low-flow channel crossings would need to meet velocity criteria for upstream migrating juvenile salmonids and depth criteria for migrating adult salmonids, including the federally threatened coho salmon. Maximum velocities and minimum depths are adopted from NMFS Guidelines for Salmonid Passage at Stream Crossings (NMFS 2001) and Part IX Fish Passage Evaluation at Stream Crossings of CDFW's California Salmonid Stream Habitat Restoration Manual (CDFW 2003a). Adult salmonids can negotiate water velocities of up to 8 to 9 feet per second (fps) without difficulty (Bjornn and Reiser 1991). However, juvenile salmonids can only typically negotiate water velocities up to 2 fps over short distances and up to about 1 fps over long distances and sustained periods (NMFS 2001); therefore, crossing designs would include criteria to accommodate these slower velocities for juvenile fish. Minimum water depth over the crossings at low-flow would not be less than 12 inches to provide adequate depth for migrating adult Chinook and coho salmon (NMFS 2001).

Although the construction period could extend into the smolt emigration and coho salmon spawning season, the effect of the low-water crossings on fish passage is expected to be temporary and minimal. Adult anadromous fish generally expend approximately 80 percent of their stored energy reserve during normal upstream migration to suitable spawning areas. Undue exertion or delay at stream crossings due to unsuccessful passage attempts at inadequate (blocking) structures can lead to reduced spawning success and pre-spawning mortality (Robison et al. 1999). Adequate depth and velocities over the crossings would allow for both juvenile and adult passage. While long-term beneficial changes to physical rearing habitat associated with implementing the Proposed Project are anticipated to offset the temporary impacts on fish passage, the temporary impacts on fish passage would be considered significant.

### ***Chinook Salmon***

Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River would be similar to those previously described for coho salmon. However, adult migrants from the spring and fall runs of Chinook salmon would be expected to pass through, stage, and/or spawn within the Project boundaries during the construction season. The temporary placement of gravel fill at the crossing would not preclude fish passage since adequate depths and velocities would be maintained.

### ***Steelhead***

Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho and Chinook salmon.

### ***Pacific Lamprey***

Potential fish passage impacts to Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho and Chinook salmon and steelhead.

### ***Mitigation Measures***

Implementation of the Proposed Project would result in fish passage being temporarily impaired during the in-stream construction phase. Therefore, mitigation measures 4.6-6a, 4.6-6b, 4.6-6c, and 4.6-6d described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

## **3.7 Vegetation, Wildlife, and Wetlands**

This section describes the vegetation, wildlife, and wetlands that are known to occur at the Proposed Project sites and evaluates the impacts of the Proposed Project on these resources. The discussion of biological resources is based on a focused literature review, informal consultation with resource agencies, and observations made during field visits. Additional information about these resources is contained in Section 4.7 of the Master EIR.

### 3.7.1 Affected Environment/Environmental Setting

#### 3.7.1.1 Plant Communities

There are a variety of plant communities present at the Proposed Project sites. The main plant communities known to occur at the sites are shown on Figures 12 and 13 and listed in Table 11. The identification and delineation of these habitat types are based on the draft Trinity River Riparian Vegetation Map 2008 Update (TRRP 2009). The habitat and cover types discussed in this section are distinct from the types of jurisdictional wetlands and “other waters” that are discussed in Section 3.7.1.4. The main plant communities present are described below. Those plant communities as well as others that may be present at the sites are discussed in more detail in the Master EIR (Section 4.7).

<b>Plant Community Types</b>	<b>Bucktail (Acres)</b>	<b>Lower Junction City (Acres)</b>
Fresh Emergent Wetland	1.02	-
Annual Grassland	19.01	16.08
Montane Riparian	16.57	23.83
Montane Hardwood-Conifer	2.21	4.74
Blue Oak-Foothill Pine	0.49	0.18
Ponderosa Pine	1.23	1.28
Klamath Mixed Conifer	13.65	1.15
Montane Hardwood	3.32	-
Mixed Chaparral	0.93	1.29
Valley Foothill Riparian	1.02	0.39
Barren	3.10	33.15
Urban	10.44	4.64

#### **Fresh Emergent Wetland**

Fresh emergent wetland communities are present at the Bucktail site. Fresh emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Fresh emergent wetland habitat occurs in backwaters and depressions along the river and in tailing pits that are saturated for long periods. Species present in this habitat include American tule (*Scirpus americanus*), narrow-leaved cattail (*Typha angustifolia*), dense sedge (*Carex densa*), and common spikerush (*Eleocharis macrostachya*).

#### **Annual Grassland**

Annual grassland communities are present at both sites. Annual grasslands are located on the terraces above montane riparian habitat but below the woodlands. Species present in this habitat include a variety of introduced species, such as Kentucky bluegrass (*Poa pratensis*), wild oats (*Avena fatua*), soft brome (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), cheatgrass (*B. tectorum*), and hare barley (*Hordeum murinum* ssp. *leporinum*); native perennial species, such as creeping wildrye (*Leymus triticoides*); and sedges (*Carex* spp.). Common forbs include broadleaf filaree (*Erodium botrys*), redstem filaree (*E. cicutarium*), California poppy (*Eschscholzia californica*), turkey mullein (*Eremocarpus setigerus*), true clovers (*Trifolium* spp.), burclover (*Medicago polymorpha*), and many others.

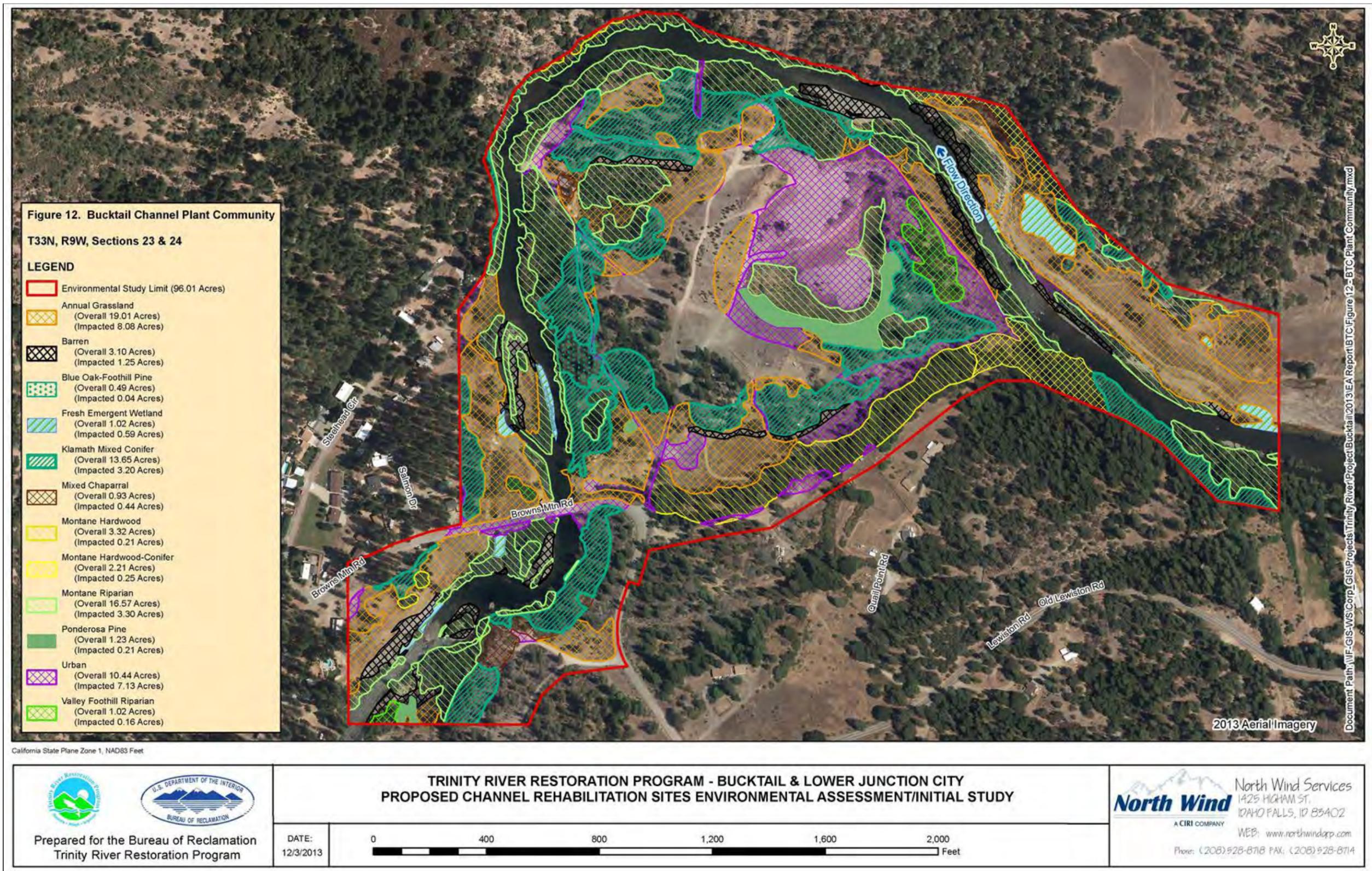
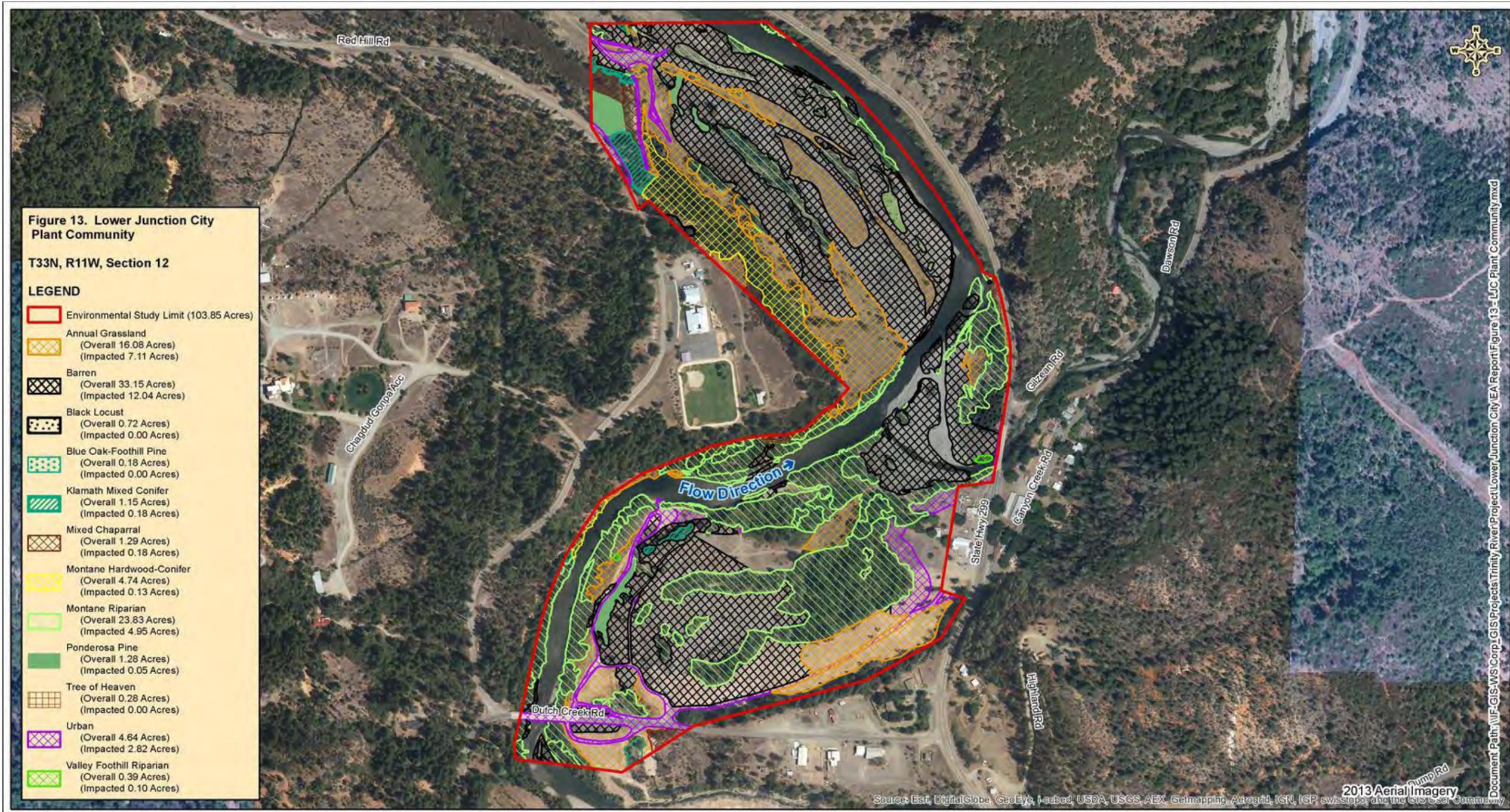


Figure 12. Plant Community Habitats in the Bucktail Rehabilitation Site. (Habitat classification follows the California Wildlife Habitat Relationships [WHR] model).

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<p>Prepared for the Bureau of Reclamation Trinity River Restoration Program</p>		<b>TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL &amp; LOWER JUNCTION CITY PROPOSED CHANNEL REHABILITATION SITES ENVIRONMENTAL ASSESSMENT/INITIAL STUDY</b>		<p>North Wind Services 1425 HIGHAM ST. IDAHO FALLS, ID 83402 A CTRI COMPANY WEB: www.northwindgrp.com Phone: (208) 528-8718 FAX: (208) 528-8714</p>
		DATE: 12/3/2013	<p>0 400 800 1,200 1,600 2,000 2,400 2,800 3,200 Feet</p>	

Figure 13. Plant Community Habitats in the Lower Junction City Rehabilitation Site. (Habitat classification follows the California WHR model.)

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### **Fresh Emergent Wetland**

Fresh emergent wetland communities are present at the Bucktail site. Fresh emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Fresh emergent wetland habitat occurs in backwaters and depressions along the river and in tailing pits that are saturated for long periods. Species present in this habitat include American tule (*Scirpus americanus*), narrow-leaved cattail (*Typha angustifolia*), dense sedge (*Carex densa*), and common spikerush (*Eleocharis macrostachya*).

### **Annual Grassland**

Annual grassland communities are present at both sites. Annual grasslands are located on the terraces above montane riparian habitat but below the woodlands. Species present in this habitat include a variety of introduced species, such as Kentucky bluegrass (*Poa pratensis*), wild oats (*Avena fatua*), soft brome (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), cheatgrass (*B. tectorum*), and hare barley (*Hordeum murinum* ssp. *leporinum*); native perennial species, such as creeping wildrye (*Leymus triticoides*); and sedges (*Carex* spp.). Common forbs include broadleaf filaree (*Erodium botrys*), redstem filaree (*E. cicutarium*), California poppy (*Eschscholzia californica*), turkey mullein (*Eremocarpus setigerus*), true clovers (*Trifolium* spp.), burclover (*Medicago polymorpha*), and many others.

### **Montane Riparian**

Montane riparian communities occur adjacent to and below the OHWM of the Trinity River, as well as other relatively wet locations, and are a major component of the habitat types within these sites. The montane riparian community is composed of riparian plant species that are typical for Trinity County. Dominant tree species include bigleaf maple (*Acer macrophyllum*), white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), and Goodding's black willow (*Salix gooddingii*). Understory species include mugwort (*Artemisia douglasiana*), virgin's bower (*Clematis ligusticifolia*), American dogwood (*Cornus sericea*), Oregon golden-aster (*Heterotheca oregona*), Dalmatian toadflax (*Linaria genistifolia* ssp. *dalmatica*), white sweet clover (*Melilotus alba*), musk monkeyflower (*Mimulus moschatus*), straggly gooseberry (*Ribes divaricatum*), Himalayan blackberry (*Rubus discolor*), California blackberry (*Rubus ursinus*), narrowleaf willow, arroyo willow (*Salix lasiolepis*), shining willow (*S. lucida*), and California wild grape (*Vitis californica*).

### **Montane Hardwood-Conifer**

The montane hardwood-conifer community type is present at both sites. In the northern interior of California, the montane hardwood-conifer community consists of at least one-third conifer and at least one-third broadleaf trees scattered throughout the landscape in a mosaic-like pattern of small pure stands of conifers interspersed with small stands of broad-leaved trees (Holland 1986; Mayer and Laudenslayer 1988). Geographically and biologically, this plant community often serves as an ecotone between dense coniferous forest and montane hardwood, mixed chaparral, or open woodland vegetation types. Dominant tree species typically observed include Pacific madrone (*Arbutus menziesii*), bigleaf maple, ponderosa pine (*Pinus ponderosa*), gray pine (*Pinus sabiniana*), Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*), canyon live oak (*Quercus chrysolepis*), and black oak (*Q. kelloggii*). Shrub species include greenleaf manzanita (*Arctostaphylos patula*), buckbrush (*Ceanothus cuneatus*), cascara (*Rhamnus purshiana*), skunkbrush (*Rhus trilobata*), snowberry (*Symphoricarpos albus* var. *laevigatus*), and poison-oak (*Toxicodendron diversilobum*). The underlying herbaceous layer includes ripgut brome, cheatgrass, blue wild rye (*Elymus glaucus*), silver bush lupine (*Lupinus albifrons*), purple sanicle (*Sanicula bipinnatifida*), and false hedge-parsley (*Torilis arvensis*).

### **Blue Oak-Foothill Pine**

The blue oak-foothill pine community type occurs as a minor component of both sites. The dominant overstory species present in this habitat is gray pine. Blue oak (*Quercus douglasii*) grows among the gray pines and understory vegetation typically includes greenleaf manzanita, buckbrush, skunkbrush, and poison oak. The herbaceous layer includes ripgut brome, cheatgrass, and false hedge-parsley.

### **Ponderosa Pine**

Ponderosa pine community type occurs at both sites. The dominant overstory species present in this habitat is ponderosa pine. Understory vegetation includes greenleaf manzanita, buckbrush, and poison-oak. The underlying herbaceous layer includes ripgut brome and cheatgrass.

### **Klamath Mixed Conifer**

The Klamath mixed conifer community type is present at both sites. Klamath mixed conifer communities typically are tall, dense to moderately open, needle-leaved evergreen forests with patches of broad-leaved evergreen and deciduous low trees and shrubs. This habitat is dominated by tall evergreen conifers up to 200 feet in height with a rich shrub layer and well-developed herbaceous layers. On more xeric sites, the habitat is a generally open but very diverse forestland, having a well-developed shrub layer. The overstory layer is characterized by a mixture of conifers. Typical dominant conifers in the Project area are Douglas-fir, Ponderosa pine, and incense cedar (*Calocedrus decurrens*). Occasional broadleaf trees include canyon live oak and black oak.

### **Montane Hardwood**

The montane hardwood community type is present at the Bucktail site. Dominant tree species observed within this plant community include Pacific madrone, bigleaf maple, canyon live oak, and black oak. Associated shrub species observed include greenleaf manzanita, buckbrush, skunkbrush, snowberry, and poison-oak. The underlying herbaceous layer includes ripgut brome, cheatgrass, blue wild rye, silver bush lupine, purple sanicle, and false hedge-parsley.

### **Mixed Chaparral**

The mixed chaparral community type is present at both sites. Mixed chaparral is a structurally homogeneous brushland type dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves. The dominant species typically include greenleaf manzanita and buckbrush.

### **Valley-Foothill Riparian**

The valley-foothill community type is present at both sites. Valley-foothill communities are found in valleys bordered by sloping alluvial fans, slightly dissected terraces, lower foothills, and coastal plains. They are generally associated with low velocity flows, floodplains, and gentle topography. Dominant species in the canopy layer are cottonwood (*Populus* spp.), California sycamore (*Platanus racemosa*), and valley oak (*Quercus lobata*). Subcanopy trees are white alder, boxelder (*Acer negundo*) and Oregon ash. Typical understory shrub layer plants include wild grape, wild rose (*Rosa woodsii*), California blackberry, blue elderberry (*Sambucus cerulean*), poison-oak, buttonbush (*Cephalanthus occidentalis*), and willows (*Salix* spp.). The herbaceous layer consists of sedges, rushes, grasses, miner's lettuce (*Claytonia perfoliata*), Douglas sagewort (*Artemisia douglasiana*), poison-hemlock, and hoary nettle (*Urtica holosericea*).

### **Barren**

Barren land consists primarily of rock, pavement, and sand. Vegetation is usually not present, although sparse opportunistic grasses and forbs or weedy species may occur. Barren land occurs as gravel bars adjacent to the river as well as other areas throughout both of the sites.

### **Urban**

The urban community type varies by vegetation. Typically this habitat consists mostly of private landscaping and public landscaping including lawns, shrubs, and trees both evergreen and deciduous. The developed campground at the Bucktail site is also considered urban.

#### **3.7.1.2 Wildlife Resources**

The wildlife species typically associated with the primary plant communities present at the Project sites (Table 11) are summarized in the Master EIR (Section 4.7). Special status species potentially occurring within, or in close proximity to, the rehabilitation sites are also discussed in the Master EIR (Section 4.7 and

Table 4.7-1). The Trinity River corridor provides habitat and travel corridors for such species as Pacific fisher (*Martes pennanti pacifica*), American marten (*M. americana*), black-tailed deer (*Odocoileus hemionus columbianus*), river otter (*Lontra canadensis*), beaver (*Castor canadensis*), common merganser (*Mergus merganser*), green heron (*Butorides virescens*), black-crowned night heron (*Nycticorax nycticorax*), wood duck (*Aix sponsa*), belted kingfisher (*Megaceryle alcyon*), cliff swallow (*Hirundo pyrrhonota*), bank swallow (*Riparia riparia*), and raccoon (*Procyon lotor*). The riparian vegetation along the Trinity River, in association with adjacent and/or nearby mixed-conifer and montane hardwood-conifer habitat, provides connected habitat within an area that has been fragmented by rural residential development and road building.

### **3.7.1.3 Non-Native and Invasive Plant Species**

Non-native and invasive species are present at the Project sites. Information regarding invasive species is presented in the Master EIR (Section 4.7). The approximate location and extent of high priority invasive plants were noted during vegetation surveys conducted for the sites (July 13 and 14, 2013 for the Bucktail and Lower Junction City sites, respectively). Invasive species present at the Bucktail site include poison hemlock (*Conium maculatum*), Himalayan blackberry, Dalmatian toadflax (*Linaria genistifolia* ssp. *dalmatica*), yellow star-thistle (*Centaurea solstitialis*), cheatgrass, and ripgut brome (North Wind 2013). Invasive species observed at the Lower Junction City site include dyer's woad (*Isatis tinctoria*), Dalmatian toadflax, yellow star-thistle, ripgut brome, cheatgrass, tree of heaven (*Ailanthus altissima*), and black mustard (*Brassica nigra*) (North Wind 2013). Information about these plant's biology, habitat, and management strategies is presented in Distribution and Applied Management of Invasive Plant Species at Proposed Rehabilitation Sites along the Mainstem of the Trinity River (North State Resources 2007). This report is available at: [http://odp.trrp.net/FileDatabase/Documents/10042\\_Trinity\\_Invasives\\_Final\\_Report1.pdf](http://odp.trrp.net/FileDatabase/Documents/10042_Trinity_Invasives_Final_Report1.pdf). The dyer's woad population at the Lower Junction City Rehabilitation Site is the largest known population in Trinity County below the Lewiston Dam. Due to its limited distribution and invasive nature, dyer's woad continues to be a priority for eradication in Trinity County. The infestation is located on both the Upper Junction City and Lower Junction City sites originally encompassing over 35 acres. The TCRCO has been treating this area (manually removing dyer's woad) since 2010 and the TRRP continued funding of this work as part of their 2012 Upper Junction City project. Treatment will continue through implementation and monitoring after the Proposed Lower Junction City Project but the dyer's woad population currently occupies about 14 of the previous 35 acres (TCRCO 2013). The TRRP will continue to work to limit the spread noxious weeds in the area and to ensure that the seeds of these species are not allowed to reach the river and disperse down-river. Priority will be primarily on those species with noxious status, relatively low abundance in Trinity County, abundant seed production, and adaptability to thrive and spread.

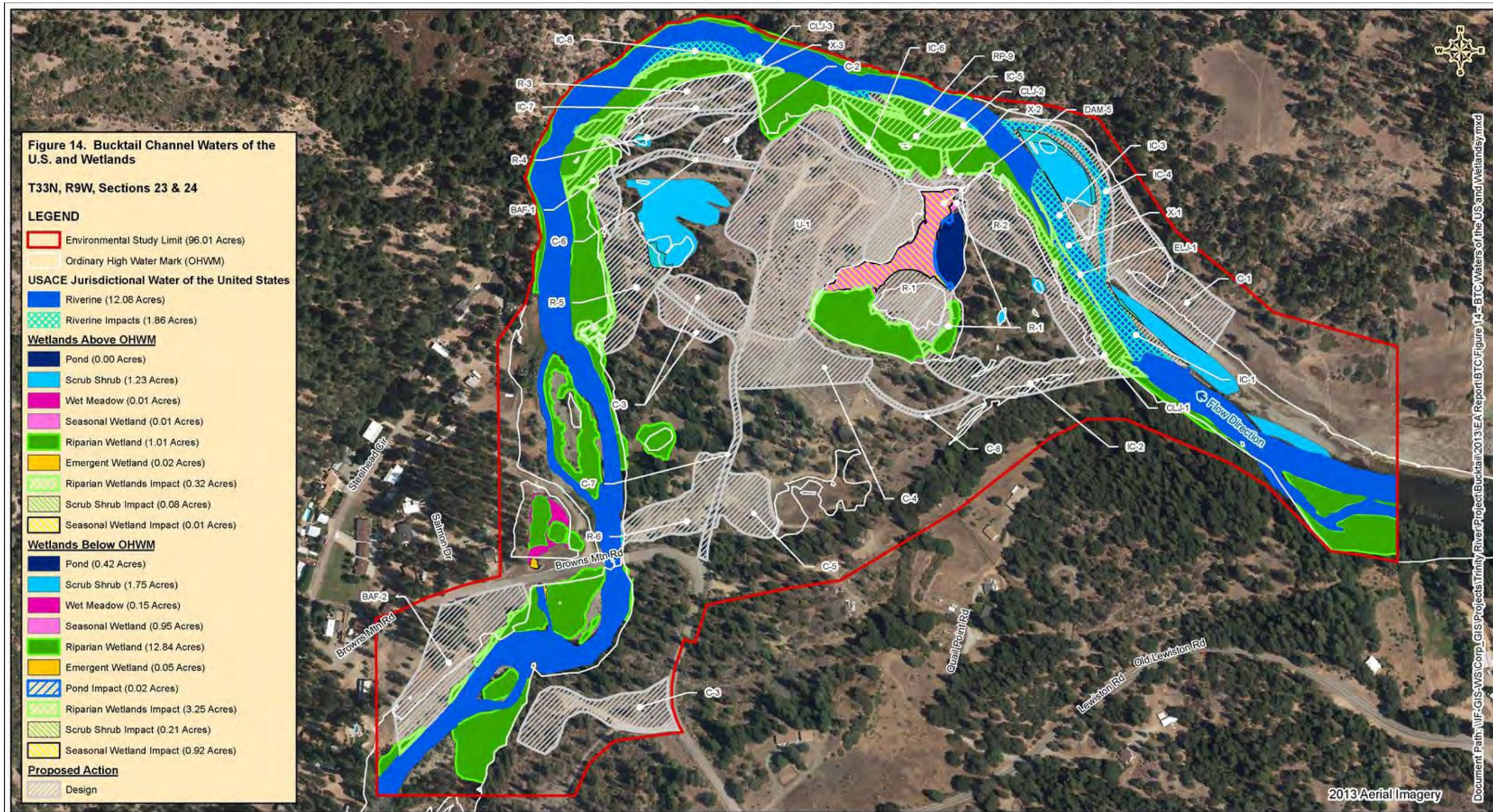
### **3.7.1.4 Jurisdictional Waters (Including Wetlands)**

Eight jurisdictional water types, including wetlands and other waters, occur at rehabilitation sites along the Trinity River. Jurisdictional water types present at the Proposed Project sites are shown in Table 12. Each of these is briefly described below.

Within the Bucktail Rehabilitation Site boundaries there are a total of 30.52 acres of jurisdictional waters and within the Lower Junction City Rehabilitation Site boundaries there are a total of 32.38 acres. There are 18.44 acres of total wetlands at the Bucktail site and 12.08 acres of other waters, comprised primarily of the Trinity River riverine feature. Of the wetlands, there are a total of 1.10 acres of riparian wetlands above OHWM and 12.84 acres of riparian wetlands below OHWM. At the Lower Junction City site, there are 20.2 acres of total wetlands and 12.18 acres of other waters including riverine features. Of the wetlands, there are 15.58 acres of riparian wetlands above OHWM and 4.03 acres of riparian wetlands below OHWM. The locations of these features are shown on Figure 14 for Bucktail and Figure 15 for Lower Junction City. USACE staff visited the Project sites on November 7, 2013. A preliminary jurisdiction determination (PJD) letter was received from USACE on February 12, 2014. A post-project delineation would be performed after five years to verify Project impacts to waters of the U.S.

**Table 12. Summary acreages of USACE Jurisdictional Waters and Wetlands within the Proposed Project Sites.**

<b>Feature Type</b>	<b>Total Acres (Impacted Acres)</b>	<b>Bucktail (Acres)</b>	<b>Lower Junction City (Acres)</b>
Perennial Stream (PS) / Riverine Trinity River	Total acres (Impacted acres)	12.08 (1.86)	12.18 (0.60)
<b>Total Other Waters</b>	<b>Total acres Impacted acres</b>	<b>12.08 (1.86)</b>	<b>12.18 (0.60)</b>
Riparian Wetland (RW) Above OHWM	Total acres (Impacted acres)	1.01 (0.32)	15.58 (4.67)
Below OHWM	Total acres (Impacted acres)	12.84 (3.25)	4.03 (3.58)
Wet Meadow Above OHWM	Total acres (Impacted acres)	0.01 (0)	NP
Below OHWM	Total acres (Impacted acres)	0.15 (0)	
Emergent Wetland Above OHWM	Total acres (Impacted acres)	0.02 (0)	0.34 (0)
Below OHWM	Total acres (Impacted acres)	0.05 (0)	0.25 (0)
Seasonal Wetland Above OHWM	Total acres (Impacted acres)	0.01 (0.01)	NP
Below OHWM	Total acres (Impacted acres)	0.95 (0.92)	
Ponded Wetland Above OHWM	Total acres (Impacted acres)	0 (0)	NP
Below OHWM	Total acres (Impacted acres)	0.42 (0.02)	
Scrub Shrub Above OHWM	Total acres (Impacted acres)	1.23 (0.08)	NP
Below OHWM	Total acres (Impacted acres)	1.75 (0.21)	
<b>Total Wetlands</b>	<b>Total acres (Impacted acres)</b>	<b>18.44 (4.81)</b>	<b>20.2 (8.25)</b>
<b>Total Jurisdictional Waters</b>	<b>Total acres (Impacted acres)</b>	<b>30.52 (6.67)</b>	<b>32.38 (8.85)</b>
NP – Not Present			



<p>Prepared for the Bureau of Reclamation Trinity River Restoration Program</p>	<b>TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL &amp; LOWER JUNCTION CITY          PROPOSED CHANNEL REHABILITATION SITES ENVIRONMENTAL ASSESSMENT/INITIAL STUDY</b>		<p>North Wind Services          1425 HIGHAM ST.          DAKO FALLS, ID 83402          WEB: <a href="http://www.northwindcorp.com">www.northwindcorp.com</a>          Phone: (208) 528-8718 FAX: (208) 528-8714</p>
	DATE: 12/3/2013		

Figure 14. Boundaries of Waters of the United States, Including Wetlands, and Potential Project Impacts, in the Bucktail Rehabilitation Site.

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California State Plane Zone 1, NAD83 Feet

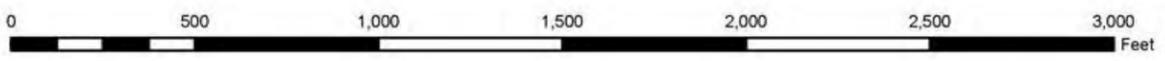
  <p>Prepared for the Bureau of Reclamation Trinity River Restoration Program</p>	<b>TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL &amp; LOWER JUNCTION CITY          PROPOSED CHANNEL REHABILITATION SITES ENVIRONMENTAL ASSESSMENT/INITIAL STUDY</b>		 <p>North Wind Services          1425 HIGHAM ST.          IDAHO FALLS, ID 83402          WEB: www.northwindcorp.com          Phone: (208) 528-8718 FAX: (208) 528-8714</p>
	DATE: 12/4/2013		

Figure 15. Boundaries of Waters of the United States, Including Wetlands, and Potential Project Impacts, in the Lower Junction City Rehabilitation Site.

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### **Riverine (Perennial Stream)**

Riverine habitat occurs at both rehabilitation sites and is characterized as the active Trinity River channel within the OHWM, as defined by the Hydraulic Engineering Center River Analysis System (HEC-RAS) model developed for Reclamation. Riverine habitat is dominated by run and riffle habitats, with boulder, cobble, gravel, and sand substrates. Vegetation within the active river channel is sparse, with occasional clumps of sedges. Riparian habitat that occurs within the OHWM is characterized as a wetland type; riparian habitat above the OHWM is considered an upland habitat (North Wind 2013). The Trinity River is the primary factor influencing wetland features associated with the sites. Riverine habitat identified as the river itself, exhibits a distinct bed and bank feature (i.e., scouring), as well as continuous inundation, watermarks, drift lines, and sediment deposits.

### **Riparian Wetlands**

Riparian wetland features line the Trinity River corridor. Riparian wetlands are typically dominated by a complex of woody riparian species and open to dense emergent herbaceous species. These sites include positive field indicators of wetland hydrology and hydric soils. Herbaceous plant species that almost always occur (> 99 percent probability) are designated as obligates (OBL) and herbaceous plant species that usually occur (> 67 percent probability) are designated as facultative wetland species (FACW). Common vegetation observed in riparian wetland features include: white alder (FACW<sup>7</sup>), Oregon ash (FACW), black cottonwood (FACW), Himalayan blackberry (FACW), California blackberry (FACW), narrowleaf willow (OBL), arroyo willow (FACW), shining willow (NI), American dogwood (UPL), mugwort (FACW), California wild grape (FACW), torrent sedge (FACW+), tall flatsedge (*Cyperus eragrostis* – FACW), least spikerush (*Eleocharis acicularis* – OBL), smooth scouring rush (*Equisetum laevigatum* – FACW), and reed canary grass (*Phalaris arundinacea* – OBL).

Dominant vegetation observed in riparian wetland features at the Bucktail site includes narrow-leaf willow (*Salix exigua* – FACW), torrent sedge (*Carex nudata* – OBL), American wild mint (*Mentha arvensis* – FACW), tufted hair grass, lamp rush, and Himalayan blackberry. Dominant vegetation observed in riparian wetland features at Lower Junction City includes arroyo willow, narrow-leaf willow, and reed canary grass (*Phalaris arundinacea* - FACW).

### **Seasonal Wetland**

In general, seasonal wetlands often occur in level or low-lying areas that exhibit positive field indicators of long-duration saturation during the growing season. An area identified as a seasonal wetland was identified within the Bucktail Rehabilitation Site.

### **Emergent Wetland**

Emergent wetlands occur adjacent to the riverine system, in backwaters and depressions along the river, and in tailing pits that are saturated for long periods. This wetland type was present at both sites. Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Vegetation, typically perennial, is present for most of the growing season in most years. In the project region, typical dominant plant species include narrow-leaf cattail (*Typha angustifolia* - OBL), Himalayan blackberry (FACW<sup>+</sup>), perennial ryegrass (FAC), and narrow-leaved willow (OBL). The emergent wetland sites at the Bucktail site are in the high flow channel that flows through a concrete box culvert under Browns Mountain Road into the Trinity River; west of the Trinity River, and north of Browns Mountain Road. The dominant vegetation is tufted hair grass (*Deschampsia cespitosa* – FACW) and lamp rush (*Juncus effusus* – FACW). The emergent wetlands at the Lower Junction City site are located east of the Trinity River in the mine tailings. The dominant vegetation is broad-leaf cat-tail, arroyo willow, and narrow-leaf willow.

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<sup>7</sup> OBL = Obligate Wetland Plants Estimated probability of occurring in wetland >99 percent  
FACW = Facultative Wetland Plants Estimated probability of occurring in wetland >67 percent to 99 percent  
FAC = Facultative Plants Estimated probability of occurring in wetland 33 percent to 67 percent  
FACU = Facultative Upland Plants Estimated probability of occurring in wetland 1 percent to <33 percent  
UPL = Obligate Upland Plants Estimated probability of occurring in wetland <1 percent  
NI = No Indicator Insufficient information exists to assign a wetland status indicator

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### **Wet Meadow**

Seasonal wet meadow occurs in areas where water does not appear to pond but nevertheless the soil saturates to the surface for sufficient duration to create a wetland habitat. Riparian wet meadow features were found at the Bucktail site in depressions that are not directly adjacent to the river. Seasonal wet meadow is typically composed of herbaceous plant species that tolerate long-duration saturation. At the Bucktail site, riparian wet meadow features are located in a depressional area situated between Browns Mountain Road and the high flow dike west of the Trinity River. This feature is dominated by hydrophytic vegetation that is influenced by the perennial stream. The feature falls mostly within the OHWM. Dominant vegetation observed in riparian wet meadow features at the Bucktail site include tufted hair grass, lamp rush, and Himalayan blackberry (*Rubus armeniacus* – FACU).

### **Scrub Shrub**

Scrub-shrub wetland features are present at the Bucktail site. Scrub-shrub wetlands in the ESL are dominated by narrow-leaf willow and Himalayan blackberry growing in a cobble substrate.

### **Ponded Wetland**

A ponded wetland feature is located at the Bucktail site. This feature is dominated by broad-leaf cat-tail (*Typha latifolia* - OBL) and bulrush (*Schoenoplectus* sp.) growing in a depression in a tailing pile. Several species of ducks, frogs, and birds were using the pond during the site visit (North Wind 2013).

### **Other Biological Resources**

Migratory birds and raptors (birds of prey) may nest within, or in close proximity to, the rehabilitation sites. Migratory birds and their nests are protected under the federal Migratory Bird Treaty Act (MBTA; 50 CFR 10 and 21). Most of the birds found in the Project area are protected under the MBTA. Raptors are also protected under the CDFW Code. The plant communities at and near the Project sites provide suitable breeding and foraging habitat for several raptors, such as the red-tailed hawk (*Buteo jamaicensis*) and great horned owl (*Bubo virginianus*). Table 4.7-2 of the Master EIR noted that northern spotted owl (*Strix occidentalis caurina*) habitat does not exist in the Project area. In northern California, this species resides in large stands of old growth, multi-layered, mixed conifer, redwood, and Douglas-fir habitats (Regional Water Board and Reclamation 2009). At these sites, aerial imaging, data interpolation, and pedestrian surveys indicate that habitat within the Project area does not possess features associated with suitable nesting, roosting, or foraging habitat for northern spotted owl.

Nesting stands typically include a moderate to high canopy closure (60 to over 80 percent); a multilayered, multispecies canopy with large (greater than 30 inch dbh) overstory trees; a high incidence of large trees with various deformities (e.g., large cavities, broken tops, mistletoe infections, and other evidence of decadence); large snags; large accumulations of fallen trees and other woody debris on the ground; and sufficient open space below the canopy for northern spotted owls to fly (Thomas et al. 1990).

Based on informal consultation with the USFWS during production of the Master EIR, known distribution of spotted owl nests in the area (provided by the USFS), and Trinity River bird distribution data provided by the Redwood Sciences Laboratory, Reclamation and the BLM determined that a biological assessment was not required since the Proposed Project would have no effect on the northern spotted owl or its critical habitat. Riparian habitat, which is considered a sensitive natural community by the CDFW, is present in the Project areas along the Trinity River. Critical Winter Range for raptors is also present in areas along the Trinity River.

## **3.7.2 Environmental Consequences/Impacts and Mitigation Measures**

### **3.7.2.1 Methodology**

Methods used to assess potential impacts of the Proposed Project on vegetation and wildlife resources included a review of pertinent literature and data and field surveys. Evaluation of the presence of special status species and sensitive habitats within the boundaries of the sites was conducted by performing a

database search of the CNDDDB and informally consulting with resource agencies (e.g., CDFW, NMFS, and USFWS) regarding biological resource issues associated with the implementation of rehabilitation projects along the Trinity River. These efforts provided an overview of the quality and character of potential habitat present within the Project reaches.

### **3.7.2.2 Significance Criteria**

Significance criteria used to analyze the potential impacts of the Project on vegetation, wildlife, and wetland resources include factual and scientific information and the regulatory standards of county, state, and federal agencies, including the CEQA guidelines. These criteria have been developed to establish thresholds to determine the significance of impacts pursuant to CEQA (Section 15064.7) and should not be confused with a “take” or adverse effect under the ESA. The Aquatic Conservation Strategy - Consistency Evaluation from Appendix A of the Master EIR is valid for the Proposed Project and included by reference.

Impacts on vegetation would be significant if implementation of the Project would result in any of the following:

- Potential to substantially reduce the number or restrict the range of an endangered or threatened plant species or a plant species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- Potential for substantial reductions in the habitat of any native plant species including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- Potential for causing a native plant population to drop below self-sustaining levels;
- Potential to eliminate a native plant community;
- Substantial adverse effect, either directly or through habitat modifications, on any plant identified as a sensitive or special status species in local or regional plans, policies, or regulations;
- Substantial adverse effect on the quantity or quality of riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- A conflict with any local policies or ordinances regarding protection or control of vegetation resources;
- A conflict with, or violation of, the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of plant resources; or
- An increased potential for spread of non-native and invasive plant species.

Impacts on wildlife would be significant if implementation of the Project would result in any of the following:

- Mortality of state or federally listed wildlife species, or species that are candidates for listing or proposed for listing;
- Potential for reductions in the number, or restrictions of the range, of an endangered or threatened wildlife species or a wildlife species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- Potential for substantial reductions in the habitat of any wildlife species, including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- Potential for causing a wildlife population to drop below self-sustaining levels;
- Substantially block or disrupt major terrestrial wildlife migration, or travel corridors;
- Substantial adverse effect, either directly or through habitat modifications, on any wildlife species identified as a sensitive or special status species in local or regional plans, policies, or regulations;
- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- A conflict with any state or local policies or ordinances protecting wildlife resources; or

- A conflict with, or violation of, the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wildlife species.

Impacts on wetlands would be significant if they would result in any of the following:

- Substantial adverse effect on any riparian habitat;
- Substantial adverse effect on federally protected wetlands as defined by section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;
- A conflict with any state or local policies or ordinances protecting wetland and/or riparian resources; or
- A conflict with, or violation of, the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wetland resources.

### 3.7.2.3 Impacts and Mitigation Measures

Table 13 summarizes the potential vegetation, wildlife, and wetlands impacts that would result from the No-Project alternative and the Proposed Project.

<b>Table 13. Summary of Potential Vegetation, Wildlife, and Wetland Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>No-Project Alternative</b>	<b>Proposed Project</b>	<b>Proposed Project With Mitigation</b>
Impact 3.7-1. Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands.		
No impact	Significant	Less than significant
Impact 3.7-2. Implementation of the project would result in the loss of upland plant communities.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.7-3. Construction of the project could result in the loss of individuals of a special status plant species.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.7-4. Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.		
No impact	Significant	Less than significant
Impact 3.7-5. Construction activities associated with the project could result in impacts to foothill yellow-legged frog.		
No impact	Significant	Less than significant
Impact 3.7-6. Construction activities associated with the project could result in impacts to western pond turtle.		
No impact	Significant	Less than significant
Impact 3.7-7. Construction activities associated with the project could result in impacts to nesting Vaux's swift, California yellow warbler, and yellow-breasted chat.		
No impact	Significant	Less than significant
Impact 3.7-8. Construction activities associated with the project could result in impacts to nesting bald eagle and northern goshawk.		
No impact	Significant	Less than significant
Impact 3.7-9. Construction activities associated with the project could result in impacts to special status bats and the ring-tailed cat.		
No impact	Significant	Less than significant
Impact 3.7-10. Construction activities associated with the project could result in the temporary loss of non-breeding habitat for several special status birds.		
No impact	Less than significant	Not applicable <sup>1</sup>

**Table 13. Summary of Potential Vegetation, Wildlife, and Wetland Impacts for the No-Project and Proposed Project Alternatives.**

No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.7-11. Construction activities associated with the project could result in impacts to BLM and USFS sensitive species (except Pacific fisher).		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.7-12. Construction activities associated with the project could restrict terrestrial wildlife movement through the project area.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.7-13. Implementation of the project could result in the spread of non-native and invasive plant species.		
No impact	Significant	Less than significant
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

**No-Project Alternative**

Under the No-Project alternative, no loss of jurisdictional wetlands would occur because the Project would not be constructed. Therefore, there would be no impact.

**Proposed Project**

Floodplain values and functions would be enhanced by the Proposed Project in conjunction with ROD flows released by the TRD. Consequently, substantial non-riparian areas beyond those identified in pre-project plant community delineations are expected to convert to riparian habitats (in some cases, jurisdictional wetlands), both seasonal and perennial, within a three to five year post-project window. The TRRP would take advantage of opportunities during or after a Project’s construction to enhance wetland functions within a site or to create conditions required for functional jurisdictional wetlands (i.e., hydrology, vegetation, and hydric soils) to persist over time. For example, excavation of areas upslope (above the OHWM) to a depth coincident with medium- or low-flow (2,000–450 cfs) conditions may provide opportunities to establish the hydrologic conditions necessary for establishing functional jurisdictional wetlands.

Construction activities associated with the Proposed Project would result in temporary impacts to jurisdictional waters, including wetland features at the rehabilitation sites. These impacts would be considered significant. Figures 14 and 15 show the acres of jurisdictional waters that would be affected by the Proposed Project. Construction of the Proposed Project at the Bucktail site would result in a direct temporary impact to 3.57 acres of riparian wetlands and 1.86 acres of riverine habitat. Construction of the Proposed Project at the Lower Junction City site would result in a direct temporary impact to 8.25 acres of riparian wetland habitat and 0.60 acres of riverine habitat. Impacts to wetlands are displayed in Table 12.

Impact 3.7-1: Construction activities associated with the Proposed Project could result in the loss of jurisdictional waters including wetlands.

**Mitigation Measures**

Construction activities associated with the Project could result in the loss of jurisdictional waters including wetlands. Therefore, mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-2: Implementation of the Proposed Project would result in the loss of upland plant communities.

### **No-Project Alternative**

Under the No-Project alternative, no construction-related effects to upland plant communities would occur because the Project would not be constructed. Therefore, there would be no impact.

### **Proposed Project**

The Proposed Project would result in the temporary disturbance of upland plant communities (see Figures 12 and 13). While Project activities would modify the contour and slope of upland areas, these areas would be subject to natural recruitment of native plants, supplemented by planting programs consistent with the TRRP vegetation management objectives including minimizing invasive species impacts and the enhancement of wildlife habitat. Over time, these upland areas would be revegetated to the degree that site conditions allow. A combination of replanting and natural revegetation would occur to ensure that upland habitat values on the Trinity River meet wildlife needs. The need for revegetation would be determined via monitoring, coordination with local resource agencies, and adaptively managing to meet changing needs and desired future conditions. Temporary access routes and staging areas would be restored to their original condition upon completion of work.

Additionally, any affected upland areas would be revegetated with native plant species.

Impact 3.7-3: Construction of the Proposed Project could result in the loss of individuals of a special status plant species.

### **No-Project Alternative**

Under the No-Project alternative, no construction-related impacts to a special status plant species would occur because the Project would not be constructed. Therefore, there would be no impact.

### **Proposed Project**

The Proposed Project sites were surveyed for special status plant species in July 2013, following protocols outlined in the Master EIR. No special status plants were detected within the Project boundary during these pre-construction botanical surveys. Therefore, no impacts to special status plant species would occur as a result of the Project.

Impact 3.7-4: Construction activities associated with the Proposed Project could result in impacts to the state-listed little willow flycatcher (*Empidonax traillii*).

### **No-Project Alternative**

Under the No-Project alternative, no construction-related impacts to the little willow flycatcher would occur because the Project would not be constructed. Therefore, there would be no impact.

### **Proposed Project**

Suitable montane riparian habitat for the little willow flycatcher may be present at the Proposed Project sites; the species has previously been detected in the region (Wilson 1995; Miller et al. 2003; Herrera 2006). Consequently, little willow flycatchers may nest at the Proposed Project sites. Project activities (e.g., grading, vegetation removal) in montane riparian habitat may result in a temporary reduction of foraging habitat for this species. However, implementation of mitigation measures 4.6-1a, 4.6-1b, and 4.6-1c would ensure that there is no net loss of riparian habitat and a long-term increase in riparian habitat diversity. Due to the temporary nature of the impacts and the regional abundance of similar habitats, the Project is not expected to have a significant impact on habitat for the little willow flycatcher. However, the removal of riparian vegetation and the noise associated with construction activities could disturb individuals nesting on or adjacent to the sites. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting little willow flycatchers or any activities resulting in nest abandonment would be considered a significant impact.

### **Mitigation Measures**

Construction activities associated with the Proposed Project could result in impacts to the state-listed little willow flycatcher. Therefore, mitigation measures 4.7-4a, 4.7-4b, 4.7-4c, and 4.7-4d described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project.

Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-5: Construction activities associated with the Proposed Project could result in impacts to the foothill yellow-legged frog (*Rana boylei*).

### **No-Project Alternative**

Under the No-Project alternative, no construction-related impacts to the foothill yellow-legged frog would occur. Therefore, there would be no impact.

### **Proposed Project**

The foothill yellow-legged frog is known to occur in the Trinity River from the Lewiston Dam to the North Fork Trinity River (CDFW 2003b). Construction activities associated with the Proposed Project may affect foothill yellow-legged frogs directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance of boulders or cobbles that support egg masses, and the loss of riparian vegetation cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. These impacts would be significant. Over the long term, the Proposed Project would benefit the species through the creation of additional and higher quality habitat, such as feathered edges and backwaters that would provide habitat for early life-stages. At the Bucktail site, habitat for yellow-legged frog would be increased by the proposed creation of a pond feature.

### **Mitigation Measures**

Construction activities associated with the Proposed Project could result in impacts to the foothill yellow-legged frog. Therefore, mitigation measures 4.7-5a, 4.7-5b, 4.7-5c, and 4.7-5d described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-6: Construction activities associated with the Proposed Project could result in impacts to the western pond turtle (*Actinemys marmorata*).

### **No-Project Alternative**

Under the No-Project alternative, no construction-related impacts to the western pond turtle would occur because the Project would not be constructed. Therefore, there would be no impact.

### **Proposed Project**

Riverine and riparian habitats along the Trinity River provide suitable habitat for the western pond turtle. Construction activities associated with the Proposed Project could affect pond turtles directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance to nests in upland areas, and the loss of riparian cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. These impacts would be significant. However, over the long term, the Project would benefit the species through the creation of additional and higher quality habitat. For example, removal of riparian berms would improve access to potential upland nesting and overwintering sites, and the creation of side channels and alcoves with LWD would provide slow-water basking and foraging habitat. At the Bucktail site, habitat for western pond turtle would be increased by the proposed creation of a pond feature.

### **Mitigation Measures**

Construction activities associated with the Proposed Project could result in impacts to the western pond turtle. Therefore, mitigation measures 4.7-6a, 4.7-6b, 4.7-6c, 4.7-6d, and 4.7-6e described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-7: Construction activities associated with the Proposed Project could result in impacts to nesting Vaux's swift (*Chaetura vauxi*), California yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*).

### **No-Project Alternative**

Under the No-Project alternative, no construction-related impacts to nesting California yellow warbler, yellow-breasted chat, and Vaux's swift would occur. Therefore, there would be no impact.

### **Proposed Project**

The riparian community commonly found along the Trinity River in the vicinity of the Proposed Project sites provides suitable nesting and foraging habitat for the California yellow warbler and yellow-breasted chat. The conifer habitat in the region also provides habitat for the Vaux's swift. Consequently, Project activities may result in impacts to these California Species of Special Concern. The Proposed Project may result in a temporary reduction of foraging and/or roosting habitat for these species. However, implementation of mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c would ensure that there is no net loss of riparian habitat. Furthermore, Project implementation would result in a long-term increase in riparian habitat diversity, increasing the quality of the habitat for the California yellow warbler and yellow-breasted chat. Due to the temporary nature of the impacts and the regional abundance of similar habitats, the Project is not expected to have a significant impact on habitat for the California yellow warbler, yellow-breasted chat, or Vaux's swift. However, the removal of vegetation and the noise associated with construction activities could disturb individuals nesting on or adjacent to the sites. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting individuals or any activities resulting in nest abandonment would be a significant impact.

### **Mitigation Measures**

Construction activities associated with the Proposed Project could result in impacts to nesting Vaux's swift, California yellow warbler, and yellow-breasted chat. Therefore, mitigation measures 4.7-7a, 4.7-7b, 4.7-7c, and 4.7-7d described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-8: Construction activities associated with the Proposed Project could result in impacts to nesting bald eagle (*Haliaeetus leucocephalus*) and northern goshawk (*Accipiter gentilis*).

### **No-Project Alternative**

Under the No-Project alternative, no construction-related impacts to active raptor nests would occur because the Project would not be constructed. Therefore, there would be no impact.

### **Proposed Project**

The hardwood and conifer communities commonly found along the Trinity River in the Project region provide suitable nesting and foraging habitat for the bald eagle, designated by the State of California as endangered, and the northern goshawk, designated as a California Species of Special Concern. The Proposed Project may result in a temporary reduction of foraging and/or roosting habitat for these species. Overall, as a result of the temporary nature of the impacts and the regional abundance of similar habitats, the Project is not

expected to have a significant impact on habitat for the bald eagle or northern goshawk. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting bald eagles or goshawks, or any activities resulting in nest abandonment, would be a significant impact.

### **Mitigation Measures**

Construction activities associated with the Proposed Project could result in impacts to nesting bald eagle and northern goshawk. Therefore, mitigation measures 4.7-8a, 4.7-8b, 4.7-8c, and 4.7-8d described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Due to the removal of the bald eagle from the endangered species list, and the availability of the National Bald Eagle Management Guidelines provided by the USFWS to protect the bald eagle, these mitigation measures are now stricter than those outlined in the 2009 Master EA, and provide additional protections for the bald eagle to abide by directives within the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-9: Construction activities associated with the Proposed Project could result in impacts to special status bats and the ring-tailed cat (*Bassariscus astutus*).

### **No-Project Alternative**

Under the No-Project alternative, no construction-related impacts to breeding special status bats or the ring-tailed cat would occur because the Project would not be constructed. Therefore, there would be no impact.

### **Proposed Project**

The Trinity River riparian corridor provides suitable roosting and/or foraging habitat for four bat species: the long-eared myotis (*Myotis evotis*), pallid bat (*Antrozous pallidus*), Yuma myotis (*Myotis yumanensis*), and Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*). Two of these bat species (long-eared myotis bat and pallid bat) may roost in trees (e.g., spaces under tree bark or in cavities) as well as caves and buildings, while the other two species (Townsend's western big-eared bat and Yuma myotis) prefer to nest in structures such as buildings, bridges, caves, and mines. For the long-eared myotis and pallid bat (that roost in trees), habitat preference is typically woodland and forest habitat. It is unlikely that these bats would roost in the willows and alders typically found immediately along the Trinity River. However, they may roost in habitats more likely to contain large trees with cavities or loose bark, such as montane hardwood. Noise and visual disturbances associated with construction activities may disrupt bats roosting within and directly adjacent to the Project areas.

Each of these bat species has the potential to forage in the rehabilitation sites. Foraging habitat typically consists of forested areas in close association with water. Construction activities associated with the Proposed Project could temporarily alter the foraging patterns of these species. However, this would be considered a less than significant impact based on the abundance of suitable foraging habitat in the region. No long-term adverse impacts to foraging habitat associated with Project implementation are anticipated.

The Trinity River riparian corridor also provides habitat for the ring-tailed cat. The willows and alders found immediately along the river are unlikely to provide suitable den habitat for this species due to the small size of the trees and lack of large cavities or snags. However, other habitats in the Project area, such as montane hardwood and montane hardwood-conifer habitats may provide suitable den sites. Removal of large trees with cavities or snags could result in the loss of ring-tailed cat, which would be considered a significant impact. Construction activities would also result in a short-term reduction in foraging habitat for this species. However, the Project would ultimately result in an increase in habitat and an increase in habitat quality for this species. Due to the abundance of similar habitat in the area, the temporary loss of foraging habitat would be a less than significant impact.

### ***Mitigation Measures***

Construction activities associated with the Project could result in impacts to special status bats and the ring-tailed cat. Therefore, mitigation measures 4.7-9a, 4.7-9b, and 4.7-9c described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.7-10: Construction activities associated with the Proposed Project could result in the temporary loss of non-breeding habitat for special status birds.

### ***No-Project Alternative***

Under the No-Project alternative, no construction-related impacts to non-breeding habitat for special status bird species would occur because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

The Trinity River riparian corridor provides both foraging and perching habitat for golden eagles, American peregrine falcons, and black swifts, and suitable nesting habitat may be present in some locations. Construction activities associated with the Proposed Project could temporarily alter the foraging patterns of these species. However, this impact would be considered less than significant based on the abundance of suitable foraging habitat in the vicinity of the Proposed Project sites. No long-term adverse impacts to foraging habitat associated with Project implementation are anticipated. The loss of potential perch or nesting trees would not affect the abundance of these species or their use of the Trinity River for foraging.

Impact 3.7-11: Construction activities associated with the Proposed Project could result in impacts to BLM and USFS sensitive species (except Pacific fisher).

### ***No-Project Alternative***

Under the No-Project alternative, no construction-related impacts to BLM or USFS sensitive species would occur because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

Several of the special status wildlife species with potential to occur at the sites are designated BLM or USFS sensitive species: foothill yellow-legged frog, western pond turtle, northern goshawk, little willow flycatcher, Pacific fisher, long-eared myotis bat, pallid bat, Townsend's western big-eared bat, and Yuma myotis bat. With the exception of the Pacific fisher, potential impacts to these species are discussed as separate impacts above. The Pacific fisher may use the Trinity River as a travel corridor; however, suitable den habitat is not present at the sites. Therefore, the impact would be less than significant.

### ***Mitigation Measures***

Construction activities associated with the Project could result in impacts to BLM and USFS sensitive species. Therefore, the following mitigation measures described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Mitigation measures 4.7-4a, 4.7-4b, and 4.7-4c would reduce impacts to the little willow flycatcher to a less than significant level. Mitigation measures 4.7-5a, 4.7-5b, 4.7-5c, and 4.7-5d would reduce the impacts to the foothill yellow-legged frog to a less than significant level. Mitigation measures 4.7-6a, 4.7-6b, 4.7-6c, and 4.7-6d would reduce the impacts to the western pond turtle to a less than significant level. Mitigation measures 4.7-8a, 4.7-8b, and 4.7-8c would reduce the impacts to the northern goshawk to a less than significant level, and mitigation measures 4.7-9a and 4.7-9b would reduce the impacts to special status bat species to a less than significant level. These mitigation measures are referenced here from previous impact sections rather than reiterating them numerous times in an effort to reduce the size of document. Since no significant impacts for the Pacific fisher were identified, no mitigation is required.

Impact 3.7-12: Construction activities associated with the Proposed Project could restrict terrestrial wildlife movement through the Project area.

***No-Project Alternative***

Under the No-Project alternative, construction-related restriction of terrestrial wildlife movement through the sites would not occur because the Project would not be constructed. Therefore, there would be no impact.

***Proposed Project***

Construction noise and activity would not significantly impede the seasonal migration of the Weaverville deer herd from high-elevation summer habitats to lower elevation critical winter ranges. Construction noise could temporarily alter foraging patterns of resident wildlife species, and vegetation removal along the river could temporarily disrupt wildlife movement through the area. However, no long-term impediments to wildlife movement within the sites are anticipated as a result of implementing the Proposed Project. Therefore, this would be a less than significant impact.

Impact 3.7-13: Implementation of the Proposed Project could result in the spread of non-native and invasive plant species.

***No-Project Alternative***

Under the No-Project alternative, the spread of non-native and invasive plant species would not occur as a result of construction activities because the Project would not be constructed. Therefore, there would be no impact.

***Proposed Project***

Project implementation could result in the spread of non-native and invasive plant species (e.g., dyer's woad, Himalayan blackberry, yellow star-thistle, cheatgrass) during ground-disturbing activities. This would be considered a significant impact. Implementation of the mitigation measures described below would address the potential for spread of invasive species.

***Mitigation Measures***

Implementation of the Project could result in the spread of non-native and invasive plant species. Therefore, mitigation measures 4.7-13a, 4.7-13b, 4.7-13c, 4.7-13d, 4.7-13e, 4.7-13f, and 4.7-13g described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

**3.8 Recreation**

This section describes the recreation resources within the boundaries of the Proposed Project sites and evaluates the effects of the Proposed Project on these resources. The Proposed Project's conformance with the federal and state WSRAs is evaluated and the Wild and Scenic River Section 7 Analysis and Determination from Appendix B of the Master EIR is incorporated by reference. Recreation resources are further addressed in the Master EIR, Section 4.8.

**3.8.1 Affected Environment/Environmental Setting**

The federal government manages about 72 percent of the land in Trinity County. BLM is the primary land manager for public lands between Lewiston Dam and the confluence of the North Fork Trinity River, including lands in the corridor of the mainstem Trinity River that comprise portions of the Proposed Project sites. Recreational opportunities are generally available on BLM-managed lands. The Trinity River was designated as a National Wild and Scenic River in 1981. The designated Wild and Scenic reach extends from Lewiston Dam downstream to Weitchpec. Three tributaries to the Trinity River are also designated as Wild and Scenic: the New River, South Fork Trinity River, and North Fork Trinity River. Two scenic byways

cross Trinity County: the Trinity Heritage Scenic Byway and the Trinity Scenic Byway. These byways provide scenic travel routes through Trinity County for residents and visitors.

The Trinity River provides year-round recreation opportunities. These opportunities include boating, kayaking, canoeing, rafting, inner tubing, fishing, swimming, wading, camping, gold panning, nature study, picnicking, hiking, and sightseeing. Fishing for Chinook salmon, steelhead, and rainbow and brown trout are major recreational activities on the Trinity River throughout the year. Although instream recreational activities occur throughout the year, they are most prevalent between the months of April and February. Access to the Trinity River is available from both public and private lands, and ranges from undeveloped or primitive use areas to fully developed commercial resorts. Developed recreation areas along the Trinity River consist of private campgrounds, resorts, and lodges; public campgrounds and picnic areas; and fishing access sites. Numerous river access sites occur between Lewiston Dam and Weitchpec. Although public use is restricted at most private river access points, public agencies, including BLM, USFS, CDFW, and California DWR offer a number of public river access points throughout the 40-mile reach. Public river access is not only used for a variety of water-based recreational activities, but for other activities as well, such as wildlife viewing and picnicking. River access and recreational development is concentrated around the communities of Lewiston, Douglas City, and Junction City.

Within the vicinity of the Bucktail site boundaries are residential developments, some commercial development, and public facilities. Within this area, there are three privately owned recreation facilities, one STNF recreation facility, one CDFW recreation facility, two BLM developed river access points, and three undeveloped river access points. These recreation areas provide a variety of recreation opportunities such as fishing, whitewater rafting, picnicking, and wildlife viewing.

Because the Lower Junction City site is comprised almost entirely of privately owned lands, recreational opportunities are limited within the site boundaries. However, some recreational use, primarily fishing, occurs there and there are opportunities in the surrounding area. For example, the Junction City Campground is a BLM-managed campsite that provides overnight and day-use facilities, river access sites, and a primitive boat launch site.

### **3.8.2 Environmental Consequences/Impacts and Mitigation Measures**

#### **3.8.2.1 Methodology**

The analysis of the potential effect on recreation resources as a result of the Proposed Project consists of identifying recreational resources (e.g., recreation facilities) near the boundaries of the sites and determining whether implementation of the action would impact these resources. This analysis is qualitative. In addition to evaluating the impacts on recreational resources, an evaluation was made of the Proposed Project's consistency with Trinity County recreation objectives and state and federal Wild and Scenic River designations. The WSRA Section 7 Determination for the Remaining Phase 1 and Phase 2 sites, which determined that the proposed fishery restoration activities would enhance the river's outstandingly remarkable values (its fishery), is included as Appendix A of the Master EIR.

#### **3.8.2.2 Significance Criteria**

Impacts associated with recreational uses would be significant if the Project would:

- Conflict with established or planned recreational uses within the sites' boundaries;
- Substantially affect existing recreational opportunities; or
- Result in an increase in the use of the existing neighborhood, regional parks, public lands in general, or other recreational facilities such that substantial deterioration of these facilities would occur or be accelerated.

The following criteria were used to determine if the Proposed Project's impacts to riverine recreation would be significant:

- A substantial increase in turbidity so as to negatively affect recreation aesthetics;
- Incompatibility with the federal or state wild and scenic river designation, which is defined as jeopardizing the river’s scenic, recreational, or fish and wildlife resources; or
- Non-compliance with Trinity County recreation resource objectives.

### 3.8.2.3 Impacts and Mitigation Measures

Table 14 summarizes the potential recreation impacts resulting from the No-Project and Proposed Project alternatives.

<b>Table 14. Summary of Potential Recreation Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>No-Project Alternative</b>	<b>Proposed Project</b>	<b>Proposed Project With Mitigation</b>
Impact 3.8-1. Construction associated with the project could disrupt recreation activities, such as boating, fishing, and swimming, in the Trinity River.		
No impact	Significant	Less than significant
Impact 3.8-2. Construction of the project could result in an increased safety risk to recreational users or resource damage to recreational lands within the project boundaries.		
No impact	Significant	Less than significant
Impact 3.8-3. Construction activities associated with the project could lower the Trinity River’s aesthetic value for recreationists by increasing its turbidity.		
No impact	Significant	Less than significant
Impact 3.8-4. Implementation of the project could affect Wild and Scenic River values.		
No impact	Less than significant	Not applicable <sup>1</sup>
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

Impact 3.8-1: Construction associated with the Proposed Project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River.

#### **No-Project Alternative**

Under the No-Project alternative, there would be no disruption of recreation activities in the Trinity River, such as boating, fishing, and swimming, because the Project would not be constructed. Therefore, there would be no impact.

#### **Proposed Project**

During Project implementation, there would be construction equipment and activity within the active river channel, the floodplain, and adjacent upland areas in close proximity to the Trinity River. Proposed activities would include vegetation removal and grading. Overall, treatments proposed within the activity areas described in Chapter 2 could result in temporary interruptions of public access and use in the immediate vicinity of the activity areas.

The existing boat launch could be replaced in a new location downstream of the Bucktail Bridge, eliminating access at the current location in the short term. However, river access at the Project sites would continue to be available because several public and private access points are present in the vicinity. These alternative access points would ensure uninterrupted public access to the river in the vicinity of the Project boundaries. Once the new boat launch is completed, access would be restored.

Although potential disruptions to recreational activities within the sites would be temporary, this impact would be significant.

### ***Mitigation Measures***

Construction associated with the Proposed Project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River, as well as camping along the river. Therefore, mitigation measures 4.8-1a and 4.8-1b will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.8-2: Construction of the Proposed Project could result in an increased safety risk to recreational users or resource damage to lands within the Project boundaries.

### ***No-Project Alternative***

Under the No-Project alternative, there would be no safety risks to recreational users or resource damage to lands within the Project boundaries because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

During construction of the Proposed Project, there would be heavy equipment activity and construction vehicle traffic operating within, and immediately adjacent to, the Trinity River.

Activities associated with the Project would require construction work within the river channel for a short period of time. These construction-related activities could distract recreational users (e.g., boaters, anglers) for a short period of time (approximately 3-6 weeks during the low flow period). The in-channel activities would be accomplished in a way that minimizes impacts to navigation (i.e., safety) but this would still be considered a significant impact, albeit temporary.

Activities associated with in-channel treatments would occur between July 15 and September 15. However, work directly adjacent to the river might continue for the duration of the construction period. Vehicular access to activity areas, including both uplands and in-channel areas, would be limited to authorized personnel.

Temporary, construction activities associated with the Proposed Project could pose a significant hazard to recreational users of the river and cause resource damage to recreational lands within the Project boundaries. Potential hazards to recreationists include the operation of construction equipment and vehicles in and around the rehabilitation sites, changes in the river's subsurface movement as a result of the in-channel addition or removal of gravel, the addition of LWD into the channel, and an increased potential for a hazardous materials spill (e.g., diesel and hydraulic fluid) presented by construction equipment and vehicles operating in and adjacent to the river. Potential hazards to resources on recreational lands within Project boundaries include an increased potential for hazardous materials spills and unstable riverbanks and/or uplands resulting from excavation, material addition, road creation, and vegetation removal. These impacts would be temporary, but significant.

Post-construction, activity areas would be evaluated by Reclamation in conjunction with land managers and owners to identify specific prescriptions required to minimize any further potential safety risks to recreational users and to ensure the avoidance of any further Project effects to resources occurring on recreational lands within the Project boundaries.

### ***Mitigation Measures***

Construction of the Proposed Project could result in an increased safety risk to recreational users or resource damage to lands within the Project boundaries. Therefore, mitigation measures 4.8-1a and 4.8-1b described above for Impact 3.8.1 will be implemented to reduce the potential for impacts associated with the Proposed Project. These mitigation measures respond to multiple issues. In an effort to reduce the size of document, they are referred to for multiple impacts rather than reiterating the list numerous times. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.8-3: Construction activities associated with the Proposed Project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity.

### ***No-Project Alternative***

Under the No-Project alternative, turbidity levels in the Trinity River would not increase because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

Implementation of the Proposed Project could increase turbidity in the Trinity River for some distance downstream. The level of this increase would be largely dependent on the flow regime at the time of the Project. Flows that typically contribute to good fishing tend to be clear thus, nominal increases in turbidity may affect the recreational experience of anglers and the aesthetic values held by other user groups. Water quality objectives for the Trinity River specifically prohibit the discharge of any materials into the river that could cause a nuisance or adversely affect beneficial uses (e.g., recreation).

The Regional Water Board's Basin Plan (North Coast Regional Water Board 2011) includes two specific prohibitions directed at construction, logging, and other associated non-point source activities:

- The discharge of soil, silt, bark, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited; and
- The placing or disposal of soil, silt, bark, slash, or sawdust or other organic and earthen material from any logging, construction or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.

Implementation of the Proposed Project would increase the potential for turbidity and total suspended solids during construction activities. Fine sediments could be suspended in the river for several hours following in-channel activities. The extent of downstream sedimentation would be a function of the instream flow velocity and particle size. For example, fine-grained sediments like silts and clays could be carried several thousand feet downstream of the activity area, while larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction limit. Increased turbidity and suspended solids levels would adversely affect water quality (refer to Section 4.5, Water Quality, of the Master EIR) and could adversely affect anadromous fish species that are known to occur in the Trinity River (refer to Section 4.6, Fisheries Resources, of the Master EIR), and could have a noticeable effect on the river's aesthetics. Increases in turbidity would be a significant impact.

### ***Mitigation Measures***

Construction activities associated with the Proposed Project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity. Therefore, mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e identified to protect water quality and described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. These particular mitigation measures specifically reduce turbidity but also minimize potential impacts to multiple resource areas (e.g., water quality, fisheries, and recreation). In an effort to reduce the size of document, these mitigation measures are referred to in multiple resource areas rather than reiterating the list numerous times. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.8-4: Implementation of the Proposed Project could affect Wild and Scenic River values.

### ***No-Project Alternative***

Under the No-Project alternative, there would be no adverse impacts to Wild and Scenic River values because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

Construction and implementation of the Proposed Project would have a temporary effect on the scenic and recreational components of the Trinity River's Wild and Scenic River values. However, this temporary impact would be less than significant because the rehabilitation activities would ultimately enhance the overall form and function of the Trinity River, thereby enhancing the outstandingly remarkable values for which it was designated a Wild and Scenic River. Temporary impacts on the scenic quality of the river are previously discussed under Impact 3.8-3 and in Section 3.12 (Visual Resources). The impact on Wild and Scenic River values would be less than significant because Project activities would be temporary and would ultimately enhance the "natural" qualities of the river.

## **3.9 Socioeconomics**

This section evaluates potential impacts on socioeconomic conditions, population, and housing from Project implementation at the Proposed Project sites. This section is tiered to the detailed discussion of regional socioeconomic conditions, population, and housing in the Master EIR, Section 4.9, as well as additional information for Phase 1 sites contained in Section 7.9. Information regarding poverty rates and population by race and ethnicity is included in Section 3.18, Environmental Justice, of this EA. Much of the information in this section is derived from Trinity County 2007: Economic and Demographic Profile (Center for Economic Development 2007). Trinity County is a rural region with substantial amounts of public land and a minimal private land base. As a result, the region is largely dependent on natural resources and recreation-based industries for its economic base.

### **3.9.1 Affected Environment/Environmental Setting**

#### **3.9.1.1 Labor Market, Population, and Housing**

The labor market, population, and housing discussions in the Master EIR (Section 4.9) provide general information that applies to the Proposed Project sites.

#### ***Labor Market***

The average total labor force in Trinity County between the years of 1991 and 2006 was 5,250 people (California Employment Development Department 2008; Center for Economic Development 2007). Annual variations have ranged from 4,850 people in 1999 to 5,420 people in 2003 (California Employment Development Department 2008; Center for Economic Development 2007). The majority of Trinity County's labor force is concentrated in Weaverville and Hayfork. Trinity County's unemployment rate has been and continues to be consistently higher than the California average. In December 2010, unemployment in Trinity County was 20.5 percent (California Employment Development Department 2011).

#### ***Population***

Trinity County's population continues to grow at a considerably lower rate than California on average, and was ranked by the U.S. Census Bureau as 54th in total population out of 58 California counties (U.S. Census Bureau 2008). Declines in the timber industry and an attendant loss of jobs have had a significant effect on the county's population.

The population of Trinity County is generally characterized by a higher proportion of white and retirement-age persons and lower proportions of Native American, Hispanic, and young working-age persons (Center for Economic Development 2007). The county's demographics are influenced by the large amount of federally owned land in combination with land used for private industrial timber production (10 percent), much of which is restricted from development due to zoning as a Timber Production Zone (Trinity County 2003). Thus, only about 15 percent of the county is private land that is usable for development purposes. The

county's rugged terrain and remote location also influence its demographics by limiting the developable area. Most of the population of Trinity County is concentrated in Weaverville, Hayfork, and Lewiston. Education levels of residents are typical of most rural northern California counties, with a greater proportion of high school graduates and a smaller proportion of college graduates (Center for Economic Development 2007).

### ***Housing***

The total number of housing units in Trinity County in 2006 was estimated at 8,251 (U.S. Census Bureau 2008). The total number of occupied housing units was estimated at 5,587 (U.S. Census Bureau 2008). During the period of 2000 to 2007, there were 374 single family homes constructed in Trinity County; only two of these were multifamily units (California Employment Development Department 2008). The community of Lewiston offers only limited services, including several commercial enterprises, a U.S. Post Office, and Lewiston Elementary School. The community also has several recreation-based businesses within, or in close proximity to, the proposed rehabilitation sites, including the Trinity River Resort and RV Park, the Old Lewiston Bridge RV Resort, and the River Oaks Resort. These businesses provide economic benefits to the local community and the county, however, the Lewiston community is primarily residential. Existing land uses in the general vicinity of the rehabilitation sites are primarily rural residential or lands managed by federal or state agencies.

The community of Junction City offers limited services, including several commercial enterprises, a USFS work station, a U.S. Post Office, and Junction City Elementary School. This community has two commercial sand and gravel operations, as well as several recreation-based businesses, which include RV parks, lodges, and rafting and fishing guides that operate along the Trinity River between Lewiston and Big Bar. These businesses provide economic benefits to the local community and the county; however, the Junction City community is primarily residential.

There is little likelihood that parcels in the vicinity of the Proposed Project sites would be further subdivided because of their location in the floodplain, zoning restrictions, soil conditions, and minimal county services (e.g., community water service). Zoning designations within the communities of Lewiston and Junction City are largely residential, with minimum parcel sizes ranging from 1 to 40 acres (Trinity County 2003). Rural Residential zoning within these communities requires a minimum parcel size of 1 to 5 acres to retain the rural character of the area. Many of these parcels do not have access to community services, and rely on individual sewer and water services. In addition, portions of many parcels located directly adjacent to the river are designated as Flood Hazard and Open Space zones, restricting further development in these areas. Therefore, there is little potential for increased development densities in the project area. BLM-managed public lands in and adjacent to the Proposed Project sites are primarily managed for resource and recreation uses, and planned development would need to be consistent with resource and recreation goals and objectives of agency management plans.

## **3.9.2 Environmental Consequences/Impacts and Mitigation Measures**

### ***3.9.2.1 Methodology***

The following section provides a brief overview of the methods used to assess the potential socioeconomic impacts of the Proposed Project. These methods included qualitative assessments of potential impacts associated with employment, income, conflicts with county and local plans, population growth, displacement of persons and businesses, and community disruption. For this assessment, Trinity County is considered to be the area of potential socioeconomic impact.

### ***3.9.2.2 Significance Criteria***

For purposes of CEQA, under which “economic or social impacts of the Proposed Project shall not be treated as significant impacts on the environment,” impacts on population and housing are relevant only if they either (i) directly relate to an impact on the physical environment, in which case a lead agency may, but need not, consider economic or social impacts in determining whether such physical impacts are significant, or (ii)

would result in a reasonably foreseeable indirect impact on the physical environment (See CEQA Guidelines, § 15131). Under CEQA, the Proposed Project would have a significant impact on population and housing if it:

- Induces substantial growth in an area, either directly or indirectly;
- Displaces substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; and/or
- Displaces substantial numbers of people, necessitating the construction of replacement housing elsewhere.

### 3.9.2.3 Impacts and Mitigation Measures

Table 15 summarizes the potential socioeconomic impacts that could result from implementation of the No-Project alternative and the Proposed Project.

<b>Table 15. Summary of Potential Impacts on Socioeconomics for the No-Project and Proposed Project Alternatives.</b>		
<b>No-Project Alternative</b>	<b>Proposed Project</b>	<b>Proposed Project With Mitigation</b>
3.9-1. Construction of the project would provide temporary employment opportunities for construction workers in Trinity County.		
No impact	Beneficial	Not applicable <sup>1</sup>
3.9-2. Implementation of the project could result in the disruption or displacement of local businesses.		
No impact	Less than significant	Not applicable <sup>1</sup>
3.9-3. Implementation of the project would result in an increased demand for housing during construction.		
No impact	Less than significant	Not applicable <sup>1</sup>
3.9-4. Implementation of the project would result in concentrated population growth.		
No impact	Less than significant	Not applicable <sup>1</sup>
<sup>1</sup> Because this potential impact is beneficial or less than significant, no mitigation is required.		

Impact 3.9-1: Construction of the Proposed Project would provide temporary employment opportunities for construction workers in Trinity County.

#### **No-Project Alternative**

Under the No-Project alternative, no employment opportunities would be created because the Project would not occur. Therefore, there would be no impact.

#### **Proposed Project**

Project implementation would generate temporary construction-related employment in Trinity County. The generation of employment would create a beneficial effect on the local economy, even if the employment is short-lived. The exact number of design, construction, and clerical positions required to complete the Proposed Project is undetermined, but implementation of the rehabilitation activities is expected to add a small percentage to existing local jobs during implementation. The duration of employment would be dependent on the length of the contracting and construction period (anticipated to be approximately six months). Although the Proposed Project would provide direct local employment opportunities only if workers are hired from the local labor force, this potential impact would be beneficial.

Impact 3.9-2: Implementation of the Proposed Project could result in the disruption or displacement of local businesses.

***No-Project Alternative***

Under the No-Project alternative, there would be no disruption or displacement of local businesses because the Project would not occur. Therefore, there would be no impact.

***Proposed Project***

Local businesses in the vicinity of the sites would not be disrupted or displaced by activities associated with the Proposed Project. Construction equipment and vehicle access would not impair access to local businesses, and business operations would not be impaired. Access to the river and to recreation sites along the river may be temporarily affected because of the presence of equipment. However, because numerous other locations are available in the vicinity of this site, the impact would be less than significant.

Impact 3.9-3: Implementation of the Proposed Project would result in an increased demand for housing during construction.

***No-Project Alternative***

Under the No-Project alternative, there would be no increased demand for housing during construction because the Project would not occur. Therefore, there would be no impact.

***Proposed Project***

The area surrounding the communities of Lewiston and Junction City is primarily rural residential, and few rental opportunities are available. What rental property does occur in adjacent rural residential areas is typically seasonal rental property available for recreational users. More readily available short-term apartment and single-family rentals are concentrated in the nearby community of Weaverville and, to a lesser degree, Hayfork.

Implementation of the Proposed Project would not result in the displacement of any individual from his or her home. It is not anticipated that any short-term increase in the demand for housing in Weaverville would occur as a result of construction workers seeking lodging during the Project staging and construction period (primarily July through October) for the Proposed Project. Based on the estimated increase in annual employment generated by the Project (approximately 20 to 30 persons for the whole project as described in the Master EIR), this would be a less than significant impact, both regionally and locally. In addition to accommodating the short-term demands for housing during previous TRRP rehabilitation projects, the nearby communities have been capable of meeting short-term increases in housing demands resulting from a large influx of fire suppression personnel on a recurring basis. These Projects would generate a much smaller number of housing needs in comparison to the housing demands generated by wildland fires, and the impact would occur only in the short term. Therefore, the impact would be less than significant.

Impact 3.9-4: Implementation of the Proposed Project would result in concentrated population growth.

***No-Project Alternative***

Under the No-Project alternative, there would not be a population increase because the Project would not occur. Therefore, there would be no impact.

***Proposed Project***

The Proposed Project would require about 20 to 30 individuals during implementation. An increase in population is not anticipated; if any increase were to occur it would likely occur on a temporary basis. Based on current populations in the local communities, the projected number of workers that could move to the

greater Weaverville area would result in a localized increase of less than one percent on a temporary basis. This amount would not constitute a significant change in population. Workers would likely be drawn from the local work force, which would further lessen potential population growth associated with the Project implementation. Overall, this impact would be less than significant.

### **3.10 Cultural Resources**

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation that outlines the federal government's responsibility related to cultural resources. Section 106 of the NHPA requires the federal government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places (NRHP). Those resources that are on or eligible for inclusion in the NRHP are referred to as historic properties.

The Section 106 process is outlined in the federal regulations at 36 CFR 800. These regulations describe the process that the federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Officer, to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties.

CEQA is the primary state statute that guides cultural resources considerations for actions involving state or local agencies. Similar to the NHPA, the CEQA process seeks to identify cultural resources that are significant and are eligible for inclusion in the California Register of Historical Resources (CRHR) (PRC, Section 21084.1). The guidelines for considering impacts to cultural resources under CEQA are located in the CEQA guidelines, Section 15064.5. If actions result in significant and unavoidable impacts to resources eligible for inclusion in the CRHR, these effects must be mitigated through prescribed procedures. According to CEQA guidelines, if a cultural resource is eligible for inclusion in the NRHP it is eligible for inclusion on the CRHR and a means of mitigating significant and unavoidable impacts under CEQA can be to resolve adverse effects to historic properties using the Section 106 process. General mitigation measures are provided in Appendix A and would be incorporated into a Memorandum of Agreement (MoA) to resolve adverse effects to historic properties assuming such impacts are adverse or significant and unavoidable. By completing the Section 106 process, all the steps and considerations for impacts to cultural resources for CEQA are effectively satisfied.

The TRRP is guided by a Programmatic Agreement (PA) executed between Reclamation and the State Historic Preservation Office (SHPO) in 2000 (USFWS et al. 2000b). The PA outlines an alternative Section 106 process as allowed for in the Section 106 regulations at §800.16. The PA outlines a program APE which includes the 100 year floodplain of the Trinity River, access roads, staging, and all TRRP project related activities. Specific actions can result in more refined action specific project areas. Additionally, the PA provides for a streamlined review process on actions that have minimal to no impact on Historic Properties. Reclamation is required to report annually to the SHPO on TRRP actions and undertakings. If an action or undertaking is determined to have an adverse effect to historic properties, Reclamation must seek to resolve that adverse effect through avoidance, project modification, or mitigation through a MoA. By resolving effects to Historic Properties, impacts to cultural resources are effectively mitigated to less than significant under CEQA and no impact under NEPA.

#### **3.10.1 Affected Environment/Environmental Setting**

Trinity County was primarily shaped by three economic pursuits: ranching, logging, and mining. Early settlers during the 1840s farmed, logged, and milled lumber (Colby 1982; Cox 1958; Medin and Allen 1998).

This lifestyle was disrupted by the discovery of gold in Trinity County at Reading Creek in 1848. Mining on the Trinity River was a significant industrial operation that contributed to the economic development of Trinity County beginning in the 1890s and continuing to the 1960s (Bradley 1941; Jones 1981; Medin and Allen 2007). Boom towns quickly sprang up throughout the basin, with Weaverville and Trinity Center being among the largest, and nearly every flat and bar along the river was subsequently prospected.

Evidence of mining within the vicinity of the Proposed Projects is easily identified by even the casual observer. Large dredge tailings created by multiple gold dredge operations line the banks of the Trinity River depicting various stages of dredge development and implementation. Remnant placer mine operations also mark the hillsides along with their supporting infrastructure such as roads and ditches that brought people, equipment, and water to the gold operations. Historic mining activities are exceedingly apparent throughout the TRRP including the current Project sites. Although it is known that Native Americans extensively used the lands in, and immediately adjacent to, the Trinity River, evidence of this use is not easily located within the TRRP project areas as a result of historic mining operations. Archaeological sites containing Native American type artifacts are rare within the TRRP project areas.

Cultural resource inventories, including record searches and pedestrian surveys, have been conducted for the majority of the Bucktail site as part of past TRRP efforts, specifically these include the Dark Gulch project and the Lowden Ranch project. Similarly, investigations have been conducted for the majority of the Lower Junction City site as part of the work in 2012 at the Upper Junction City site, as well as past work at the adjacent Hocker Flat site. Cultural resource inventory and evaluation reports were developed and are on file for these past projects. Currently there are no documented historic properties within the Lower Junction City and Bucktail APEs. However, prior to project implementation, all Project APEs that have not been inventoried for cultural resources, or which have not been inventoried within the last five years, will be inventoried, and any identified cultural resources will be evaluated for inclusion in the NRHP.

### **3.10.2 Environmental Consequences/Impacts and Mitigation Measures**

#### ***3.10.2.1 Methodology***

The APE for the cultural resource inventory and evaluation was established by Reclamation in accordance with the PA. Reclamation negotiated a PA with the California State Historic Preservation Offices (SHPO) and the Advisory Council on Historic Preservation in November of 2000 for Section 106 compliance regarding the Trinity River Main Stem Fishery Restoration Project. The PA outlines how Reclamation conducts Section 106 compliance as well as provides direction on how to deal with resources identified within the programmatic APE.

#### ***3.10.2.2 Significance Criteria/Determination of Effect***

The activities within the rehabilitation site were evaluated to determine how they might affect cultural resources. Impacts on cultural resources are considered significant if implementation of the proposed project would potentially disturb unique cultural resources or properties on, or eligible for, the NRHP.

For historical resources, the lead agencies have reviewed both the federal NHPA and CEQA in order to determine thresholds of significance. CEQA provides that a project may cause a significant environmental effect if the project “may cause a substantial adverse change in the significance of an historical resource” (PRC, Section 21084.1). CEQA Guidelines Section 15064.5 defines a substantial adverse change in the significance of an historical resource to mean “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines, Section 15064.5, subd. (b)(1)). CEQA Guidelines Section 15064.5, subdivision (b)(2), states that the significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR;
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its

identification in a historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

With these definitions in mind, the lead agencies considered impacts on historical resources eligible for the NRHP or California Register of Historic Places (CRHR) to be significant if the project would alter their eligibility for the NRHP or CRHR by:

- Physically destroying or materially altering the characteristics of the historical resource that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR;
- Introducing visual, audible, or atmospheric elements out of character with the historical resource and its setting in such a way as to demolish or materially alter the characteristics that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR;
- Causing the historical resource to be subject to neglect to such a degree that the characteristics that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR would be materially impaired; or
- Resulting in the historical resource being transferred, leased, or sold, with the probability that the characteristics that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR would be materially impaired.

In addition, based on CEQA Guidelines Section 15064.5 and Appendix G of the CEQA Guidelines, the Proposed Project would have significant effects if they would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

### 3.10.2.3 Impacts and Mitigation Measures

Table 16 summarizes the potential cultural resource impacts resulting from the No-Project and Proposed Project alternatives.

<b>Table 16. Summary of Potential Cultural Resources Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>No-Project Alternative</b>	<b>Proposed Project</b>	<b>Proposed Project With Mitigation</b>
Impact 3.10-1: Implementation of the project could cause a substantial adverse change in the significance of a known cultural resource.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.10-2: Implementation of the project could potentially result in disturbance of undiscovered prehistoric or historic resources.		
No impact	Potentially significant	Less than significant
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

Impact 3.10-1: Implementation of the Proposed Project could cause a substantial adverse change in the significance of a known cultural resource.

### ***No-Project Alternative***

Under the No-Project alternative, there would be no effects on cultural resources because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

Implementation of the Proposed Project would effectively avoid, minimize or mitigate impacts to cultural resources as described in the PA. By following the stipulations of the PA, there would be minimal impacts to cultural resources and all actions under CEQA and NHPA would be fulfilled. Reclamation will continue to work with BLM cultural staff to ensure that implementation plans are consistent with the PA. Reclamation commits to fulfilling the stipulations of the PA prior to implementation of the Proposed Project.

Impact 3.10-2: Implementation of the Proposed Project could potentially result in disturbance of undiscovered prehistoric or historic resources.

### ***No-Project Alternative***

Under the No-Project alternative, there would be no effects on cultural resources because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

TRRP rehabilitation activities have the potential to affect unknown cultural resources that may be present at the Proposed Project sites. In the event that any cultural resources or human remains are encountered during Project implementation, all work in the area of the find would halt and Reclamation's Regional Archeologist would be immediately notified. Reclamation would follow the stipulations of the PA and appropriate laws and regulations for compliance with the NHPA and other cultural resources statutes. If the discovery is determined to be a historic property that would be adversely affected by the rehabilitation activities, Reclamation would resolve the adverse effect by preparing a Historic Property Treatment Plan in accordance with Section III (d) of the PA. If human remains are discovered and identified as Native American, they would be treated according to provisions set forth in Section IV of the PA as well as the Native American Graves Protection and Repatriation Act. Any such impact related to the Proposed Project would be potentially significant.

### ***Mitigation Measures***

Implementation of the Proposed Project could potentially result in disturbance of undiscovered prehistoric or historic resources. Therefore, mitigation measures 4.10-2a and 4.10-2b described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

## **3.11 Air Quality**

This section evaluates the air quality impacts associated with implementation of the Proposed Project. Air emissions from Project activities are measured against federal and state standards. Air quality in the vicinity of the Proposed Project sites is discussed in detail in the Master EIR (Section 4.11.1). The information below is summarized from that document.

### **3.11.1 Affected Environment/Environmental Setting**

#### ***Climate and Topography***

Trinity County has a climate characterized by hot, dry summers and cold, moderately wet winters (USDA 1998). Most precipitation in the county results from major storms originating in the Pacific Ocean; however, short thunderstorms resulting from localized climate conditions occur in the summer months. The higher mountain ridges receive precipitation as snow and hold most of it until late spring. Precipitation in the lower

elevations is predominantly rainfall, with occasional snow in the winter (NCUAQMD 1995). Trinity County has an average summer high temperature of 93.9° F and winter low of 27.3° F.

### ***Air Quality***

The Master EIR summarizes federal, state and local air quality requirements applicable to the Project area. The 1977 federal Clean Air Act (CAA) requires the EPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. Trinity County is part of the North Coast Air Basin (NCAB), and is under the jurisdiction of the North Coast Unified Air Quality Management District (NCUAQMD). Similar to federal requirements, the 1988 California Clean Air Act (CCAA) outlines a program to attain the California Ambient Air Quality Standards (CAAQS). The county is currently in attainment with all federal air quality standards and most state air quality standards; however, the county is in non-attainment for the state particulate matter standard for particulate matter less than 10 microns in diameter (PM<sub>10</sub>). The California Air Resources Board (CARB), California's state air quality management agency, regulates mobile source emissions and oversees the activities of the NCUAQMD. The NCAB is comprised of five counties in northwest California: Del Norte, Humboldt, Trinity, Mendocino, and a portion of Sonoma County. NCUAQMD is responsible for monitoring and reporting air quality for Trinity County as well as two others.

Trinity County's air quality is generally good. The low population density, limited number of industrial and agricultural operations and minimal traffic congestion problems contribute to the good air quality. Ambient air quality data is available from the Weaverville air monitoring station, which is located approximately 15 miles from the Bucktail site and approximately 9 miles from the Lower Junction City site. Air quality measured at the Weaverville station may not be a precise representation of ambient air quality in the immediate vicinity of the sites but it does provide a good indication of air quality in the general area.

### ***Climate Change and Greenhouse Gases***

Climate change refers to a significant change in measures of climate, such as average temperatures, precipitation, and wind patterns, over time. Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to the accumulation of greenhouse gas (GHG) emissions in the atmosphere.

As of August 2007, CEQA lead agencies are required by law to analyze the potential of a project to produce GHG emissions, which consist primarily of carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), and methane (CH<sub>4</sub>) (PRC Section 21083.05). The Governor's Office of Planning and Research released a Technical Advisory in June 2008 (California Office of Planning and Research 2008) that provides guidance for addressing CEQA GHG environmental impacts. In particular, "Lead agencies should make a good faith effort, based on available information, to calculate, model, or estimate the amount of CO<sub>2</sub> and other GHG emissions associated with vehicular traffic, energy consumption, water usage and construction activities" (California Office of Planning and Research 2008).

### ***Sensitive Receptors***

A sensitive receptor is a location where human populations, particularly children, seniors, and sick individuals, are present and where there is a reasonable expectation of continuous human exposure to pollutants. The Project sites are not located near a hospital or senior housing. However, they are located near the Lewiston Elementary School and the Junction City Elementary School. Additionally, both sites have residential areas adjacent to the site boundaries and both provide recreation opportunities.

## **3.11.2 Environmental Consequences/Impacts and Mitigation Measures**

### ***3.11.2.1 Methodology***

Data for the impacts analysis were taken from the following reports on local and regional air quality: Particulate Matter Attainment Plan (NCUAQMD 1995), California Air Quality Data Statistics (California Air Resources Board 2008), North Coast Rules and Regulations (NCUAQMD 2005), and the Trinity County General Plan (Trinity County 2003). The air quality analysis is qualitative, and was conducted by assessing

anticipated construction-related impacts of the Project and comparing them to existing and anticipated future air quality conditions.

### 3.11.2.2 Significance Criteria

According to Appendix G of the CEQA Guidelines, a project would normally have an adverse impact on air quality if it would:

- Violate any ambient air quality standard;
- Contribute substantially to an existing or projected air quality violation;
- Conflict with or obstruct implementation of any applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant (e.g., PM<sub>10</sub>) for which the region is in non-attainment under an applicable state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in substantial air emissions or deterioration of air quality;
- Create objectionable odors;
- Alter air movement, moisture, or temperature, or result in any change in climate, either locally or regionally;
- Produce toxic air contaminant emissions that exceed the air pollution control district’s threshold level for health risk; or
- Result in a substantial increase or cumulatively considerable net increase in GHG emissions (e.g., CO<sub>2</sub>).

Since the first two criteria include violation of either federal or state air quality standards, these criteria would also be used to determine significance for NEPA compliance. The NCUAQMD has not formally adopted a CEQA threshold of significance for criteria pollutants such as carbon monoxide (CO), nitrogen oxide (NO<sub>x</sub>), PM<sub>10</sub>, and sulfur dioxide (SO<sub>2</sub>), but does use the significant emission rates listed in Table 4.11-3 of the Master EIR as a baseline when evaluating a Project’s potential impacts to air quality.

### 3.11.2.3 Impacts and Mitigation Measures

Table 17 summarizes the potential air quality impacts that would result from the No-Project alternative and the Proposed Project.

<b>Table 17. Summary of Potential Air Quality Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>No-Project Alternative</b>	<b>Proposed Project</b>	<b>Proposed Project With Mitigation</b>
3.11-1. Construction activities associated with the project could result in an increase in fugitive dust and associated particulate matter (PM <sub>10</sub> and PM <sub>2.5</sub> ) levels.		
No impact	Significant	Less than significant
3.11-2. Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.		
No impact	Significant	Less than significant
3.11-3. Construction activities and removal of vegetation associated with the project could result in vegetative materials that managers may decide to burn.		
No impact	Significant	Less than significant
3.11-4. Construction and transportation activities associated with the project could result in an increase of greenhouse gas emissions and effects on climate change.		
No impact	Less than significant	Not applicable <sup>1</sup>
3.11-5. Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools.		
No impact	Significant	Less than significant

**Table 17. Summary of Potential Air Quality Impacts for the No-Project and Proposed Project Alternatives.**

No-Project Alternative	Proposed Project	Proposed Project With Mitigation
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

Impact 3.11-1: Construction activities associated with the Project could result in an increase in fugitive dust and associated particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) levels.

***No-Project Alternative***

Under the No-Project alternative, there would be no construction-related increase in fugitive dust and associated particulate matter levels because the Project would not be constructed. Therefore, there would be no impact.

***Proposed Project***

Rehabilitation activities associated with the Proposed Project would require excavation, grading, disposal of earthen materials, and the use of heavy equipment and travel on unpaved roads, which would temporarily contribute fugitive dust in the Project area. Fugitive dust emissions would also result from activities associated with vegetation removal. As discussed previously, these sources of fugitive dust are associated with PM<sub>10</sub>, a criteria pollutant, for which the air basin is in non-attainment.

High levels of PM<sub>10</sub> in Trinity County generally coincide with regional wildland fire events during the dry summer months and with periods of cool, wet weather when localized woodstove use and brush burning activities contribute particulate matter to the air. Fugitive dust resulting from Project activities would occur during the dry summer and early fall months, when PM<sub>10</sub> levels may be elevated by wood stove use, brush burning, or wildland fires.

As described in Appendix A, the Project includes NCUAQMD-required measures to minimize fugitive dust in and adjacent to the rehabilitation sites. Once rehabilitation activities cease at the sites, the resulting impact on air quality would also cease. While the Project design minimizes fugitive dust, Project generated fugitive dust would be considered a significant impact because the air basin is in non-attainment status for particulate matter. The impact would be temporary (during implementation).

***Mitigation Measures***

Construction activities associated with the Project could result in an increase in fugitive dust and associated particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) levels. Therefore, mitigation measure 4.11-1a described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.11-2: Construction activities associated with the Proposed Project could result in an increase in construction vehicle exhaust emissions.

***No-Project Alternative***

Under the No-Project alternative, no increase in construction vehicle exhaust emissions would occur because the Project would not be constructed. Therefore, there would be no impact.

***Proposed Project***

Construction associated with the Proposed Project would require the use of equipment that would temporarily contribute to air pollution in the Trinity River Basin. Exhaust emissions from heavy equipment during construction could contribute to air pollution. Project construction activities would generate emissions from diesel- and gasoline-powered equipment and vehicles. Diesel particulate is an identified Hazardous Air

Pollutant (HAP) and Toxic Air Contaminant (TAC), emissions of which should be minimized. In this regard, construction activities would require the contractor to comply with NCUAQMD Rule 104 (3.0), Particulate Matter, or use portable internal combustion engines registered and certified under the state portable equipment regulation. Because diesel particulate matter is both a HAP and a TAC, and because these pollutants would be emitted as a result of Project implementation, the Proposed Project would have a significant impact on air quality.

### ***Mitigation Measures***

Construction activities associated with the Proposed Project could result in an increase in construction vehicle exhaust emissions. Therefore, mitigation measure 4.11-2a described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.11-3: Construction activities and removal of vegetation associated with the Project could result in vegetative waste materials that managers may decide to burn.

### ***No-Project Alternative***

Under the No-Project alternative, there would be no vegetative waste materials that would need to be burned because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

Implementation of the Proposed Project would include vegetation removal resulting in vegetative material that would be buried, piled to create wildlife habitat, chipped, or burned. Though vegetative materials are most frequently chipped and added back to the floodplain or upland area to enhance growing conditions, occasionally burning of vegetation (e.g., weedy materials) is completed. Piling and burning is a quick and economical way to eliminate flammable biomass and reduce concentrations of wildland fuels. Brush piles set aside for burning would be left intact until site construction is finished, and subsequently burned under the direction of Reclamation, consistent with BLM and Cal Fire requirements. Burning vegetation in the fall/winter period (November-April) would eliminate effects to nesting birds. In the event that piles are burned, smoke would temporarily contribute to air pollution in the Trinity River Basin. Burning vegetation would contribute particulate matter to the air, a criteria pollutant for which the basin is in non-attainment. Therefore, the impact would be significant.

### ***Mitigation Measures***

Construction activities and removal of vegetation associated with the Proposed Project could result in vegetative waste materials that managers may decide to burn. Therefore, mitigation measures 4.11-3a, 4.11-3b, and 4.11-3c described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.11-4: Construction and transportation activities associated with the Proposed Project could result in an increase of greenhouse gas emissions and effects on climate change.

### ***No-Project Alternative***

Under the No-Project alternative, the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

Transportation and construction activity associated with Project implementation would generate GHG emissions from diesel- and gasoline-powered vehicles and equipment. Burning vegetation would also emit CO<sub>2</sub>, which is a GHG. Several measures are identified in Appendix A that are intended to reduce the impacts relative to climate and GHGs. These measures are incorporated into the Proposed Project. Additionally, the

following measures would be used to enhance the awareness of global warming in conjunction with the Proposed Project:

- Provide Project contractors with educational material about fuel efficiency and incentives;
- Promote incentives for contractors to initiate ride-sharing programs;
- Promote the use of energy efficient and alternative fuel construction equipment and transportation fleets through contract incentives;
- Require contractors to provide recycling bins for on-site waste materials;
- Provide incentives for contractors to use re-usable water containers rather than plastic bottled water;
- Provide incentives for contractors to hire locally; and
- Require re-useable batteries for equipment that can use them.

In order to determine the significance of the impact of a rehabilitation project, a “carbon foot-print” was estimated in the Master EIR based on a project’s potential generation of GHGs (primarily CO<sub>2</sub>) from project activities at the remaining Phase 1 sites. Project activities that would offset potential impacts were weighed in the equation. The analysis in the Master EIR determined that rehabilitation at all of the remaining Phase 1 sites would produce approximately 3 metric tons of CO<sub>2</sub> per day over the life of the project. Total GHG emissions resulting from the proposed activities would be approximately 2,050 metric tons of CO<sub>2</sub>.<sup>8</sup> Vegetation replanting and natural re-seeding within the existing riparian area would offset the total project GHG emissions by approximately 20 metric tons of CO<sub>2</sub> over a five-year period. Additionally, project activities may result in opportunities to increase the amount of riparian and upland vegetation.

Based on those calculations, the Master EIR determined that rehabilitation at the remaining Phase 1 sites would not generate significant increases in GHGs or an ongoing increase in the demand for off-site energy production because there would be no new facilities constructed. While a project’s GHG emissions associated with the use of heavy equipment would be measurable over the course of the project, GHG emissions and any effects on global climate change would not be cumulatively significant considering the amount of GHG emissions generated by the rehabilitation and the current local air quality conditions. Overall, the impacts of rehabilitation activities would be less than significant with respect to GHG. As a result, the Proposed Project would result in impacts that would be less than significant because it represents a much smaller action than that analyzed in the Master EIR.

Impact 3.11-5: Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools.

### ***No-Project Alternative***

Under the No-Project alternative, no construction or transportation activities would occur because the Project would not be implemented. Therefore, there would be no impact.

### ***Proposed Project***

Construction activity associated with the Proposed Project would generate fugitive dust, gas, and diesel emissions and the Project could generate smoke from vegetation burn piles, all of which could expose a number of adjacent residents and nearby elementary schools to air pollutants. Schools and residences are considered sensitive receptors. Therefore, this would be a significant impact.

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<sup>8</sup> The mobile combustion CO<sub>2</sub> Emissions Calculation Tool was used to calculate GHG emissions for combustible fuel (Greenhouse Gas Protocol Initiative 2005), and the Construction Carbon Calculator was used to calculate GHG emissions for vegetation loss (BuildCarbonNeutral 2007). The calculation is based on 23 days of construction per site as estimated for the Remaining Phase 1 sites and includes diesel fuel combustion and loss of vegetation.

## ***Mitigation Measures***

Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools. Therefore, mitigation measures 4.11-5a, 4.11-5b, 4.11-5c, and 4.11-5d described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

### **3.12 Visual Resources**

This section describes the scenic values and visual resources that are known to occur within the Proposed Project site boundaries and evaluates the effect that the Proposed Project could have on these values and resources.

The BLM is responsible for managing public lands for multiple uses while ensuring that the scenic values and open space character of the public lands are considered before authorizing actions on public lands. The BLM accomplishes this through the Visual Resource Management (VRM) system. The VRM system classifies land based on visual appeal, public concern for scenic quality, and visibility from travel routes or observation points. VRM classes are used to identify the degree of acceptable visual change within a landscape based on the physical and sociological characteristics: Classes I and II are the most valued, Class III represents a moderate value, and Class IV is of least value. The Proposed Project would affect BLM administered public lands at the Bucktail site with the VRM Class Objective of II. This classification is given by the Redding RMP and ROD (1993).

The BLM Manual 8431, Visual Resource Contrast Rating, provides the following management objectives for this VRM class (BLM 1986):

Class II Objective: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

More details about this resource are described in the Master EIR (Section 4.12).

#### **3.12.1 Affected Environment/Environmental Setting**

##### ***3.12.1.1 Visual Environment***

The visual environment, or character, is a function of both the natural and artificial landscape features that make up a view. Geologic, hydrologic, botanical, wildlife, recreational, and urban features such as roads, homes, and earthworks directly influence the visual character of an area. The perception of the visual character of an area can vary significantly by season and even by hour as light, shadow, weather, and the elements that compose the view change. Form, line, color, and texture are the basic components used to describe visual character and quality for most visual assessments. The dominance of each of these components on the landscape serves to form the viewer's impression of the area.

The visual character of the Trinity River as a whole is typified by the river channel, bordered by bands of riparian vegetation interspersed between homes, businesses, and, occasionally, deposits of dredge tailings. The riparian vegetation transitions to upland vegetation as the viewer moves away from the river. The location and boundaries of the Proposed Project sites are illustrated in Figures 2 and 3. Adjacent roads offer varying degrees of views of the river and rehabilitation sites. The Bucktail Rehabilitation Site is partially visible from Browns Mountain Road, Steelhead Circle, Salmon Drive, Quail Point Road, and Old Lewiston Road. The Lower Junction City Rehabilitation Site is partially visible from SR-299, Dutch Creek Road, and Red Hill Road.

### ***Viewer Groups***

The Proposed Project sites are subject to the perceptions of the following three distinct viewer groups: motorists, residents, and recreationists. Motorists are those persons who would view the sites from a moving vehicle and may be drivers or passengers. Views of the river corridor from the roadway at the Proposed Project sites are somewhat limited and of short-duration for motorists. Residents are people whose homes and/or property are in close proximity to, and have a view of, one of the Proposed Project sites or a portion of a site. The individual sensitivity of residents to aesthetics and changes within a viewshed is highly variable. Recreationists are members of the community or the general public who use the recreational resources available within or adjacent to a site. The Trinity River provides a myriad of recreational opportunities that are discussed in Section 3.8 (Recreation). Typically, recreational users are highly sensitive to the visual character of the river corridor since most are drawn to the area by an appreciation of its scenic nature.

### ***Light and Glare***

Because of the rural nature of the Trinity River corridor, the primary sources of artificial light are limited to vehicles passing through the area on state, local, and private roads; concentrations of commercial/residential buildings; and, to a lesser degree, recreational features and facilities. Glare may occur during the daylight hours as the sun is reflected off the river or light-colored alluvium associated with the Trinity River floodplain.

### ***Key Observation Points***

Key observation points<sup>9</sup> (KOPs) for the Proposed Project sites were based on visibility from surrounding homes, public access areas, and along SR-299, Red Hill Road, and Browns Mountain Road. Although the river channel is somewhat obscured from the view of motorists by vegetation and topography, some portions of the construction areas are visible from these roads. KOPs are identified along commonly traveled routes or other likely observation points from which a representative group (i.e., residents, recreationists, or motorists) could view one of the rehabilitation sites (Figures 16 and 17). Table 18 provides a brief description of the KOPs and representative photographs of the sites are included in Tables 19 and 20.

### ***Wild and Scenic Rivers***

The sites are located within the corridor of the Trinity River designated under the federal and state WSRA. A review of the consistency of the Proposed Project with federal and state Wild and Scenic River designations is presented in the Master EIR. Specifically, the National Wild and Scenic River Section 7 Analysis and Determination for the proposed project can be found in the Channel Rehabilitation and Sediment Management for Remaining Phase 1 and Phase 2 sites Environmental Assessment, Volume IV, Appendix B (North Coast Regional Water Board and Reclamation 2009).

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<sup>9</sup> Points from which the project boundary or portions thereof are visible from sensitive receptor areas, such as major travel routes and/or surrounding homes.



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Figure 16. Key Observation Points for the Bucktail Rehabilitation Site.

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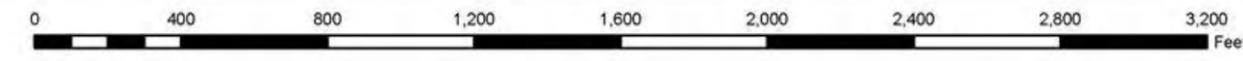
 Prepared for the Bureau of Reclamation Trinity River Restoration Program	 U.S. DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION	<b>TRINITY RIVER RESTORATION PROGRAM - BUCKTAIL &amp; LOWER JUNCTION CITY</b> <b>PROPOSED CHANNEL REHABILITATION SITES ENVIRONMENTAL ASSESSMENT/INITIAL STUDY</b>		 North Wind Services 1425 HIGHAM ST. IDAHO FALLS, ID 83402 WEB: www.northwindcorp.com Phone: (208) 528-8718 FAX: (208) 528-8714
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Figure 17. Key Observation Points for the Lower Junction City Rehabilitation Site.

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**Table 18. Key Observation Points for the Proposed Project.**

<b>KOP</b>	<b>Description of Key Observation Points</b>
<b>Bucktail Rehabilitation Site</b>	
B1-1	View of open area east of the Bucktail Hole River Access, looking northeast toward Trinity River.
B1-2	View of open area east of the Bucktail Hole River Access, looking west toward Trinity River.
B1-3	View of open area east of the Bucktail Hole River Access, looking north toward Trinity River.
B2-1	View of Bucktail Hole River Access parking area.
B3-1	View looking downstream from point upstream of Bucktail Hole boat launch.
B3-2	View looking downstream from point upstream of Bucktail Hole boat launch.
B4-1	View looking upstream from Bucktail Bridge.
B4-2	View looking downstream from Bucktail Bridge
B5-1	Upstream view from access at Bucktail Bridge, right bank of river.
B6-1	View of Trinity River from backyard of home on right bank of river between the Bucktail Hole boat launch and Bucktail Bridge.
B7-1	Upstream view from access at Bucktail Bridge. View from gravel bar east of homes on right bank of river.
B7-2	Downstream view from access at Bucktail Bridge. View from gravel bar east of homes on right bank of river.
<b>Lower Junction City Rehabilitation Site</b>	
LJC1-1	River access area, looking downstream.
LJC1-2	River access area, looking north across the river.
LJC1-3	River access area, looking upstream.
LJC2-1	View looking across Canyon Creek.
LJC2-2	View looking downstream at Canyon Creek.
LJC3-1	View from Dutch Creek Bridge, looking upstream.
LJC3-2	View from Dutch Creek Bridge, looking downstream.
LJC3-3	View from Dutch Creek Bridge, looking northeast.
LJC4-1	View from SR-299, looking west

**Table 19. Photographs of Views from Various Key Observation Points for the Bucktail Rehabilitation Site**



Photo 1. KOP 1-1, East of the Bucktail Hole River Access, looking northeast toward Trinity River.



Photo 2. KOP 4-1, Bucktail Bridge, looking upstream (north).



Photo 3. KOP 5-1, Upstream view from access at Bucktail Bridge, right bank of river.



Photo 4. KOP 7-1, Upstream view from access at Bucktail Bridge. View from gravel bar east of homes on right bank of river.

**Table 20. Photographs of Views from Various Key Observation Points for the Lower Junction City Rehabilitation Site.**



Photo 1. KOP 1-1. River access, looking downstream.



Photo 2. KOP 2-2, Looking downstream, near Canyon Creek.



Photo 3. KOP 3-1, Dutch Creek Bridge, looking downstream.



Photo 4. KOP 4-1, From SR-299, looking west into project area.

### **3.12.2 Environmental Consequences/Impacts and Mitigation Measures**

#### **3.12.2.1 Methodology**

Analysis of potential impacts to aesthetic and visual resources relative to the Proposed Project is based on the significance criteria described in Appendix G of the CEQA Guidelines (Association of Environmental Professionals 2008). The Regional Water Board, acting as the CEQA lead agency, has used these criteria to develop significance thresholds. Significance thresholds are used to evaluate the Proposed Project's potential impact on the visual character of the Proposed Project sites with an emphasis on KOPs that are selected to characterize the aesthetic values and visual resources. This section provides a general discussion of the type and magnitude of impacts that could occur as a result of the Project. The assessment is qualitative, with the potential impacts of activities at the Proposed Project sites evaluated in the context of the viewshed of the Trinity River corridor. A review of the consistency of the Proposed Project with federal and state Wild and Scenic River designations is presented in Appendix B of the Master EIR.

### 3.12.2.2 Significance Criteria

The Project would have a significant impact if it:

- Obstructs a scenic view from public viewing areas;
- Has a substantial adverse effect on a scenic vista;
- Substantially damages scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrades the existing visual character or quality of the rehabilitation sites and their surroundings;
- Introduces physical features that are substantially out of character with adjacent residential areas;
- Alters the sites so that the scale or degree of change appears as a substantial, obvious, and disharmonious modification of the overall scenes (to the extent that they clearly dominate the view);
- Creates substantial daytime glare associated with new construction;
- Disrupts adjacent residential areas because of new night-time lighting;
- Creates a new source of substantial light or glare that would adversely affect day or nighttime views in the sites;
- Is inconsistent with the policies of the Trinity County and local general plans relating to aesthetics; or
- Is inconsistent with the goals and objectives of either the federal or state WSRA with regards to the Trinity River.

### 3.12.2.3 Impacts and Mitigation Measures

Table 21 summarizes the potential impacts to visual resources resulting from implementation of the No-Project alternative and Proposed Project.

<b>Table 21. Summary of Potential Visual Resource Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>No-Project Alternative</b>	<b>Proposed Project</b>	<b>Proposed Project with Mitigation</b>
Impact 3.12-1. Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.		
No impact	Significant	Less than significant
Impact 3.12-2. Implementation of the project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.		
No impact	Less than Significant	Not applicable <sup>1</sup>
Impact 3.12-3. The project may be inconsistent with federal and state WSRA or Scenic Byway requirements.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.12-4. The project could generate increased daytime glare and/or nighttime lighting.		
No impact	Less than significant	Not applicable <sup>1</sup>
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

Impact 3.12-1: Implementation of the Proposed Project could result in the degradation and/or obstruction of a scenic view from key observation areas.

### ***No-Project Alternative***

Under the No-Project alternative, the degradation and/or obstruction of a scenic view from key observation areas would not occur as a result of construction activities because the Project would not be constructed. Therefore, there would be no impact.

### ***Proposed Project***

Potential impacts of Project activities would include changes brought about by the removal of vegetation, construction of inundated surfaces, new access roads, and the creation of staging and gravel processing areas. These various activities are intended to restore the form and function of an alluvial river, thereby enhancing the overall aesthetic values and visual resources associated with the Trinity River and the surrounding landscape. While the adverse impacts are expected to be temporary in nature and the long-term outcome should improve the visual diversity of the corridor, the short-term impacts would persist for some period.

KOPs 1-1, 1-2, and 1-3 at the Bucktail site are within the BLM's Bucktail Hole River Access area. This area supports dense stringers of riparian vegetation along both sides of the river, which obscures much of the river when viewed from the uplands (Table 19; Photo 1); however, the frequent use of this river access by fishermen and rafters/boaters would result in proposed project activities being visible to a number of individuals visiting the river access. Project activities could be visible in the background from KOPs 1-1 through 1-3. Users of the Bucktail Hole boat launch and fishermen accessing the river in the vicinity of KOPs 2-1 and 3-1 would have a view of the Proposed Project. Work is not proposed in the river channel in this area but would be visible in the uplands in the background.

Several homes front the river downstream of the Bucktail Hole boat launch and upstream of the Bucktail Bridge. KOPs 4-1, 5-1, 6-1, 7-1, and 7-2 illustrate the views of the project area from the Bucktail Bridge (Table 19; Photo 2); the backyards of existing homes (Table 19; Photo 3); and from the river bank (Table 19; Photo 4). Most of the proposed activity areas would be obscured from view from the bridge because of intervening vegetation but some project activities might be visible in background views. KOP 5-1 illustrates views of the Project area from the backyards of adjacent homes where some equipment may be visible in the background. Photo 3 in Table 19 shows vegetation present in this area that would obscure views of the activity areas. Views upstream from the river bank would be mostly obscured by vegetation as well (see Photo 4, Table 19), although some equipment may be visible in background views.

Other than the views of the project area from Bucktail Bridge, motorists traveling on roads in the vicinity of the site would have views screened by vegetation, topography, and distance. Proposed rehabilitation activities would be visible to occasional rafters/boaters passing by via the channel in this reach of the river (e.g., via raft/boat).

KOPs 1-1, 1-2, and 1-3 at the Lower Junction City site illustrate views of recreationists accessing the river in this location (Table 20; Photo 1). Proposed project activities would be visible to fishermen and rafters/boaters accessing this area. Both riverine and in-channel activities would be visible from this location. KOPs 2-1 and 2-2 represent additional views of recreationists accessing the area near Canyon Creek (Table 20; Photo 2). This area is relatively open with vegetation screening in background views.

Motorists traveling along SR-299 (Table 20; Photo 4, KOP 4-1,) would have views of riverine and in-channel work in background views. Motorists on Dutch Creek Road would also have views of the Project area, particularly from the Dutch Creek Bridge (Table 20; Photo 3, KOPs 3-1 and 3-3). Views from Red Hill Road would be mostly obscured by vegetation. Vegetation would provide screening of the project area from residences.

Project-related visual changes at the sites would be apparent to in-channel recreationists. In-channel recreationists such as rafters would have unobstructed views of much of the in-channel construction as well as some of the upland Project activities where they are not blocked by dense riparian vegetation that is common to the Trinity River.

Impacts to visual resources would be potentially significant, however because Proposed Project activities are intended to restore the form and function of an alluvial river, potentially adverse visual impacts occurring during construction would be temporary, lasting only until natural processes take over.

### ***Mitigation Measures***

Project implementation could result in degradation and/or obstruction of a scenic view from key observation areas. In order to minimize impacts to visual resources resulting from the removal of vegetation at the sites, mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c, as described in Section 3.7 (Vegetation, Wildlife, and Wetlands), will be implemented where applicable. Visual impacts related to water quality (e.g., the potential for increased turbidity to adversely impact the aesthetic quality of the river) would be mitigated through the implementation of mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e, as discussed for Impact 3.8-3 (in Section 3.8, Recreation), where applicable. These particular mitigation measures minimize potential impacts to multiple resource areas (e.g., vegetation water quality, and fisheries as well as visual resources). In an effort to reduce the size of document, these mitigation measures are referred to in multiple resource areas rather than reiterating the list numerous times. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.12-2: Implementation of the Proposed Project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.

### ***No-Project Alternative***

Under the No-Project alternative, no construction would occur at the Proposed Project sites. No changes would occur to the character or harmony of aesthetic features and existing land uses. Therefore, there would be no impact.

### ***Proposed Project***

Activities associated with the Proposed Project are intended to be not only functional (e.g., enhance fisheries and restore river sinuosity), but to complement the aesthetic values and visual resources associated with the rehabilitation sites. Overall, the Proposed Project incorporates the diversity of landscapes and vegetation types to define the location, character, and magnitude of the rehabilitation activities at the sites. For example, materials excavated from riverine areas would be removed to upland areas or used as a source of coarse sediment to enhance the alluvial function of the river. Material transported to upland activity areas would be placed in a manner that blends the materials into the contours of the topography. Retention of existing topographic features would significantly lessen the degree of visual impact.

The activities described in Chapter 2 provide a framework for reestablishing the physical processes necessary to enhance the alluvial attributes of the river channel and floodplain over time, particularly those attributes that are flow dependent. Over time, the Proposed Project would produce gradual, ever-improving changes in the aesthetic quality of this reach of the Trinity River, while maintaining the character of the surrounding land uses. Because changes associated with the Proposed Project would retain the character of existing land uses and features, implementation would result in a less than significant impact on visual resources.

Impact 3.12-3: The Proposed Project may be inconsistent with the federal or state WSRA or Scenic Byway requirements.

### ***No-Project Alternative***

Under the No-Project alternative, no construction activities would occur. No changes would occur that would be inconsistent with the federal or state WSRA or Scenic Byway requirements. Therefore, there would be no impact.

### ***Proposed Project***

Under Section 7 of the WSRA, direct and adverse effects to the values for which the Trinity River was recognized as a Wild and Scenic River are prohibited. Project implementation would be consistent with these values because the activities would not be considered substantially out of character with the current aesthetic conditions. Implementation of the Proposed Project would result in a less than significant impact to WSRA and Scenic Byway requirements.

Impact 3.12-4: The Proposed Project could generate increased daytime glare and/or nighttime lighting.

### ***No-Project Alternative***

Under the No-Project alternative, no changes in daytime glare or nighttime lighting would occur because the Project would not be implemented. Therefore, there would be no impact.

### ***Proposed Project***

Under the Proposed Project, significant increases in daytime glare and/or nighttime lighting are not anticipated to occur. Construction activities would not take place during nighttime hours; therefore, nearby homes and motorists traveling on roads adjacent to the river corridor would not be subjected to the headlights of construction equipment or stationary spotlights. Material removed from the floodplain and deposited at various activity areas is generally not reflective and would not increase the level of daytime glare observable to the viewer. Some changes may occur in the locations and amounts of glare produced by water over the constructed inundation surfaces, but, overall, these changes would be short-lived and variable by day, as well as season. The impacts of these changes would be less than significant. Occurrences of daytime glare produced by the sun reflecting off the water or construction equipment would be of short duration. Such an impact would be less than significant.

## **3.13 Hazards and Hazardous Materials**

### **3.13.1 Affected Environment/Environmental Setting**

This section evaluates hazards and hazardous materials that may currently be present within the Proposed Project site boundaries. The potential for using hazardous materials or generating hazardous waste in conjunction with rehabilitation activities is discussed in the Master EIR (Section 4.13). Hazardous materials and the potential for health hazards to be generated by implementation of the Proposed Project are also assessed in this section.

#### ***Hazardous Material and Hazardous Waste***

Federal, state, and local agencies regulate hazardous materials and hazardous waste. Nonetheless, illegal storage and disposal and unintentional releases of hazardous materials or waste from leaks and accidents can occur when hazardous materials are used or hazardous waste is generated by a project. Regional roadways including SR-299 and Red Hill Road are frequently used to transport hazardous materials throughout Trinity County. Under the California Code of Regulations (CCR), Title 13, Section 1150-1194, and 49 CFR, 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).

#### ***Roadways and Evacuation Routes***

The Proposed Project sites are immediately adjacent to SR-299, Dutch Creek Road, Red Hill Road, Browns Mountain Road, and Steelhead Circle and access to the sites would be made from these roads. These roads would also serve as the primary evacuation routes for the sites.

## ***Wildland Fire***

Steep topography and a mosaic of mixed-conifer, hardwood, and chaparral woodlands coupled with typically hot, dry summers create extreme fire danger throughout most of Trinity County. Human-caused fires, particularly along roadways and other developed areas, are relatively common, although the county is also frequently subject to lightning-caused fires. Wildland fire, regardless of the cause, can be detrimental to watershed function, killing vegetation, burning the organic matter in litter and soil, and forming impervious soil layers, factors that contribute directly to accelerated runoff and erosion from the watershed during and immediately after a storm event.

Trinity County fire protection needs are met by 16 volunteer fire departments (VFDs) dispersed throughout the county, Cal Fire, and the USFS. Cal Fire is responsible for wildland fire protection on all private lands in Trinity County, and the USFS is responsible for wildland fire protection on all National Forest lands. However, Cal Fire also contracts with the BLM to provide wildland fire protection on its public lands. The LCSD and the Junction City VFD provide services within their respective general plan areas, and are responsible for structural fire protection and rescue services in Trinity County throughout the year.

## ***Flooding and Seismic Events***

A review of the FEMA FIRMs indicates that the sites are within an area for which the BFEs have been determined and the sites are in a designated floodway. Areas designated by FEMA as being within “Zone X,” are subject to a 100-year flood with average depths of less than 1 foot or with drainage areas of less than 1 square mile. Trinity River flows through these sites are moderated by the TRD below Lewiston Dam.

Infrequently, seismic events occur in the region generally in the form of low to moderate levels of ground shaking associated with nearby or distant earthquakes. The potential for landslides triggered by seismic events is not significant within the corridor of the mainstem Trinity River, due to the low level of historical occurrence of seismic activity in the region. However, the steep topography and shallow, erosive soils found in much of the region increase the potential for landslides and rockfalls triggered by seismic events, precipitation, or other types of disturbances. Seismic activity known to occur in the region is discussed in the Master EIR (Sections 4.3 and 4.13), including a detailed discussion of geologic hazards that could be associated with rehabilitation sites.

### **3.13.2 Environmental Consequences/Impacts and Mitigation Measures**

#### ***3.13.2.1 Methodology***

Hazards and hazardous materials associated with the rehabilitation sites were assessed in the field by TRRP staff. In addition, Trinity County Planning Department and Environmental Health Department staff will be consulted regarding the potential for hazardous substances to occur in the general vicinity of the site boundaries.

#### ***3.13.2.2 Significance Criteria***

An impact related to hazards and hazardous materials would be significant if the Project would:

- Involve the use, production, or disposal of materials that pose a hazard to people or to animal or plant populations in the area affected;
- Create a substantial potential public health or safety hazard due to risk of upset (accidents);
- Create a substantial potential public health or safety hazard due to a reasonably foreseeable release of hazardous materials and/or hazardous waste (i.e., from contaminated soil);
- Violate applicable laws intended to protect human health and safety or expose employees to working situations that do not meet health standards;
- Physically interfere with, or impair implementation of, emergency response plans or emergency evacuation plans;

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to *California Government Code* Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school; or
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

### 3.13.2.3 Impacts and Mitigation Measures

Table 22 summarizes the potential hazards and hazardous materials impacts that could result from implementation of the No-Project alternative and Proposed Project.

<b>Table 22. Summary of Hazards and Hazardous Materials Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>NO-PROJECT ALTERNATIVE</b>	<b>PROPOSED PROJECT</b>	<b>PROPOSED PROJECT WITH MITIGATION</b>
Impact 3.13-1. Implementation of the project could increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.13-2. Construction activities associated with the project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.13-3. Implementation of the project may contribute to wildland fire potential and catastrophic fire behavior in the project area.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.13-4. Implementation of the project may contribute to an increased risk of landslides and flooding.		
No impact	Less than significant	Not applicable <sup>1</sup>
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

Impact 3.13-1: Implementation of the Proposed Project could increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard.

#### **No-Project Alternative**

Under the No-Project alternative, construction activities that could potentially release hazardous substances (e.g., oil, gas, diesel, and mercury) into the environment at levels that could pose a health or safety hazard to the public would not occur because the Project would not be constructed. Therefore, there would be no impact.

#### **Proposed Project**

Activities associated with the Proposed Project would utilize potentially hazardous materials (e.g., oil and fuels) associated with the operation of vehicles and construction equipment during Project implementation. These materials are similar to those routinely used for other types of construction projects throughout Trinity County. The widespread use and associated transport of these materials along the highways and county roads that traverse Trinity County, combined with the low level of incidents (spills), suggest that impacts related to rehabilitation activities would be similar to that elsewhere in Trinity County. Implementation of BMPs would

minimize the potential for any Project-related hazardous materials becoming a public hazard. This impact would be less than significant; therefore, no mitigation is required.

Impact 3.13.2: Construction activities associated with the Proposed Project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow.

#### ***No-Project Alternative***

Under the No-Project alternative, construction activities that could interfere with emergency response and evacuation plans would not occur because the Project would not be implemented. Therefore, there would be no impact.

#### ***Proposed Project***

Under the Proposed Project, construction traffic would include the mobilization and demobilization of construction equipment (e.g., scrapers, excavators, and bulldozers) to and from the site over the course of the construction period. Once the equipment is on the site, construction traffic would be limited to daily trips for personnel and routine service and supply vehicles. Construction activities would be managed to ensure that emergency response and evacuation plans are not impeded.

The impacts created would be less than significant; therefore, no mitigation is required.

Impact 3.13.3: Implementation of the Proposed Project may contribute to wildland fire potential and catastrophic fire behavior in the Project area.

#### ***No-Project Alternative***

Under the No-Project alternative, there would be no impact on wildland fire potential or catastrophic fire behavior because the Project would not be implemented. Therefore, there would be no impact.

#### ***Proposed Project***

The proposed activities described in Chapter 2 would occur within or adjacent to the riparian corridor of the Trinity River. Potential fuels within the boundaries of the sites (e.g., grasses and herbaceous weeds) are generally noncontiguous and the river serves as a substantial natural firebreak. The types and amounts of fuels and their continuity may be decreased temporarily by implementation of this alternative, particularly in areas subject to vegetation removal, but any such changes would not be significant with respect to fire potential and behavior. In the long-term, potential fire conditions would be similar to those that currently exist (e.g., potential fuels would be limited to riparian vegetation, sporadic grasses, and herbaceous weeds). Proposed Project implementation would have a less than significant impact on wildland fire potential and behavior; therefore, no mitigation is required.

Impact 3.13.4: Implementation of the Proposed Project may contribute to an increased risk of landslide or flooding.

#### ***No-Project Alternative***

The No-Project alternative would have no impact on the potential for landslides or flooding because the Project would not be implemented. Therefore, there would be no impact.

#### ***Proposed Project***

Under the Proposed Project, most of the activities described in Chapter 2 would take place in the river channel or floodplain, both of which have relatively flat topography. Furthermore, the alternative does not involve alteration of toe-slopes adjacent to any geologically unstable areas (e.g., landslides). Proposed Project implementation would result in either no change to the BFE or a reduction of the BFE, since stockpiled excavated material would be stored in the adjacent uplands. The potential for flooding would not be

increased at the Proposed Project sites. These impacts would be less than significant; therefore, no mitigation is required.

### 3.14 Noise

This section evaluates the potential noise impacts associated with implementation of the Proposed Project. The evaluation is based on a review of local land use plans and policies pertaining to noise and field reconnaissance used to identify potential sensitive receptors within and adjacent to the boundaries of these sites. A detailed discussion of methodology used to quantify noise is provided in the Master EIR (Section 4.14).

#### 3.14.1 Affected Environment/Environmental Setting

Noise is generally defined as excessive and unwanted sound emanating from noise-producing objects. Total environmental noise exerts a sound pressure level that is generally measured with an A-weighted decibel scale (dBA), which approximates the range of sound audible to the human ear (where 10 dBA is at the low threshold of hearing and 120-140 dBA is the threshold of pain). Human responses to noise are subjective and can vary. The subjective effects of noise are difficult to measure as are the corresponding reactions of annoyance and dissatisfaction. Individual tolerance thresholds vary widely based on an individual's past experiences with noise. Intensity, duration, frequency, time pattern of noise, and existing background noises are some factors that can influence individual responses to noise. Table 4.14-1 of the Master EIR lists examples of dBA levels for a range of noises and Table 4.14-2 lists the U.S. General Services Administration maximum noise levels allowed for government contract construction activities. Typical construction noise levels that could occur at the rehabilitation sites are shown in Table 23. The noise levels shown in this table assume the operation of various types of construction equipment, as shown in Table 24.

<b>CONSTRUCTION STAGE</b>	<b>NOISE LEVEL (DBA, L<sub>EQ</sub>)<sup>1</sup></b>
Ground clearing	84
Excavation	89
Hauling	88
Revegetation	65

<sup>1</sup> Average noise levels 50 feet from the noisiest source and 200 feet from the rest of the equipment associated with a given construction stage. Noise levels correspond to public works projects (50 dBA ambient environments) (Bolt et al. 1971).

<b>TYPE OF EQUIPMENT</b>	<b>MAXIMUM LEVEL (DBA AT 50 FEET)</b>
Truck	75
Scrapers	80
Bulldozers	75
Backhoe	75
Pneumatic tools	80

Source: Sincero and Sincero 1996.

Noise is not considered a problem in Trinity County. A community noise survey was conducted in Trinity County in 2002 (Brown-Buntin 2002) as part of an update that was being developed for the noise element of the County's General Plan. The community noise survey results indicate that typical noise levels in noise-sensitive areas range from approximately 44 to 52 decibel (dB) Ldn<sup>10</sup>. These are low noise levels and are typical of small communities and rural areas. Maximum noise levels observed during the survey were generally caused by local automobile traffic or heavy trucks. Other sources of maximum noise levels included occasional aircraft and construction activities. Background noise levels in the absence of these maximum-noise generating sources are largely attributable to distant traffic, water, wind, livestock, birds, and insects.

Noise-sensitive receptors that have been identified in the general vicinity of the Proposed Project sites include private residential areas; commercial facilities; persons, primarily recreationists (e.g., hikers, picnickers, anglers, and rafters); and wildlife that use the Trinity River corridor. Noise tolerance levels for these groups are subjective, varying widely between individuals.

The Bucktail Rehabilitation Site is located adjacent to Browns Mountain Road, Steelhead Circle, and Quail Point Road, and the Lower Junction City Rehabilitation Site is located adjacent to Dutch Creek Road, Red Hill Road, and SR-299. Traffic from these roads would be heard passing by both of these sites; traffic-generated noise would be buffered by vegetation and topography.

The residential developments nearby both sites represent sensitive noise receptors. Residential areas are subjected to varying degrees of ambient noise levels from the river (including recreationists) and intermittent traffic using roads in the Project vicinity. To varying degrees, construction vehicles entering and leaving the sites would temporarily increase traffic levels and, thus, ambient noise levels along the roads adjacent to the sites. Homes in the area may experience some increased ambient noise levels during construction, but in general, noise levels would be buffered somewhat by distance, topography, and vegetation.

### **3.14.2 Environmental Consequences/Impacts and Mitigation Measures**

#### **3.14.2.1 Methodology**

Since the Proposed Project would not result in a noticeable increase in traffic volume, construction-related noise is the focus of this impact analysis. Construction noise impacts are based on an assumed mixture of construction equipment and related noise levels. Assumptions related to construction equipment and industry noise averages were used to evaluate construction-related noise impacts, including noise levels at the nearest sensitive receptors.

#### **3.14.2.2 Significance Criteria**

Based on Appendix G of the CEQA Guidelines (Association of Environmental Professionals 2008) the Proposed Project would have a significant direct noise impact if it would result in:

- Exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels;
- A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project;
- A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above existing levels; or
- Exposure of persons to, or generation of, noise levels in excess of standards established in the Trinity County General Plan noise element, or applicable standards of other agencies.

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<sup>10</sup>dB L<sub>dn</sub> = The average equivalent sound level during a 24-hour day, obtained after addition of 10 A-weighted decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m. A-weighted decibels, abbreviated dBA, or dBa, or dB(a), are an expression of the relative loudness of sounds in air as perceived by the human ear.

### 3.14.2.3 Impacts and Mitigation Measures

Table 25 summarizes the potential noise impacts resulting from implementation of the No-Project alternative and Proposed Project.

<b>Table 25. Summary of Potential Noise Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>NO-PROJECT ALTERNATIVE</b>	<b>PROPOSED PROJECT</b>	<b>PROPOSED PROJECT WITH MITIGATION</b>
Impact 3.14-1. Construction activities associated with the proposed project would result in noise impacts to nearby sensitive receptors.		
No impact	Significant	Less than significant

Impact 3.14-1: Construction activities associated with the Proposed Project would result in noise impacts to nearby sensitive receptors.

#### ***No-Project Alternative***

Under the No-Project alternative, no change in ambient noise levels would occur because the Project would not be implemented. Therefore, there would be no impact.

#### ***Proposed Project***

During the construction phase of the Project, noise from construction activities would temporarily dominate the noise environment in the immediate area of the sites. Construction activities would generate maximum noise levels ranging from 65 to 84 dBA at a distance of 50 feet, although intervening terrain and vegetation could reduce these noise levels. Construction noise would be temporary and is expected to occur primarily between the months of July and December. There would be no permanent noise impacts resulting from implementation of the Proposed Project.

Residences located near both sites would be subjected to varying degrees of construction noise. It is not anticipated that ground vibration created by Project activities would be detectable at any sensitive receptor location nor would it result in any structural damage. Recreational users in the general vicinity of the sites could encounter increased ambient noise levels during construction activities. While such an increase in noise would be significant, its impact would be temporary and localized.

#### ***Mitigation Measures***

Construction activities associated with the Project would result in noise impacts to nearby sensitive receptors. Therefore, mitigation measures 4.14-1a, 4.14-1b, and 4.14-1c described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

### **3.15 Public Services and Utilities/Energy**

This section addresses the public services and utilities associated with the Proposed Project sites and evaluation of the impacts on these resources from implementation of the Proposed Project. These resources are described in the Master EIR, Section 4.15.

#### **3.15.1 Affected Environment/Environmental Setting**

##### ***Water Supply and Distribution***

Mutual and private water systems, wells, springs, and river intake systems serve development in the Lewiston community. Lewiston has two small water companies that serve the community core area, the Lewiston Park Mutual Water Company and the Lewiston Valley Water Company. Bucktail Mutual Water Company is a

community system that serves the entire Bucktail subdivision. Development outside of the Lewiston community core area and Bucktail subdivision relies primarily on individual and shared wells, springs, and river intake systems; several small community well systems are also maintained. Mutual and private water systems serve the Junction City community. No community water systems exist in Junction City. The private water systems consist of individual and shared wells, springs, and river intakes. BLM operates a water system that provides potable water to the Junction City Campground. Surface water sources are more frequently used for domestic purposes along the river corridor than groundwater sources and often require varying levels of treatment prior to use.

### ***Surface Water***

The Trinity River is the primary surface water body at the rehabilitation sites. Surface water is used primarily for domestic purposes, including gardens, livestock, and fire protection. The TRRP has been working with landowners in the general vicinity of rehabilitation sites to relocate surface water intake systems affected by post-ROD flows.

### ***Groundwater***

Groundwater wells provide water for domestic and commercial purposes in the vicinity of the Proposed Project sites. Due to the location and nature of the terrain, groundwater levels respond generally to river stage. Geologic investigations conducted for the Project suggest that groundwater levels fluctuate seasonally with river flows. Some domestic water sources collect groundwater from deep wells. Project activities have been designed to ensure that known groundwater wells are avoided.

### ***Solid Waste Collection and Disposal***

Trinity County operates nine solid waste transfer stations throughout the county, where waste is collected for shipment by truck to the Anderson Landfill in Shasta County. Solid waste collected from the rehabilitation sites would be transported by truck either to the Weaverville transfer station or to the landfill located in Anderson.

### ***Fire Protection and Emergency Services***

Cal Fire, BLM, and USFS provide fire protection services throughout Trinity County. Cal Fire generally provides fire protection services between May and late October. During the winter, Cal Fire responds from Weaverville with one engine, if personnel are present. During the summer, Cal Fire is equipped to provide three engines with 2,250 gallons of water and 12 to 13 firefighters. Minimum response time is 15 to 20 minutes on average. Half of the responses are typically for structure or flue fires and half are for wildland fires.

The Lewiston Community Services District (LCSD) provides fire protection for the Bucktail area. LCSD maintains three engines, a rescue vehicle, and an ambulance at its Texas Street station and responds to fires and aid calls year-round. The station has a 23-person volunteer crew and chief. LCSD crews respond to approximately four structure fires (not including flue fires) and 10 wildland fires a year.

The Junction City VFD provides fire protection services for the Lower Junction City site. Junction City VFD crews are the primary responders to vehicle accidents, structure fires, and wildland fires on a year-round basis. This VFD maintains three fire engines, a rescue vehicle, and a water tender.

### ***Schools***

Both the Lewiston Elementary and Junction City Elementary Schools consist of grades kindergarten through eight. The Lewiston Elementary School District provides bus services for residents in that community, but the Junction City Elementary School District does not. Bus service is provided throughout these communities for students attending Trinity High School in Weaverville.

### 3.15.2 Environmental Consequences/Impacts and Mitigation Measures

#### 3.15.2.1 Methodology

The analysis addresses potential impacts from implementation of activities at the Proposed Project sites on a number of public services and facilities that are described in detail in the Master EIR. The analysis qualitatively addresses potential impacts on energy resources resulting from substantial or wasteful energy use during Project construction. The analysis is based on a review of planning documents applicable to the sites and field reconnaissance.

#### 3.15.2.2 Significance Criteria

The Project would normally have a significant impact on public services or utilities under CEQA if it would:

- Not comply with published national, state, or local statutes, regulations, or standards relating to solid waste;
- Interfere with emergency services;
- Degrade the level of service of a public service or utility;
- Require relocating infrastructure;
- Result in substantial adverse physical impacts associated with the provision of, or 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 fire protection, police protection, schools, parks, or other public services;
- Require substantial improvements to the infrastructure or level of staffing of a public service or utility to maintain its existing level of service;
- Require or result in the construction of new water treatment, wastewater treatment, or storm water drainage facilities, or the expansion of such existing facilities, the construction of which could cause significant environmental effects;
- Be served by a landfill without sufficient permitted capacity to accommodate the Project’s solid waste disposal needs;
- Disrupt utilities service to create a public health hazard or extended service disruption; or
- Encourage activities that result in the use of large amounts of fuel or energy, or would use fuel or energy in a wasteful manner.

#### 3.15.2.3 Impacts and Mitigation Measures

Table 26 summarizes the potential impacts on public services and utilities that could result from implementation of the No-Project alternative and Proposed Project.

<b>Table 26. Summary of Public Services and Utilities Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>NO-PROJECT ALTERNATIVE</b>	<b>PROPOSED PROJECT</b>	<b>PROPOSED PROJECT WITH MITIGATION</b>
Impact 3.15-1. Implementation of the project could disrupt existing electrical and phone service during construction activities.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.15-2. Construction of the project could result in the generation of increased solid waste.		
No impact	Less than significant	Not applicable <sup>1</sup>
Impact 3.15-3. Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.		
No impact	Significant	Less than significant

<b>Table 26. Summary of Public Services and Utilities Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>NO-PROJECT ALTERNATIVE</b>	<b>PROPOSED PROJECT</b>	<b>PROPOSED PROJECT WITH MITIGATION</b>
Impact 3.15-4. Construction of the project could result in a substantial use of nonrenewable energy resources.		
No impact	Less than significant	Not applicable <sup>1</sup>
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

Impact 3.15-1: Implementation of the Proposed Project could disrupt existing electrical and phone service during construction activities.

***No-Project Alternative***

Under the No-Project alternative, no construction-related disruption to existing electrical or telephone service would occur because the Project would not be implemented. Therefore, there would be no impact.

***Proposed Project***

Under the Proposed Project, no activities would occur to disrupt electrical or telephone service within or adjacent to the sites. Utility poles and/or underground lines located within the boundaries of the sites would be identified by the TRRP, and activities described in Chapter 2 have been designed to avoid impacts to these facilities. A number of electrical and phone lines cross access roads to the sites, typically in a manner that provides adequate vehicular clearance for phone and utility lines. These clearances would be adequate to allow access by construction equipment. Potential impacts on electrical and phone utilities and services at the Proposed Project sites as a result of Project implementation would be less than significant; therefore, no mitigation is required.

Impact 3.15-2: Construction of the Proposed Project could result in the generation of increased solid waste.

***No-Project Alternative***

Increased quantities of solid waste would not be generated under the No-Project alternative because there would be no construction activities. Therefore, there would be no impact.

***Proposed Project***

Under the Proposed Project, construction would result in the generation of solid waste associated with the removal of substantial amounts of vegetation and other construction-related waste (e.g., garbage, containers, and oil). Vegetative materials (e.g., stumps, roots, and branches) would be disposed of within the sites. Disposal methods for vegetative materials could include chipping to provide mulch, burial, piling to provide wildlife habitat on site, burning, or integration into the activity areas to provide structural habitat for juvenile fish. Solid waste generated by construction activities would either be disposed of at a local transfer station (Weaverville) or transported by truck to the Anderson Landfill in Shasta County. The Anderson Landfill currently has sufficient capacity and the necessary permits to accommodate non-hazardous construction waste. The contractor would be responsible for ensuring appropriate disposal of any hazardous waste, as approved by Reclamation. Disposal of potentially hazardous waste is evaluated in Section 3.13, Hazards and Hazardous Materials.

Temporary access routes built for Project implementation would be closed and/or decommissioned to ensure that the number of public access points on public lands would not increase, which could require the provision of public services (e.g., solid waste disposal) at locations that are inconsistent with agency management plans, guidelines, and policies. Therefore, this impact would be less than significant.

Impact 3.15-3: Implementation of the Proposed Project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.

***No-Project Alternative***

Since there would be no construction activities associated with implementation of the No-Project alternative, emergency services, school bus routes, and student travel routes would not be disrupted. Therefore, there would be no impact.

***Proposed Project***

Construction activities at the sites would be confined within the site boundaries described in Chapter 2. Construction personnel and service vehicles would use designated routes to and from the sites. Traffic control associated with site activities would be minimal and is not expected to cause more than minimal disruptions to public services. Access for mobilization and demobilization of heavy equipment, however, may require a higher level of traffic control for local roadways and may disrupt traffic flow and circulation before, during, and after construction. Therefore, effects on emergency services, school bus routes, and student travel routes resulting from heavy equipment would be significant.

No road/bridge closures are planned for Project implementation; however, in the event that it becomes necessary to temporarily close a road or bridge as a result of proposed activities, the road/bridge closures would occur during non-peak hours to avoid traffic circulation impacts associated with emergency services and school bus services. A closure, even during non-peak hours (i.e., 11:00 p.m. to 6:00 a.m.) could have the potential to increase significantly the response time for law enforcement, fire protection, and other emergency services. In the event that road closures would be required during the school year (mid-August through mid-June), these closures could delay school bus service, where it exists. While this impact would be temporary, it could interfere with student access to bus service and, thus, school attendance. Because of the potential for temporary traffic controls on local roadways, increased response time for emergency services, and interference with student travel, the impact would be significant.

***Mitigation Measures***

Implementation of the Project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities. Therefore, mitigation measures 4.15-3a, 4.15-3b, and 4.15-3c described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.15-4: Construction of the Proposed Project could result in a substantial use of nonrenewable energy resources.

***No-Project Alternative***

No use of nonrenewable energy resources would occur under the No-Project alternative because construction activities would not occur. Therefore, there would be no impact.

***Proposed Project***

Energy expenditures associated with construction at the sites would include both direct and indirect uses of energy. Combustion of the refined petroleum products needed to operate construction equipment would be part of the direct energy use. Indirect energy use typically represents about three-quarters of total construction energy usage, with direct energy use constituting the remaining quarter. Though construction energy would be consumed only during the construction phase, it would represent an irreversible consumption of finite natural energy resources.

Construction would directly consume fuel and electricity. Construction would also indirectly consume fuel and electricity because of the energy used to provide the materials necessary for construction. Fuel would be

consumed by both construction equipment and construction-worker vehicle trips. Minor electrical use might be required for some construction equipment, such as welding machines, power tools, and pumps.

Construction energy consumption would be a short-term impact and would not be an ongoing drain on finite natural resources. Construction would consume energy primarily in the form of fuel from local commercial sources and would not have a significant effect on local or regional energy sources. Therefore, this impact would be less than significant.

### 3.16 Transportation/Traffic Circulation

This section describes the existing transportation and traffic conditions in proximity to the Proposed Project sites and evaluates the potential impacts to transportation resources and traffic circulation from implementation of the Proposed Project.

#### 3.16.1 Affected Environment/Environmental Setting

Regional and local roadways and circulation in the vicinity of the Proposed Project sites are described in Section 4.16 of the Master EIR. Table 27 identifies and characterizes the access roads for the sites. Based on reconnaissance information provided by TRRP staff and members of the design team, the roads identified in the table are maintained to varying degrees by the responsible party. No improvements to these roads are anticipated from proposed activities.

SR-299 is a designated truck route between the Sacramento Valley and the coastal communities of northern California. It is the main access corridor to Trinity County and provides primary access to the Trinity River, including the Proposed Project sites.

Road Name	Ownership	Surface Type	Roadway Class	Traffic Counts (ADT)
SR-299	State	Paved	Highway/ Scenic Byway	2,950 east of Junction City 1,900 west of Junction City
Dutch Creek Road	County	Paved	Local/ Residential	950 at SR299 147 at Red Hill
Red Hill Road	County	Paved	Minor Collector	822 at Dutch Creek
Browns Mountain Road	Trinity County/BLM	Paved	Local/ Residential	Not available
Old Lewiston Road	Trinity County	Paved	Minor Collector	827

Sources: Caltrans Information: <http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2007>; Smith, pers. comm. 2008

The Lewiston community is a collection of residential and commercial areas accessed by Trinity Dam Boulevard, Lewiston Road, and Rush Creek Road. These roads connect to either SR 3 or SR 299, and provide access from several directions to the area encompassed by the Lewiston Community Plan. Old Lewiston Road and Browns Mountain Road are located near the Bucktail site. Old Lewiston Road provides access to residential, resource, and commercial areas, and Browns Mountain Road provides access to residential areas and federal and private lands. These roads are part of the Trinity County road system. The development pattern in the vicinity of Lewiston includes a number of private roads maintained by individuals or associations. Public access is often restricted by private land owners.

The Junction City community is also a collection of residential and commercial areas connected by SR 299. Dutch Creek Road and Red Hill Road are located near the Lower Junction City site. Both of these roads provide access to residential areas and federal and private timberlands via SR 299. These roads are part of

Trinity County's road system. There are a number of private roads that serve residences and provide access for forest management activities. Public access is often restricted by private land owners.

In addition to using existing roads to access the rehabilitation sites, roads within the boundaries of the sites would be used to support various activities. New temporary access roads would be required to provide access for construction and monitoring activities.

Bicycle, pedestrian, and equestrian circulation is limited in the communities and residential neighborhoods that have developed along the Trinity River below Lewiston Dam. The Lewiston Community Plan contains a goal to provide a pedestrian and bicycle circulation system in the Lewiston community core and Historic District areas. The Junction City Community Plan contains a goal to increase bicycle, pedestrian, and equestrian travel and safety by developing bicycle routes, trails, and pedestrian walkways. Red Hill Road was widened by Trinity County to include a bike lane, primarily to provide alternative transportation between local residences and Junction City Elementary School. Although bike lanes are not available on other roads in the general vicinity of the project sites, bicyclists, pedestrians, and equestrians use area roads for access, exercise, and recreational pursuits.

### **3.16.2 Environmental Consequences/Impacts and Mitigation Measures**

#### **3.16.2.1 Methodology**

A qualitative assessment of traffic impacts was performed, based on the construction procedures and equipment that would be used, local transportation policies, site review of existing conditions, and traffic levels on key roadways.

#### **3.16.2.2 Significance Criteria**

Significance criteria were developed based on Appendix G of the CEQA Guidelines, as well as Project-specific issues identified during the scoping process (e.g., access during construction). Significant construction-related impacts would result if the Project would:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections);
- Exceed, either individually or cumulatively, a level of service standard established by the county for designated roads or highways;
- Affect the form or function of SR-299, specifically bridges extending over the Trinity River and its tributaries;
- Affect the form or function of bridges under the jurisdiction of Trinity County or private parties;
- Disrupt existing traffic operations, including vehicular and bicycle traffic;
- Significantly degrade the existing conditions of local private roads;
- Obstruct access to adjacent land uses, including emergency access;
- Affect the operation of the local transit system;
- Conflict with adopted policies, plans, or projects supporting alternative transportation;
- Pose a safety hazard to motorists, bicyclists, equestrians or pedestrians;
- Cause substantial damage to or wear of public and private roadways; or
- Reduce available parking capacity.

#### **3.16.2.3 Impacts and Mitigation Measures**

Table 28 summarizes the potential transportation and traffic impacts that would result from the No-Project and Proposed Project alternatives.

<b>Table 28. Summary of Potential Transportation Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>NO-PROJECT ALTERNATIVE</b>	<b>PROPOSED PROJECT</b>	<b>PROPOSED PROJECT WITH MITIGATION</b>
3.16-1. Construction activities would reduce/close existing traffic lanes.		
No impact	Less than significant	Not applicable <sup>1</sup>
3.16-2. Construction activities would generate short-term increases in vehicle trips.		
No impact	Significant	Less than significant
3.16-3. Implementation of the project would obstruct access to adjacent land uses.		
No impact	Less than significant	Not applicable <sup>1</sup>
3.16-4. Construction activities would increase wear and tear on local roadways.		
No impact	Significant	Less than significant
3.16-5. Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.		
No impact	Significant	Less than significant
3.16-6. Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties.		
No impact	Less than significant	Not applicable <sup>1</sup>
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

Impact 3.16-1: Construction activities would reduce/close existing traffic lanes.

**No-Project Alternative**

Under the No-Project alternative, there would be no construction-related reduction or closure of traffic lanes. Therefore, there would be no impact.

**Proposed Project**

Construction activities associated with the Proposed Project would be managed to ensure that SR-299, Dutch Creek Road, Red Hill Road, Old Lewiston Road, and Browns Mountain Road, the primary roads serving as access for the sites, would remain open to through-traffic. Temporary traffic control may be necessary during the mobilization and demobilization of heavy equipment; however, no road closures are planned. Passage for emergency vehicles would not be restricted. The adequate passage of traffic within and through the construction areas in the event of an emergency evacuation is discussed in Section 3.13, Hazards and Hazardous Materials. Because any traffic control requirements associated with site access roads would be temporary, this impact would be less than significant.

Impact 3.16-2: Construction activities would generate short-term increases in vehicle trips.

**No-Project Alternative**

Under the No-Project alternative, short-term increases in vehicle trips would not occur because there would be no construction activities. Therefore, there would be no impact.

**Proposed Project**

Construction activities associated with the Proposed Project would require truck and worker vehicle trips on SR-299, Dutch Creek Road, Red Hill Road, Old Lewiston Road, and Browns Mountain Road leading to and from the rehabilitation sites; thus, vehicle trips would increase on these roads. Construction equipment (e.g., large trucks, excavators, and back-hoes) would be mobilized to the sites prior to rehabilitation activities and

would be removed upon completion of these activities. During the construction period, when the greatest number of workers and trucks would be required, 20 to 30 construction workers and their vehicles would need access to the sites daily. These vehicle trips would be added to area roads on a recurring basis for the duration of rehabilitation activities at the sites.

Throughout construction, Reclamation would limit the amount of daily construction equipment traffic by staging the construction equipment and vehicles in the site boundary for the duration of work at each site. Post-construction activities (i.e., revegetation, maintenance, and monitoring) would require intermittent access for 3 to 5 years. Existing traffic volumes along these area roads are low to moderate, and the potential increase in traffic generated from construction would be potentially significant.

### ***Mitigation Measures***

Construction activities would generate short-term increases in vehicle trips. Therefore, mitigation measure 4.16-2a described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.16-3: Implementation of the Proposed Project would obstruct access to adjacent land uses.

### ***No-Project Alternative***

Under the No-Project alternative, access to adjacent land uses would not be affected because no construction activities would occur. Therefore, there would be no impact.

### ***Proposed Project***

As described in Section 3.1, land uses in and adjacent to the sites consist mainly of public and private forestry and other resource lands and private residential areas. Land uses in the Lewiston Community Plan area that are adjacent to the Bucktail site include residential, resource, commercial, recreational, and agriculture. As previously described, activities associated with this site would use primary access points on Browns Mountain Road and various private roads. Land uses in the Junction City Community Plan area that are adjacent to the Lower Junction City site include residential, resource, commercial, recreation, and mineral. Construction activities associated with this site would use primary access points on SR 299, Dutch Creek Road, Red Hill Road, and various private roads.

Access to adjacent public and private lands could be restricted for short periods of time using traffic control measures. Short-term access to the Trinity River for recreational use could be restricted, to varying degrees, during construction activities. However, several public access points would be available around these stretches of the river during the Project implementation period, both upstream and downstream. Impacts related to recreational access and other recreational resources are discussed under Section 3.8, Recreation. Short-term access limitations coupled with the construction criteria described in Appendix A (Traffic Control/Detour) would result in an impact that is less than significant for the Proposed Project sites.

Impact 3.16-4: Construction activities would increase wear and tear on local roadways.

### ***No-Project Alternative***

Under the No-Project alternative, there would be no increased wear and tear on local roadways. Therefore, there would be no impact.

### ***Proposed Project***

SR-299 is a designated truck route that was built to withstand occasional use by heavy equipment. Other local roads over which Project-related trucks and heavy equipment must pass may not be constructed or maintained to support substantial volumes of truck traffic. Numerous local roadways would provide access for construction-related activities, including roads under the jurisdiction of federal, state, and local agencies.

Use of these roads by Project-related trucks and heavy equipment would increase wear and tear on the local roadways and could result in adverse impacts on road conditions. The degree of impact would depend on roadway design and existing condition prior to the onset of TRRP activities. Because SR-299 was designed to accommodate a mix of vehicle types, including heavy trucks, the Project is not expected to add significantly to roadway wear-and-tear on this highway.

While construction equipment would generally be staged on-site during construction, additional truck travel on local roads would be required. Project planning to use on-site coarse sediment would minimize heavy equipment use on local roads needed for access to the sites. Additionally, trucks carrying heavy equipment would operate within the legal weight limits as determined by the state. The number and types of activities could require some level of road reconstruction at select sites before or after Project implementation. The level of construction traffic could also require additional maintenance for some road segments in conjunction with various activities. Although standard construction and transportation practices would be implemented to reduce the potential for adverse impacts on roadway conditions, the potential wear and tear on some roads under the Proposed Project would be a significant impact.

### ***Mitigation Measures***

Construction activities would increase wear and tear on local roadways. Therefore, mitigation measure 4.16-4a described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.

### ***No-Project Alternative***

The No-Project alternative would not pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians because there would be no construction activities. Therefore, there would be no impact.

### ***Proposed Project***

Traffic safety hazards could arise for motorists, bicyclists, pedestrians, and equestrians in the vicinity of the construction access routes for the proposed sites as a result of the movement of Project-related trucks and heavy construction equipment. Truck and equipment access to the Trinity River during construction activities would be limited to designated routes to minimize public exposure to construction traffic. Trucks entering and exiting access roads off SR-299, Dutch Creek Road, Red Hill Road, Old Lewiston Road, and Browns Mountain Road may pose a particular hazard to motorists, cyclists, and equestrians using the roadway. The safety hazard would be limited to brief and intermittent time periods; nevertheless, it would be significant.

### ***Mitigation Measures***

Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians. Therefore, mitigation measure 4.16-5a described in Appendix A will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.16-6: Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties.

### ***No-Project Alternative***

The No-Project alternative would not affect bridges under the jurisdiction of Caltrans, Trinity County, or private parties because there would be no construction activities. Therefore, there would be no impact.

### ***Proposed Project***

A number of bridges over the Trinity River and/or its tributaries could be used to access the sites, depending on where the equipment is coming from. The hydraulic model (HEC-RAS) described in the Master EIR, Section 4.4, Water Resources, has been used to integrate the hydraulic controls established by these constructed features. Modification of the form or function of these structures would not be affected by rehabilitation activities in close proximity to these sites. Therefore, this impact would be less than significant.

### **3.17 Tribal Trust**

The United States has a trust responsibility to protect and maintain rights reserved by, or granted to, federally recognized Indian tribes and individual Indians by treaties, statutes, and executive orders. The Secretary of the Interior is the trustee for the United States on behalf of Indian tribes and individuals. The trust responsibility requires that all federal agencies, including Reclamation, take all actions reasonably necessary to protect and maintain Indian trust assets.

Indian trust assets are legal interests in property held in trust by the federal government for federally recognized Indian tribes or individual Indians. “Assets” are anything owned that has monetary value. “Legal interest” means that a property interest exists for which there is a legal remedy, such as compensation or injunction, if there is improper interference. Indian trust assets can be real property, physical assets, or intangible property rights, such as a lease or a right of use. While most Indian trust assets are located on-reservation, they can also be located off-reservation. Examples of Indian trust assets include, but are not necessarily limited to, land, natural resources, native plants and wildlife, cultural resources, minerals, hunting and fishing rights, water rights, and instream flow. Tribal trust resources are discussed in Section 7.17 of the Master EIR.

#### **3.17.1 Affected Environment/Environmental Setting**

The need to restore and maintain the natural production of anadromous fish in the mainstem Trinity River is derived in part from the federal government’s trust responsibility to protect the fishery resources of the region’s Indian tribes. The Trinity River Basin Fish and Wildlife Restoration Act of 1984 (Public Law 98-541) expressly acknowledges tribal interests in the basin’s fishery resources by declaring that the measure of successful restoration of the Trinity River fishery includes the “ability of dependent tribal...fisheries” to participate fully, through enhanced in-river “harvest opportunities, in the benefits of restoration.” In addition, the 1992 CVPIA specifically recognizes the federal trust responsibility in regard to the Trinity River fishery. The Project could potentially affect anadromous fish, non-anadromous fish, water, wildlife, vegetation, and overall riverine health; these impacts in turn could affect the sociocultures and economics of tribes.

This section focuses principally on the interests of the HVT and YT because, of the Indian tribes of the Klamath/Trinity Region, their interests could be the most directly affected by the Project. It should be understood, however, that potential impacts are important to the Karuk and Klamath people as well, since they share a common regional heritage.

##### **3.17.1.1 Regional Setting**

In 1855, President Pierce established the Klamath River Reservation. The reservation was designated as a strip of territory commencing at the Pacific Ocean and extending 1 mile in width on each side of the Klamath River for a distance of approximately 20 miles. Although the federal government’s intent was to eventually move all the region’s Indians onto the Klamath River Reservation, only some Yurok and Tolowa were moved. In 1864, the USDI issued a proclamation and instructions that established the Hoopa Valley Reservation on the Trinity River pursuant to legislation enacted by Congress that same year. The reservation is 12 miles square and bisected by 15 miles of the river (it has often been called the Square or the 12-mile Square). In 1876, President Grant issued an Executive Order formally establishing the boundaries of the Hoopa Valley Reservation.

Efforts soon began to provide a single contiguous homeland for the region's Indian people by connecting the Klamath River Reservation to the Hoopa Valley Reservation. In 1891, President Harrison extended the Hoopa Valley Reservation from the mouth of the Trinity River to the ocean, thereby encompassing and including the Hoopa Valley Reservation, the original Klamath River Reservation, and the intervening connecting strip. In 1988, Congress, under the Hoopa-Yurok Settlement Act, separated the Hoopa Valley Reservation into the present Yurok Reservation (a combination of the original Klamath River Reservation and other lands) and Hoopa Valley Reservation.

### **3.17.1.2 Indian Federally Reserved Rights**

The United States has a trust responsibility to protect tribal trust resources. In general, this tribal trust responsibility requires that the United States protect tribal fishing and water rights, which are held in trust for the benefit of the tribes (USDI 1995). This trust responsibility is one held by all federal agencies. For projects under the auspices of the TRRP, Reclamation is obligated to ensure that their actions do not interfere with tribes' senior water rights. Pursuant to its trust responsibility and consistent with its other legal obligations, Reclamation must also prevent activities under its control that would adversely affect tribal fishing rights, even when those activities take place off-reservation.

#### ***Fishing Rights***

Salmon, steelhead, sturgeon, and lamprey that spawn in the Trinity River pass through the Hoopa Valley and Yurok Reservations and are harvested in tribal fisheries. The fishing traditions of these tribes stem from practices that far pre-date the arrival of non-Indians. Accordingly, when the federal government established what are today the Hoopa Valley and Yurok Indian Reservations on the Trinity and Lower Klamath Rivers, it reserved for the benefit of the Indian tribes of those reservations a right to the fish resources in the rivers running through them. The federally reserved fishing rights of the YT and HVT entitle them to take fish for ceremonial, subsistence, and commercial purposes. The federal government, as trustee, has an affirmative obligation to manage federally reserved Indian rights for the benefit of federally recognized Indian tribes. Federally reserved Indian fishing rights are vested property rights held in trust by the United States for the benefit of the Indians.

#### ***Water Rights***

In addition to fish, the tribes have reserved rights to water. The concept of reserved rights in general, and Indian reserved water rights specifically, originated just after the start of the 20<sup>th</sup> century with *Winters v. United States*, 207 U.S. 564 (1908). The ruling in this case, commonly referred to as the Winters Doctrine, states that when the federal government established a reservation, it implicitly reserved a quantity of water necessary to fulfill the purpose of said reservation. The USDI Solicitor's office reaffirmed these rights with respect to Reclamation's activities, stating "Reclamation is obligated to ensure that project operations not interfere with the tribes' senior water rights.

#### ***Rights to Wildlife and Vegetation Resources***

While the focus of the legal history surrounding Indian rights to resources has concentrated on water and fisheries, other resources, such as wildlife and vegetation, are also extremely important to the tribes, and the tribes have assessed that these resources are no less reserved. In the case of the HVT and YT, the decline in the health of the region's rivers has limited the availability of grasses and other plants important to traditional basketry, art, and medicine. Thus, while anadromous fish are the focus of the TRRP, other trust assets, such as vegetation, are embodied in the federal government's trust responsibility and, accordingly, need to be considered in the decision-making process.

#### ***Cultural Environment***

Native uses of natural resources and the cultural significance of those resources have developed over many centuries, during the time that native people have lived in the heavily forested drainages of the Klamath and Trinity rivers and adjacent streams in northwestern California. Hunting, fishing, and gathering were the foundation of their societies. Tribes in the area included the Chilula, Hoopa Valley, Nongatl, Tsnungwe, and

Whilkut, which spoke Athabascan languages; the Chimariko, Karuk, and Shasta, which spoke Hokan languages; the Wintun, which spoke a Penutian language; and the Wiyot and Yurok, which spoke Algonkian languages.

Some of these tribes, such as the Chilula, no longer exist. Others, including the Chimariko and Wintu, have not been officially recognized by the United States as a distinct and sovereign people. Among the Indian peoples still present in the region, only the Hoopa Valley, Yurok, Karuk, and Klamath tribes have received this recognition.

Strong social, cultural, and economic ties have existed through history among the tribes of the Klamath/Trinity Basin, based in large part on a shared reliance on the region's rivers and associated resources, particularly salmon. This reliance extends well beyond subsistence and commerce to the cultural and social fabric of their societies, as evidenced by their traditional, ceremonial, and spiritual ways of life that focus and center on the rivers and the fish, wildlife, and vegetation they support. For Indians of the Klamath/Trinity Basin, the interaction and identification with the natural environment define their cultures, lifestyles, and religions; therefore, the degradation of the natural environment has had a profoundly devastating impact.

### ***Proposed Project Sites***

Based on consultation between the tribes and Reclamation, the Proposed Project sites contain trust assets, including fish, vegetation, and wildlife. Corresponding sections of this document provide discussions of these resources. While no specific use of these sites by the tribes has been identified, the Trinity River provides a valuable corridor that connects these resources to the HVT and YT.

## **3.17.2 Environmental Consequences/Impacts and Mitigation Measures**

The purpose of this section is to evaluate the potential impacts of the alternatives on tribal trust assets and the subsequent effects those impacts may have on the Indian tribes of the Klamath/Trinity Basin.

### ***3.17.2.1 Methodology***

While the Project is aimed at improving the river's anadromous fisheries, an assessment of how implementation may actually affect the Indian trust assets of the HVT and YT must be performed, as directed in the USDI Departmental Manual (Part 512, Chapter 2), and Reclamation's Indian Trust Asset Policy. Toward this end, the Indian trust asset impact evaluation focuses on the potential effects of the rehabilitation activities described in Chapter 2 on the health of the Trinity River. Because the river's overall health is a primary factor in determining the availability of fish, the potential tribal trust impacts are not evaluated on an asset-by-asset basis.

### ***3.17.2.2 Significance Criteria***

Under CEQA, lead agencies are not explicitly required to consider projects' impacts on tribal trust assets as a distinct category of impacts. With its focus on the physical environment, CEQA requires agencies to focus on impacts to environmental resources, some of which, such as fish, wildlife, and water quality, would be indirectly related to tribal trust values. Therefore, the significance criteria applied in this evaluation of potential consequences on tribal trust assets are general and based on the potential for components of the Proposed Project to result in any modification of, or change in, the quantity or quality of tribal trust assets.

Although CEQA does not expressly require the application of specific significance criteria for potential impacts to Indian trust assets, federal lead agencies evaluating proposed actions under NEPA typically include the evaluation of potential impacts to Indian trust assets as a distinct category of impacts. Accordingly, this evaluation assessed the impacts of the proposed activities described in this document relative to any modification or change in the value, use, quantity, quality, or enjoyment of downstream Indian trust assets.

### 3.17.2.3 Impacts and Mitigation Measures

Table 29 summarizes potential impacts on Indian trust assets that would result from implementation of the No-Project and Proposed Project alternatives.

<b>Table 29. Summary of Potential Tribal Trust Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>No-Project Alternative</b>	<b>Proposed Project</b>	<b>Proposed Project With Mitigation</b>
Impact 3.17-1. Implementation of the project may reduce the quantity or quality of tribal trust assets.		
No impact	Less than significant	Not applicable <sup>1</sup>
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

Impact 3.17-1: Implementation of the Proposed Project may reduce the quantity or quality of tribal trust assets.

#### ***No-Project Alternative***

Under the No-Project alternative, mechanical channel rehabilitation activities would not be implemented at the Proposed Project sites; therefore, no direct impact to tribal trust assets would occur as a result of the Project. However, implementation of other activities to improve the fishery and other resources of the mainstem Trinity River could still be undertaken. Thus, under the No-Project alternative, the overall benefits to tribal trust assets gained through implementation of the overall TRRP would likely be achieved but the benefits associated with river rehabilitation at the Proposed Project sites would not be realized.

#### ***Proposed Project***

Under the Proposed Project, the Trinity River would continue to support tribal trust assets. The short-term impacts described in sections pertaining to geology, fluvial geomorphology, and soils; water quality; fishery resources; and vegetation, wildlife, and wetlands would occur if the Project is implemented. These impacts are expected to be short-term and to be outweighed by the overall benefits to tribal trust assets gained through implementation of the overall TRRP and the Proposed Project. Therefore, this impact is less than significant.

### 3.18 Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” dated February 11, 1994, requires federal agencies to identify and address adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks of their decisions. Environmental justice addresses the fair treatment of people of all races and incomes with respect to actions affecting the environment. Fair treatment implies that no group of people should bear a disproportionate share of negative impacts from an environmental action.

To comply with the environmental justice policy established by the Secretary of the Interior, all USDI agencies are to identify and evaluate any anticipated effects, direct or indirect, from a project, action, or decision on minority and low-income populations and communities, including the equity of the distribution of the benefits and risks. Accordingly, this section examines the anticipated impacts of the Proposed Project with respect to potentially affected minority and economically disadvantaged groups. Socioeconomic issues, including population and housing, are evaluated in this document in Section 3.9, Socioeconomics. This section does not function as part of the IS portion of this joint document, because CEQA does not require state or local agencies to address environmental justice concerns in an IS.

### **3.18.1 Affected Environment/Environmental Setting**

The Trinity River is a valuable economic resource for Trinity County. Its popularity as a recreation destination, particularly for fishing, white-water recreation, gold panning, and as an access point to the Salmon-Trinity Alps, directly benefits communities such as Lewiston, Douglas City, and Junction City through increased business patronage. Businesses benefit during peak recreation-use periods (e.g., rafting, kayaking, and fishing). Other economic opportunities such as agriculture are severely limited by the surrounding topography; thus, minimizing the attraction for a transitional labor pool.

The U.S. Census uses a set of income limits that vary by family size and composition to determine who is in poverty. If a family's total income is less than the income limit, then that family, and every individual in it, is considered to be in poverty. Poverty income level thresholds are nationwide standards set by the Census. The formula for the poverty rate is the number of persons below the poverty level divided by the number of persons for whom poverty status is determined. In 2009, 18.2 percent of the population in Trinity County was living in poverty compared to 14.2 percent for the state of California as a whole. The 2009 median household income for Trinity County was \$33,546, compared to the median California income of \$58,925 (U.S. Census Bureau 2011).

In 2010 the vast majority of the population in Trinity County (approximately 87 percent) consisted of white individuals (U.S. Census Bureau 2011). The largest minority population in the county is Hispanic. In 1990, the Hispanic population was 3.3 percent of the county's total population. By 2010, the percentage had increased to 7.0 percent of the total, compared to 37.6 percent in California as a whole. The American Indian population constitutes the next largest minority group. In 2010, American Indians constituted 4.8 percent of the total county population, compared to 1 percent for California as a whole (U.S. Census Bureau 2011). The percentage of black and Asian residents in the county is small (each less than 1 percent).

The Lewiston community is predominately white (89.1 percent) (2007-2011 estimate; U.S. Census Bureau 2013) and the proportion of people living below the poverty level is 20.8 percent. The Junction City census designated place is also predominately white (96.1 percent) and the proportion of people living below the poverty level is 15.9 percent (2007-2011 estimate; U.S. Census Bureau 2013). The 2012 estimate of people living below the poverty level for the United States is 15.9 percent (U.S. Census Bureau 2013).

### **3.18.2 Environmental Consequences/Impacts and Mitigation Measures**

#### **3.18.2.1 Methodology**

The EPA compares three factors—minority representation, low-income representation, and environmental burden—for a community of concern and one or more reference areas—for example, an entire county—to analyze potential environmental justice impacts. A community of concern can be defined in a number of ways, including a municipality, a census block group, a user-defined radius around a source of pollution, or a boundary drawn along physical features such as streets, streams, or railroad tracks. The demographic data for the community of concern can then be analyzed to determine whether there would be a potential environmental justice concern in the area. As part of this analysis, poverty levels and minority population levels were examined for Trinity County as a whole and for the residential areas associated with Lewiston and Junction City, although only a limited amount of information was available for those areas.

#### **3.18.2.2 Significance Criteria**

Because environmental justice is not a CEQA issue, specific significance criteria were not applied in evaluating potential environmental justice consequences. Instead, any modification or change in environmental justice factors that would occur in response to the Proposed Project is evaluated in accordance with NEPA requirements.

### 3.18.2.3 Impacts and Mitigation Measures

Table 30 summarizes the potential environmental justice impacts that would result from implementation of the No-Project and Proposed Project alternatives.

<b>Table 30. Summary of Potential Environmental Justice Impacts for the No-Project and Proposed Project Alternatives.</b>		
<b>No-Project Alternative</b>	<b>Proposed Project</b>	<b>Proposed Project with Mitigation</b>
Impact 3.18-1. Implementation of the project could adversely affect a minority or low-income population and/or community.		
No impact	Less than significant	Not applicable <sup>1</sup>
<sup>1</sup> Because this potential impact is less than significant, no mitigation is required.		

Impact 3.18-1: Implementation of the Proposed Project could adversely affect a minority or low-income population and/or community.

#### **No-Project Alternative**

Under the No-Project alternative, no impact to a minority or low-income population or community would occur because the Project would not be implemented. Therefore, there would be no impact.

#### **Proposed Project**

Although minority and low-income residents live in the vicinity of the Project, the impacts would generally be experienced by residents in relationship to their proximity to the sites, regardless of their racial or income characteristics. There is no evidence to suggest that the Project would cause a disproportionately high adverse human health or environmental effect on minority and low-income populations compared to other area residents. The known health risks to residents that could be associated with the Project are evaluated in the Water Quality, Air Quality, Hazardous Materials, and Noise sections of this document. For the most part, these health risks are associated with construction aspects of the Project, in that residents and construction workers could be exposed to hazardous materials that may be associated with the Project. Possible health risks also include construction-related accidents. Reclamation would manage the Project to minimize these risks, as required by applicable federal and state safety regulations. Therefore, no disproportionate or specific health risks or other impacts to low-income groups would be associated with the Project.

## Chapter 4

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### **4 CUMULATIVE EFFECTS AND OTHER CEQA AND NEPA CONSIDERATIONS**

This EA/IS tiers from the “statutory considerations” discussion in the Master EIR (Chapters 5 and 8). These discussions cover certain topics required under CEQA, such as cumulative impacts, the significant environmental effects of the Proposed Project, the significant effects that cannot be avoided if the Proposed Project is implemented, and growth-inducing effects of the Project. Additional discussions are also required under NEPA, such as the significant irreversible and irretrievable commitments of resources and the relationship between local short-term uses of the environment and the maintenance of long-term productivity. These considerations are summarized below; see the Master EIR for complete discussions of these topics.

#### **4.1 Cumulative Impacts**

The regulatory framework for the assessment of cumulative impacts under CEQA is discussed in Chapter 5, Section 5.2.1, of the Master EIR, and the regulatory framework for NEPA is discussed in Chapter 8, Section 8.2.1. Under the CEQA Guidelines (Section 15355), the term “cumulative impacts” refers to two or more individual impacts that, when considered together, are considerable or that otherwise compound or increase other environmental effects. Cumulative environmental impacts arise from the incremental impacts of the Proposed Project when added to other closely related past, present, and reasonably foreseeable future projects.

The CEQ NEPA implementing regulations (40 CFR 1508.7) state that cumulative impacts result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) undertakes the other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

##### **4.1.1 Methodology and Analysis**

The methodology for the cumulative impact analysis is described in section 5.2.2 of the Master EIR. As discussed in that section, the methodology involved the assessment of the potential cumulative effects of the Proposed Project when considered in combination with a list of related projects within a defined geographical area. This assessment of cumulative impacts is considered in the same cumulative context—i.e., using the same list of related projects and programs and within the Project boundaries.

The issue-specific analysis of cumulative impacts in Chapter 5 of the Master EIR identifies the potential cumulative impacts related to the Remaining Phase 1 and Phase 2 sites for a variety of resource areas. No additional cumulative impacts have been identified that are specific only to the Proposed Project sites. The previous issue-specific analysis in Chapter 5 sufficiently addresses the cumulative impacts of the Proposed Project, and no substantial differences arise in consideration of the Proposed Project separately. Table 31 summarizes the cumulative impact findings.

**Table 31. Summary of Cumulative Impacts Findings from the Master EIR.**

Land Use	Implementation of the Proposed Project, in combination with other related projects, would not have a cumulative impact in terms of planning policies, nor would river rehabilitation activities result in cumulative effects in terms of local or federal land use planning policies.
Geology, Fluvial Geomorphology, and Soils	No significant cumulative impacts associated with geologic hazards, geomorphic processes, or erosional processes are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. Appropriate implementation of prescribed mitigation measures would reduce potential impacts to a less than significant level.
Water Resources	Implementation of the Proposed Project in combination with other river rehabilitation activities would not have cumulatively considerable impacts on beneficial uses of the river or result in changes in the quantities of water available for any of those uses.
Water Quality	No significant cumulative impacts to water quality are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. Individually, these activities would result in short-term, temporary effects on water quality. Appropriate implementation of prescribed mitigation measures would reduce potential impacts to a less than significant level.
Fishery Resources	No significant, adverse, cumulative impacts to fisheries resources are anticipated to occur as a result of implementation of the Proposed Project. The effect of the Proposed Project, in conjunction with other projects and programs, is expected to be beneficial in terms of the rehabilitation of habitat and fisheries resources. Implementation of the Proposed Project as mitigated would benefit, rather than adversely affect, fishery resources of the Trinity River in the long term.
Vegetation, Wildlife, and Wetlands	No significant cumulative impacts to vegetation, wildlife, and wetlands are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. The Project as mitigated would benefit, rather than adversely affect, vegetation, wildlife, and wetlands in the long term, as would most of the other related projects and programs. Implementation of the Proposed Project would contribute to long-term ecological benefits in terms of vegetation, wildlife, and wetlands.
Recreation	No significant cumulative impacts to recreational resources are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. Benefits to recreational values may be achieved through implementation of the TRRP over time.
Socioeconomics, Population, and Housing	No significant cumulative impacts to socioeconomics, population, and housing are anticipated to occur as a result of implementation of the Proposed Project. The related projects and programs described in the cumulative effects analysis in the Master EIR are intended to benefit the Trinity River fishery, with moderate projected economic and social benefits to the residents and communities along the Trinity River.
Cultural Resources	No significant cumulative impacts to cultural resources are anticipated to occur as a result of implementation of the Proposed Project. Appropriate implementation of prescribed mitigation measures (e.g., surveys of potential impact areas by a professional archaeologist prior to construction, protection of potentially significant cultural sites, and coordination with local tribes), in coordination with the SHPO, would adequately mitigate for potential impacts, including cumulative impacts.
Air Quality	No significant cumulative impacts to air quality are anticipated to occur as a result of implementation of the Proposed Project. The NCUAQMD requirements would be addressed by implementation of prescribed mitigation measures. The Proposed Project, in conjunction with the other projects and programs occurring within the Trinity River Basin, would contribute cumulatively to global climate change. Thus, the Proposed Project would contribute to an adverse cumulative contribution to global climate change. Implementation of mitigation measures would reduce the cumulative contribution to global climate change to a less than significant level.

<b>Table 31. Summary of Cumulative Impacts Findings from the Master EIR.</b>	
Visual Resources	No significant cumulative impacts to visual resources are anticipated to occur as a result of implementation of the Proposed Project. Implementation of the Proposed Project would benefit, rather than adversely affect, visual resources in the long term, as would most of the other related projects described in the cumulative effects analysis in the Master EIR.
Hazardous Materials	No significant cumulative impacts related to hazardous materials are anticipated as a result of implementing the Proposed Project in combination with other related projects.
Noise	No significant cumulative impacts related to noise are anticipated through implementation of the Proposed Project in combination with other projects. Reclamation would coordinate the implementation of other restoration projects to ensure that construction noise is minimized through project scheduling.
Public Services and Utilities/Energy	No significant cumulative impacts related to public services and utilities/energy are anticipated as a result of implementation of the Proposed Project in combination with other related projects. The rehabilitation activities are designed in ways that ensure that emergency services would not be disrupted; that public services (e.g., school bus routes) would not be adversely affected; and that waste material generated from Project activities would be transported appropriately to authorized locations.
Transportation/Traffic Circulation	No significant cumulative impacts related to transportation/traffic circulation are anticipated through the implementation of the Proposed Project in combination with other related projects. Traffic increases would be localized and temporary.
Tribal Trust Assets	No significant cumulative impacts to tribal trust assets are anticipated to occur as a result of implementation of the Proposed Project. The related projects and programs described in Chapter 5 of the Master EIR, in combination with the Proposed Project, are expected to cumulatively result in beneficial effects to the tribal trust assets, including the overall health of the Trinity River and its fishery resources.
Environmental Justice	No disproportionate environmental effects on minority or low-income populations have been identified for either the Remaining Phase 1 or Phase 2 sites, and no significant cumulative impacts to environmental justice are anticipated to occur as a result of the implementation of the Proposed Project. Implementation of the Proposed Project, in conjunction with the other related projects and programs described in Chapter 5 of the Master EIR, is anticipated to provide a net benefit to the local communities by helping to restore the Trinity River's fishery resources.

## 4.2 Irreversible and Irrecoverable Commitments of Resources

NEPA (Section 102) and the CEQ NEPA implementing regulations (40 CFR 1502.16), require a discussion of “any irreversible and irretrievable commitments of resources which would be involved in a Proposed Action should it be implemented.”

Section 15126.2(c) of the CEQA Guidelines also requires a discussion of the significant irreversible environmental changes that would result from the Proposed Project should it be implemented. This section of the CEQA Guidelines states:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvements which provide access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irrecoverable commitments of resources should be evaluated to assure that such current consumption is justified.

The No-Project alternative would not directly involve the use of resources or cause significant irreversible environmental effects other than those previously described in the Trinity River FEIS/EIR (USFWS et al. 2000a) and incorporated by reference in other sections of this document.

Implementation of the Proposed Project would not involve the substantial use of nonrenewable resources in such a way that would result in conditions that would be irreversible through removal or nonuse thereafter. Future generations would not be committed to irreversible consequences or uses; the effect on future generations would be beneficial as a result of the enhanced and maintained river system and related fishery resources. No irreversible damage from environmental accidents would be foreseeable in association with the Proposed Project.

Implementation of the Proposed Project would result in the use of fossil fuels, a nonrenewable form of energy. A relatively minor amount of nonrenewable resources would be used in the mechanical rehabilitation of the river channel, transport of gravel, and related construction and management activities at the rehabilitation sites. The material requirements for this Project would be relatively minor compared to the overall demand for such materials, and the use of these materials would not have a significant adverse effect on their continued availability.

### **4.3 Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity**

Section 102 of the CEQ NEPA Regulations and 40 CFR 1501.16 require that an environmental document include a discussion of “the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity.” This discussion was included in Section 8.4 of the Master EIR.

The Proposed Project does not involve a trade-off between a “local short-term use” of the environment and the maintenance and enhancement of the environment in the sense contemplated by NEPA. Implementation of the Proposed Project is intentionally aimed at maintaining and enhancing the long-term biological and environmental productivity of the river system. Implementation of the Proposed Project would not sacrifice the long-term productivity of the sites for short-term uses during construction.

The short-term impacts on the environment associated with implementation of the Proposed Project are considered minimal compared to the long-term benefits and productivity that would result from the Proposed Project in conjunction with other objectives of the TRRP. Construction-related impacts and land use conflicts would be short-term, occurring only during the construction phase of the Project. While such impacts are considered significant (in a CEQA sense), they would be mitigated to less than significant levels.

### **4.4 Growth-Inducing Impacts**

Section 5.3 of the Master EIR evaluated the potential for growth that could be induced by implementation of the Proposed Project and assessed the level of significance of any expected growth inducement. Under CEQA, growth itself is not assumed to be particularly beneficial, detrimental, or insignificant to the environment. If a project is determined to be growth inducing, an evaluation is made to determine whether significant impacts on the physical environment would result from that growth.

Implementation of channel rehabilitation activities and sediment management activities at the Proposed Project sites would not remove any constraints to development, create new or improved infrastructure, or otherwise create conditions that would induce growth. The Proposed Project would improve habitat for anadromous fish and, thus, improve conditions for fishing and recreation; however, the improved fishery resources resulting from implementation of the Proposed Project are not likely to directly or indirectly result in substantial development or population growth. Therefore, implementation of the Proposed Project would not result in a significant growth-inducing impact.

#### **4.5 Environmental Commitments and Mitigation Measures**

Reclamation's NEPA implementation guidance recommends that a list of environmental commitments for the preferred alternative be included in an EA. The list should contain all mitigation measures and management actions that are incorporated in the project as part of the proposal. Because this document is a joint NEPA/CEQA document, mitigation measures have been identified for potentially significant impacts in compliance with CEQA requirements. Under CEQA, lead agencies are required to adopt a program for monitoring or reporting on the revisions that they required be made part of the project and other measures required to mitigate or avoid significant environmental effects. The MMRP for implementation of the Proposed Project complies with Reclamation's practice to include a list of environmental commitments in an EA/IS. The MMRP is included as Appendix E of the Master EIR. A site specific MMRP for the Proposed Project is included as Appendix A of this document.

#### **4.6 Significant Effects**

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible (CEQA Guidelines Section 15021), and determinations of significance play a critical role in the CEQA process (CEQA Guidelines 15064). Section 5.4 of the Master EIR addresses several types of potentially significant effects.

Potentially significant effects have been identified in the areas of geology, geomorphology, soils, and minerals; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; cultural resources; air quality; visual resources; noise; public services and utilities; and traffic and transportation. These potential effects are discussed in each resource. As part of the environmental impact assessment for each resource area, mitigation measures have been identified that reduce these impacts to less than significant levels. The environmental analysis conducted for the Proposed Project did not identify any effects that, after mitigation, remained significant and therefore unavoidable; no significant irreversible effects were identified associated with the Proposed Project.

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## 6 REFERENCES

- Alabaster, J.S., and R. Lloyd. 1980. Water quality criteria for freshwater fish. Buttersworth, Inc. Boston, Massachusetts.
- Alaska Department of Environmental Conservation. 2008. Water quality standards. Register 186 July 2008. Available at: [http://www.dec.state.ak.us/water/wqsar/wqs/pdfs/18%20AAC\\_70\\_WQS\\_Amended\\_July\\_1\\_2008.pdf](http://www.dec.state.ak.us/water/wqsar/wqs/pdfs/18%20AAC_70_WQS_Amended_July_1_2008.pdf).
- Alvarez, J., D. Goodman and A. Martin. 2010. Assessment of changes in anadromous salmonid habitat at selected channel rehabilitation sites on the Trinity River, CA. Oral presentation provided at the 2010 Trinity River Science Symposium.
- Association of Environmental Professionals. 2009. California Environmental Quality Act 2009. CEQA guidelines. Palm Desert, California.
- Association of Environmental Professionals. 2008. California environmental quality act: Statutes and guidelines. Association of Environmental Professionals.
- Berg, L., and T.G. Northcote. 1985. Changes in territorial, gill-flaring, and feeding behavior in juvenile coho salmon (*Oncorhynchus kisutch*) following short-term pulses of suspended sediment. Canadian Journal of Fisheries and Aquatic Sciences 42:1410-1417.
- Bjornn, T.C. and Reiser, D.W. 1991. Habitat Requirements of salmonids in streams. Pages 83-138 in W.R. Meehan, editor. Influences of forest and rangeland management on salmonid fishes and their habitat. Special Publication 19. American Fisheries Society, Bethesda, MD.
- BLM Manual 8431, Visual Resource Contrast Rating. US Department of the Interior, Bureau of Land Management. January 1986.
- Bolt, Beranek, and Newman, Inc. 1971. Noise from construction equipment and operations, building equipment, and home appliances. Prepared for the U.S. Environmental Protection Agency. Washington, D.C. December 1971.
- Bradley, W.W. 1941. Quarterly chapter of State Mineralogist's report. California Journal of Mines and Geology 37(1).
- Brown-Buntin. 2002. Draft noise element of the General Plan, Trinity County, California. Prepared for the Trinity County Planning Department. May 2002.
- BuildCarbonNeutral. 2007. Construction carbon calculator 0.035.
- Bustard, D.R., and D.W. Narver. 1975. Aspects of the winter ecology of juvenile coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*Salmo gairdneri*). Journal of the Fisheries Research Board of Canada 32:667-680.
- California Air Resources Board. 2008. Air quality data statistics: California Air Resource Board.
- California Department of Fish and Wildlife (CDFW). 2003a. California Salmonid Stream Habitat Restoration Manual, Part IX Fish Passage Evaluation at Stream Crossings.

- CDFW. 2003b. California natural diversity database (CNDDDB). California Department of Fish and Wildlife. Updated 2008.
- California Department of Transportation (Caltrans). 2007. The traffic data branch.  
<http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/>.
- California Department of Water Resources (DWR). 2007. Trinity River hydraulic flow study: North Fork Trinity to Lewiston Dam. State of California, The Resources Agency, Department of Water Resources, Northern District. July 2007.
- California Employment Development Department. 2008. California labor force data, not seasonally adjusted, 1990–current. California Employment Development Department.
- California Employment Development Department. 2011. California Labor Market Local Area Profile for Trinity County.  
<http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/localAreaProfileQSResults.asp?selectdarea=Trinity+County&selectedindex=53&menuChoice=localAreaPro&state=true&geogArea=0604000105&countyName=>. Accessed February 9, 2011.
- California Office of Planning and Research. 2008. CEQA and climate change: Addressing climate change through California Environmental Quality Act (CEQA) review. Technical Advisory.
- Cardno Entrix and CH2MHill. 2011. Final Report, Trinity River Large Wood Analysis and Recommendation Report. Prepared for Trinity River Restoration Program. January 2011.
- Cederholm, C.J., R.E. Bilby, P.A. Bisson, T.W. Bumstead, B.R. Fransen, W.J. Scarlett, and J.W. Ward. 1997. Response of juvenile coho salmon and steelhead to placement of large woody debris in a coastal Washington stream. *North American Journal of Fisheries Management* 17:947-963.
- Center for Economic Development. 2007. Trinity County 2007 economic and demographic profile. California State University, Chico Research Foundation.
- Colby, W.H. 1982. A century of transportation in Shasta County, 1821–1920. Association for Northern California Records and Research Occasional Paper 7.
- Cox, I. 1958. *Annals of Trinity County. Trinity 1958*. Trinity County Historical Society. Weaverville, California.
- Environmental Protection Agency (EPA). 2001. Trinity River total maximum daily load for sediment. December 20, 2001.
- Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” dated February 11, 1994.
- Federal Emergency Management Agency (FEMA). 1996. Flood insurance study: Trinity County, California, and incorporated areas. Revised April 17, 1996.
- Federal Register, Vol. 78, No. 162, Wednesday, August 21, 2013, 51741-51743. Notice of Application for Withdrawal and Opportunity for Public Meeting; California. DEPARTMENT OF THE INTERIOR, Bureau of Land Management.
- Fish and Wildlife Code § 5653. Suction Dredge Permitting.

- Graham Matthews and Associates. 2010. Trends in Substrate Composition of the Trinity River, 1991-2009. Report to the USDI Bureau of Reclamation Trinity River Restoration Program. 53 pp.
- Greenhouse Gas Protocol Initiative. 2005. Mobile combustion CO<sub>2</sub> emissions calculation tool 1.3. <http://www.ghgprotocol.org/calculation-tools>.
- Gutermuth, B. Personal observation. U.S. Bureau of Reclamation, TRRP.
- Hampton, M. 1988. Development of habitat preference criteria for anadromous salmonids of the Trinity River. U.S. Fish and Wildlife Service, Division of Ecological Services.
- Harvey, B. C., and J. L. White. 2008. Use of benthic prey by salmonids under turbid conditions in a laboratory stream. *Transactions of the American Fisheries Society* 137:1756-1763.
- Hassler, T.J. 1987. Species profiles: Life histories and environmental requirements of coastal fishes and invertebrates (Pacific Southwest)--coho salmon. U.S. Fish and Wildlife Service Biological Report 82(11.70).
- Herrera, P.A. 2006. Trinity River restoration program bird monitoring: Indian Creek environmental study limit surveys, 2003-2005. Draft. USDA Forest Service, Redwood Sciences Laboratory. March 15, 2006.
- Hicks, B.J., J.D. Hall, P.A. Bisson, and J.R. Sedell. 1991. Responses of salmonids to habitat changes. In *Influences of forest and rangeland management on salmonid fishes and their habitats*, edited by W. R. Meehan. American Fisheries Society, Bethesda, Maryland.
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Natural Heritage Division, California Department of Fish and Wildlife. Sacramento, California.
- Hoopa Valley Tribal Fisheries Department, McBain and Trush, Inc., Domenichelli and Associates, and Cardno ENTRIX (HVT et al.). 2013a. Trinity River, Bucktail (River Mile 105.3 – 106.25), Draft 10% Design Report.
- HVT et al. 2013b. Trinity River, Bucktail (River Mile 105.3 – 106.25), Draft 30% Design Report. July 2013.
- HVT et al. 2013c. Trinity River, Bucktail (River Mile 105.3 – 106.25), Draft 50% Design Report. October 2013.
- Hoopa Valley Tribe, McBain & Trush, Inc., and Northern Hydrology and Engineering (HVT et al.). 2011. Channel Rehabilitation Design Guidelines for the Mainstem Trinity River. Prepared for the Trinity River Restoration Program. Hoopa, California.
- Jones, A.G., ed. 1981. Trinity County historical sites. Curtis Media, Incorporated. Bedford, Texas.
- Leidy, R.A., and G.R. Leidy. 1984. Life stage periodicities of anadromous salmonids in the Klamath River basin, Northwestern California. Division of Ecological Services, U.S. Fish and Wildlife Service, Sacramento, California.
- Lestelle, L.C. 1978. The effects of forest debris removal on a population of resident cutthroat trout in a small headwater stream, University of Washington, Seattle.
- Lestelle, L.C., and C.J. Cederholm. 1982. Short-term effects of organic debris removal on resident cutthroat trout. *Proceedings: Fish and wildlife relationships in old-growth forests symposium*. Asheville, North Carolina.

- Lloyd, D.S. 1985. Turbidity in freshwater habitats of Alaska: A review of published and unpublished literature relevant to the use of turbidity as a water quality standard. Alaska Department of Fish and Game. (Report No. 85-1.)
- Marine, K., and J. Lyons. 2004. Temperature effects on Trinity River Salmon reproductive physiology. Phase 1: radio telemetry study of migration and behavioral thermoregulation of spring-run Chinook salmon in the upper Trinity River. Prepared by North State Resources, Inc. for the Trinity River Restoration Program U.S. Bureau of Reclamation – Mid-Pacific Region. February 2004.
- Mayer, K.E., and W.F. Laudenslayer, Jr., eds. 1988. A guide to wildlife habitats of California. California Department of Forestry and Fire Protection. Sacramento, California.
- McBain and Trush. 1997. Trinity River Maintenance Flow Study Evaluation Final Report.
- Medin, A., and R. Allen. 1998. A cultural resources inventory of Weaverville Area Units of the proposed SPI-BLM land exchange. Prepared for Sierra Pacific Industries by KEA Environmental, Incorporated. Confidential report.
- Medin, A., and R. Allen. 2007. Mining sites: Historic context and archaeological research design. Prepared by HARD Mining Sites Team for the California Department of Transportation. Draft report on file at the California Department of Transportation.
- Michney, F., and M. Hampton. 1984. Sacramento River, Chico Landing to Red Bluff Project: 1984 juvenile salmonid study. U.S. Fish and Wildlife Service, Division of Ecological Services. Prepared for U.S. Army Corps of Engineers.
- Michney, F., and R. Deibel. 1986. Sacramento River, Chico Landing to Red Bluff Project: 1985 juvenile salmonid study. U.S. Fish and Wildlife Service, Division of Ecological Services. Prepared for U.S. Army Corps of Engineers.
- Miller, S.L., C.G. Ralph, and P.A. Herrera. 2003. Monitoring riparian and aquatic birds along the mainstem of the Trinity River: Trinity River Restoration Program Biannual Report 2003. USDA Forest Service.
- Moyle, P.B. 2002. Inland fishes of California. University of California Press. Berkeley, California.
- Moyle, P.B., R.M. Yoshiyama, J.E. Williams, and E.D. Wikramanayake. 1995. Fish species of special concern in California. 2nd edition. California Department of Fish and Wildlife, Inland Fisheries Division.
- Myers, J.M., R.G. Kope, G.J. Bryant, D. Teel, L.J. Lierheimer, T.C. Wainwright, W.S. Grant, F.W. Waknitz, K. Neeley, S.T. Lindley, and R.S. Waples. 1998. Status review of Chinook salmon from Washington, Idaho, Oregon, and California. (NOAA Technical Memorandum NMFS-NWFSC-35.)
- National Marine Fisheries Service (NMFS). 2000. Biological opinion on the Trinity River Mainstem Fishery Restoration Program. United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. File Number 151422WR2000AR8271:FR. October 12, 2000.
- NMFS. 2001. Guidelines for Salmonid Passage at Stream Crossings.

- NMFS. 2006. 2006 Amendment to the 2000 Trinity River Mainstem Fishery Restoration Program Biological Opinion to allow necessary instream construction activities at future streambank rehabilitation projects.
- Noggle, C.C. 1978. Behavioral, physiological and lethal effects of suspended sediments on juvenile salmonids. Master's thesis. University of Washington, Seattle.
- North Coast Regional Water Quality Control Board (Regional Water Board). 2011. Water quality control plan for the north coast region. May 2011.
- North Coast Regional Water Quality Control Board (Regional Water Board) and Reclamation. 2009. Channel rehabilitation and sediment management for remaining Phase 1 and Phase 2 sites. Master Environmental Impact Report, Environmental Assessment/Environmental Impact Report. Trinity River Restoration Program. August 2009. SCH#2008032110.
- North Coast Unified Air Quality Management District (NCUAQMD). 1995. North Coast Unified Air Quality Management District particulate matter (PM<sub>10</sub>) attainment plan.
- NCUAQMD. 2005. General provisions, permits, and prohibitions: Air quality control rules.
- North State Resources. 2005. Indian Creek site delineation of Waters of the United States, including wetlands.
- North State Resources. 2007. Distribution and Applied Management of Invasive Plant Species at Proposed Rehabilitation Sites along the Mainstem of the Trinity River.  
[http://odp.trrp.net/FileDatabase/Documents/10042\\_Trinity\\_Invasives\\_Final\\_Report1.pdf](http://odp.trrp.net/FileDatabase/Documents/10042_Trinity_Invasives_Final_Report1.pdf).
- North Wind. 2013. Draft Wetland Delineation Report for Bucktail and Lower Junction City Channel Rehabilitation Sites.
- Public Law 98-541. Trinity River Basin Fish and Wildlife Management Act. October 1984.
- Reclamation et al. (Bureau of Reclamation, Hoopa Valley Tribe Fisheries, NOAA Fisheries, US Fish and Wildlife Service, US Forest Service). 2013. Lower Junction City – Channel Rehabilitation Design 30% Alternatives Review – Draft. Trinity River Restoration Program, Weaverville, California, July 2013.
- Regional Water Board, Reclamation, and BLM. 2011. Wheel Gulch Rehabilitation Site: Trinity River Mile 75.8 to 76.4. Environmental assessment/ initial study. Trinity River Restoration Program. February 2011. SCH#2011022055.
- Robison, E. G., A. Mirati, and M. Allen. 1999. Oregon road/stream crossing restoration guide: Spring 1999. Oregon Department of Fish and Wildlife.
- Sandercock, F.K. 1991. Life history of coho salmon (*Oncorhynchus kisutch*). Edited by C. Groot and L. Margolis, Pacific Salmon Life Histories: UBC Press, Vancouver, Canada.
- Sincero, A.P., and G.A. Sincero. 1996. Environmental engineering: A design approach: Prentice-Hall, Inc., as cited in Draft Anderson-Cottonwood Irrigation District Fish Passage Improvement Project Proposed FONSI/EA/Initial Study (1999).
- Smith, J., Trinity County Department of Transportation. 2008. Personal Communication - Telephone conversation with D. Drummond, North State Resources. Re: Mines that are operating per SAMARA permits within Trinity County.

- Sommer, T., B. Harrell, M. Nobriga, R. Brown, P. Moyle, W. Kimmerer, and L. Schemel. 2001. California's Yolo Bypass: Evidence that flood control can be compatible with fisheries, wetlands, wildlife, and agriculture. *Fisheries* 26:6-16.
- Thomas, J.W., E.D. Forsman, J.B. Lint, E.C. Meslow, B.R. Noon, and J. Verner. 1990. A conservation strategy for the NS Owl: A report of the Interagency Scientific Committee to address the conservation of the northern spotted owl. USDA Forest Service, Portland, Oregon.
- Trinity County. 1986. Lewiston Community Plan. Adopted September 16, 1986.
- Trinity County. 1987. Junction City Community Plan. Adopted July 1987.
- Trinity County. 2003. Trinity County General Plan.
- Trinity County Resource Conservation District (TCRCD). 2013. 2013 Junction City Dyer's Wood Treatment.
- Trinity River Restoration Program (TRRP). 2009. *Trinity River Riparian Vegetation Map 2008 Update*.
- U.S. Army Corps of Engineers (USACE). 1976. Flood plain information, Trinity River: Lewiston Lake to Junction City, Trinity County, California.
- USDI BLM. 1993. Redding Resource Management Plan and Record of Decision. United States Department of the Interior, BLM, Redding Resource Area, California.
- USDI BLM. 2008. Special Status Species Management manual draft revision.  
[www.biologicaldiversity.org/campaigns/esa/pdfs/6840-update-4-22-08.pdf](http://www.biologicaldiversity.org/campaigns/esa/pdfs/6840-update-4-22-08.pdf).
- U.S. Bureau of Reclamation and California Department of Water Resources. 2004. Hocker Flat Rehabilitation Site: Trinity River Mile 78 to 79.1 Environmental Assessment/Environmental Impact Report. Trinity River Restoration Program. November 2004. SCH#2004052076.
- U.S. Bureau of Reclamation and North Coast Regional Water Quality Control Board. 2006. Canyon Creek Suite of Rehabilitation Sites: Trinity River Mile 73 to 78 Environmental Assessment/Environmental Impact Report. Trinity River Restoration Program. September 2006. SCH#2005102025.
- U.S. Bureau of Reclamation and Trinity County Resource Conservation District. 2007. Indian Creek Rehabilitation Site: Trinity River Mile 93.7 to 96.5 Environmental Assessment/Environmental Impact Report. Trinity River Restoration Program. April 2007. SCH#2006012101.
- U.S. Bureau of Reclamation and Trinity County Resource Conservation District. 2008. Lewiston-Dark Gulch Rehabilitation Project: Trinity River Mile 105.4 to 111.7. Environmental Assessment/Environmental Impact Report. Trinity River Restoration Program. February 2008. SCH#2007042161.
- U.S. Census Bureau. 2000. DP-1. Profile of general demographic characteristics: 2000. U.S. Census Bureau. Available from [http://factfinder.census.gov/servlet/QTTable?\\_bm=y&-geo\\_id=16000US0641278&-qr\\_name=DEC\\_2000\\_SF1\\_U\\_DP1&-ds\\_name=DEC\\_2000\\_SF1\\_U&-lang=en&-sse=on](http://factfinder.census.gov/servlet/QTTable?_bm=y&-geo_id=16000US0641278&-qr_name=DEC_2000_SF1_U_DP1&-ds_name=DEC_2000_SF1_U&-lang=en&-sse=on).
- U.S. Census Bureau. 2008. State and county quickfacts. <http://quickfacts.census.gov/qfd/states/00000.html>. Accessed 2008.

- U.S. Census Bureau. 2011. State and county quickfacts. <http://quickfacts.census.gov/qfd/states/00000.html>. Accessed 2011.
- U.S. Census Bureau. 2013. State and county quickfacts. <http://quickfacts.census.gov/qfd/states/06000.html>. Accessed 2013.
- U.S. Department of Agriculture (USDA). 1998. Soil survey of Trinity County, California: Weaverville Area. <http://websoilsurvey.nrcs.usda.gov/app/> (cited September 17, 2013).
- U.S. Department of Interior (USDI). 1995. Memorandum on Klamath Project operation plan (KPOP) regarding certain legal rights and obligations related to the U.S. Bureau of Reclamation, Klamath Project: U.S. Department of the Interior, Office of the Solicitor.
- USDI. 2000. Record of Decision. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report. December 19, 2000.
- U.S. Fish and Wildlife Service (USFWS). 1980. Environmental impact statement on the management of river flows to mitigate the loss of the anadromous fishery of the Trinity River, California. Volumes I and II. U.S. Fish and Wildlife Service, Division of Ecological Services.
- USFWS. 1994. Rehabilitation of the mainstem Trinity River background report. Trinity River Fishery Resource Office. January 1994.
- USFWS. 1995. Shasta-Trinity National Forests land and resource management plan. U.S. Forest Service, Pacific Southwest Region. April 1995.
- U.S. Fish and Wildlife Service and Hoopa Valley Tribe (USFWS and HVT). 1999. Trinity River Flow Evaluation Final Report. June 1999.
- USFWS, U.S. Bureau of Reclamation, Hoopa Valley Tribe, and Trinity County. 2000a. Trinity River mainstem fishery restoration Final Environmental Impact Statement/Environmental Impact Report. State Clearinghouse No. 1994123009. October 2000.
- USFWS, U.S. Bureau of Reclamation, Bureau of Land Management, Hoopa Valley Tribe, California State Historical Preservation Officer, and Advisory Council on Historic Fishery Preservation. 2000b. Programmatic agreement regarding implementation of the Trinity River fishery restoration. November 8, 2000.
- U.S. Geological Survey (USGS). 1966. Geology of Northern California, Bulletin 190. Edited by E.H. Bailey. California Division of Mines and Geology. San Francisco, California.
- Wilson, R.A. 1995. Trinity River willow flycatcher surveys, 1990-1992. Final report submitted to Wildlife Task Group, Trinity River Restoration Project, U.S. Department of the Interior, Fish and Wildlife Service, and Bureau of Reclamation.

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