Trinity River Channel Rehabilitation Site: Chapman Ranch Phase A (River Mile 82.8-83.5)

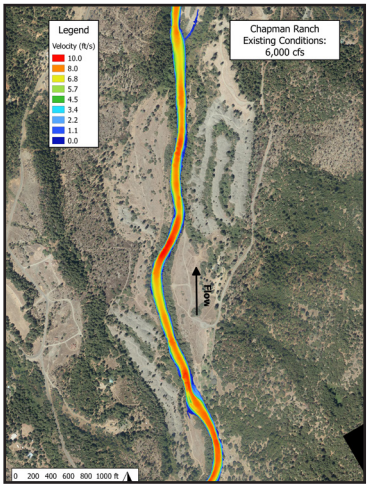
Environmental Assessment/Initial Study

DOI-BLM-CA-NO60-2019-0004-EA and TR-EA0118

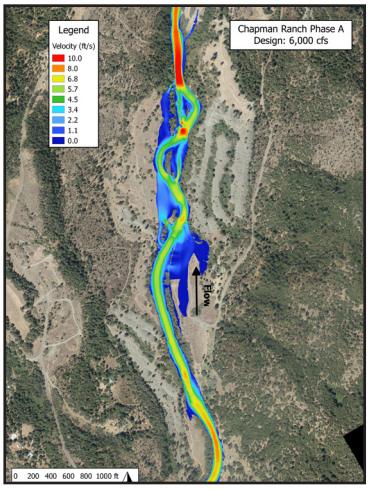
State Clearinghouse #2018112057

February 2019

Chapman Ranch



Existing Conditions



Design Conditions

California Lead Agency for CEQA
North Coast Regional Water Quality Control Board

Project Proponent and Federal Lead Agency for NEPA
Trinity River Restoration Program
U. S. Department of the Interior, Bureau of Reclamation

Federal Co-lead Agency for NEPA
U. S. Department of Interior, Bureau of Land Management

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Trinity River Channel Rehabilitation Site:
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Acronyms and Abbreviations

A	Access Routes
AB	Assembly Bill
ACS	Aquatic Conservation Strategy
AEAM	Adaptive Environmental Assessment and Management
af	acre-feet
APE	Area of Potential Effect
Basin Plan	Water Quality Control Plan for the North Coast Region
BFE	base flood elevation
BLM	U.S. Bureau of Land Management
BO	Biological Opinion
C	Contractor Use Areas
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CO_2	carbon dioxide
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
cy	cubic yard
DWR	California Department of Water Resources
EC	Environmental Commitment
EA	Environmental Assessment
EA/IS	Environmental Assessment/Initial Study
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	evolutionarily significant unit
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FIS	Flood Insurance Study
FUP	Free Use Permit
GHG	greenhouse gas
HVT	Hoopa Valley Tribe
IAP	Integrated Assessment Plan
IC	In-Channel Construction
IS	Initial Study
MMRP	Mitigation Monitoring and Reporting Program
msl	mean sea level
NAHC	Native American Heritage Commission
NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act

NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
NTU	nephelometric turbidity unit
ORV	outstandingly remarkable value
PA	Programmatic Agreement
PM	particulate matter
PM10	particulate matter less than 10 microns in aerodynamic diameter
PM2.5	particulate matter less than 2.5 microns in aerodynamic diameter
PRC	Public Resources Code
Reclamation	Bureau of Reclamation
Regional Water Board	North Coast Regional Water Quality Control Board
RM	River Mile
RMP	Resource Management Plan
ROD	Record of Decision
SLJ	structured log jams
SMARA	Surface Mining and Reclamation Act
SONCC	Southern Oregon/Northern California Coast
SR	State Route
SWPPP	Storm Water Pollutant Prevention Plan
TMC	Trinity Management Council
TMDL	total maximum daily load
TRD	Trinity River Division
TRRP	Trinity River Restoration Program
U	Upland
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VE	Value Engineering
VRM	visual resource management
WP	wood placement
WSE	water surface elevation
WSR	Wild and Scenic River
WSRA	Wild and Scenic Rivers Act
WUA	weighted useable area
X	temporary crossings
YT	Yurok Tribe

1 INTRODUCTION AND BACKGROUND

This Environmental Assessment/Initial Study (EA/IS) for the proposed Trinity River Channel Rehabilitation Sites – Chapman Ranch Phase A (River Mile [RM] 82.8-83.5) was prepared by the United States Department of the Interior (USDI), Bureau of Reclamation (Reclamation) and USDI Bureau of Land Management (BLM) to meet the requirements of the National Environmental Policy Act (NEPA) and by the North Coast Regional Water Quality Control Board (Regional Water Board) to meet the requirements of the California Environmental Quality Act (CEQA). Reclamation is the lead agency under NEPA, and BLM is a federal land manager at the site and federal co-lead agency under NEPA. These federal agencies worked with the Regional Water Board to analyze the potential impacts of the proposed activities under NEPA (40 Code of Federal Regulations [CFR], Section 1508.9(a)), and CEQA (California Public Resources Code [PRC] Sections 21000 et seq.).

Appendix A (CEQA environmental checklist) to this EA/IS was prepared to identify the resource topics that were addressed in the *Channel Rehabilitation and Sediment Management Activities for Remaining Phase 1 and Phase 2 Sites, Part 1: Final Master Environmental Impact Report and Part 2: Environmental Assessment/Final Environmental Impact Report (Master EIR and EA/EIR;* DOI-BLM-CA-NO60-2009-0085-EA; Regional Water Board and Reclamation 2009 <*http://www.trrp.net/library/document/?id=476*>*)* and considered in this document. This appendix is also intended to satisfy CEQA requirements.

This EA/IS incorporates by reference, and is tiered from, two previous joint NEPA/CEQA documents, the *Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Report* (Trinity River EIS/EIR; U.S. Fish and Wildlife Service et al. 2000) and the Master EIR and EA/EIR. The proposed Chapman Ranch Phase A Rehabilitation Site (referred to as the project area in this EA/IS) was identified in the Master EIR as a Phase 2 site and discussed at a programmatic level. The purpose of this document is to provide a site-specific analysis of the proposed site rehabilitation activities.

BLM is considering issuance of a right-of-way to Reclamation pursuant to Title V of the Federal Land Policy and Management Act (43 USC 1761 et seq.) for implementation of the rehabilitation activities on BLM-managed land. BLM is also considering issuance of a Free Use Permit (FUP) pursuant to 43 CFR 3604 that would authorize Reclamation to use mineral materials (primarily sand and gravel) for restoration activities at the site. The project area is located over an active placer gold mining claim, and BLM requests that a mineral materials waiver be signed by the mining claimant prior to issuance of a FUP to Reclamation, as discussed in Chapter 3. All environmental commitments, project design features, mitigation measures, and best management practices (BMPs) developed for this EA/IS would be considered for incorporation into the BLM authorization.

1.1 LOCATION OF REHABILITATION SITE

Reclamation proposes to conduct mechanical channel rehabilitation activities on the mainstem Trinity River downstream of Lewiston Dam in the project area, as illustrated in Appendix B (Figure 1-1). (Please note that all figures are at the end of the chapter in which they are first

referenced.) The project area encompasses approximately 103 acres, including 80 acres of BLM-managed land and 23 acres of private land. Throughout this document, the terms river left and river right are used to refer to the river banks when looking downstream. For this project, the left is the west side of the river and the right is the east side.

The site is located approximately 3 miles upstream of the Dutch Creek Road Bridge and 3 miles south of Junction City. It is in Section 19 and 20 of Township 33 North, Range 10 West on the *Junction City, California* 7.5-minute U.S. Geological Survey (USGS) quadrangle, Mount Diablo Base and Meridian. The river elevation at the site is approximately 1,520 feet above mean sea level (msl). Access to the site is via (1) a dirt road south and west of Sky Ranch Road, which intersects State Route 299 southeast of Junction City and (2) a dirt road west of the site accessed from Dutch Creek Road.

1.2 TRINITY RIVER RESTORATION PROGRAM BACKGROUND

The fundamental purpose of the Trinity River Restoration Program (TRRP) is to restore historic river processes to the Trinity River through implementation of the 2000 Record of Decision (ROD) for the Trinity River EIS/EIR. It is the intent of the TRRP to restore a properly functioning river through rehabilitation activities at multiple locations in order to increase naturally spawning anadromous fish populations to levels that existed prior to construction of the Lewiston and Trinity Dams. The target reach for Trinity River restoration is the approximately 40-mile length of river downstream of Lewiston Dam to the confluence of the North Fork Trinity River.

In general, the TRRP approach to channel rehabilitation is to reconnect the river with its floodplain, as explained in detail on the TRRP website at <http://www.trrp.net/restoration/channel-rehab/rehabilitation-concepts/#page-part>.

The Master EIR includes a brief chronology summarizing the most pertinent management actions that have occurred relevant to the Trinity River Basin between 1938 and 2008 (Section 1.4.4., pages 1-8). Additional details concerning the legislative and management history can be found in the Trinity River EIS/EIR and the EA/Final EIRs for TRRP projects constructed between 2005 and 2008[1]. These documents are available on the TRRP website <www.trrp.net> and at the Weaverville public library. The Master EIR (section 1.4.5, pages 1-10 through 1-15) also contains a summary of the various restoration activities that have been undertaken since the signing of the ROD, as well as brief discussions of other watershed restoration programs and activities occurring within the basin; additional information is available on the TRRP website[2].

1.3 PURPOSE AND NEED/PROJECT OBJECTIVES

The TRRP is working to provide increases in habitat for all life stages of naturally produced anadromous Trinity River native fish in the amounts necessary to reach congressionally mandated goals. The strategy is to create native fish habitat while also ensuring that habitat complexity and quantity increase as the alluvial processes of the Trinity River are enhanced or

[1] Hocker Flat (Reclamation and California DWR 2004), the Canyon Creek Suite (Reclamation and the Regional Water Board 2006), Indian Creek (Reclamation and TCRCD 2007), and Lewiston-Dark Gulch (Reclamation and TCRCD 2008).

[2] On the TRRP website, go to <http://www.trrp.net/restoration/watershed-activities/>

restored in a manner that would perpetually maintain fish and wildlife resources (including threatened and endangered species) and the river ecosystem. The proposed rehabilitation activities at the Chapman Ranch Phase A site are needed to support the TRRP's goals of restoring fish populations to pre-dam levels and restoring dependent fisheries, including those held in trust by the federal government for the Hoopa Valley and Yurok tribes.

Chapman Ranch Phase A design objectives were separated into three categories: physical, biological, and riparian objectives. Key design objectives include:

- reestablish a functioning, topographically complex floodplain, while promoting dynamic river processes that would increase in-channel habitat diversity at all flows;
- increase optimal habitat over a wide range of flows for fry and presmolt fish above existing conditions; and
- preserve and expand multi-story diverse riparian vegetation in conjunction with revegetation of alluvial and upland landforms.

1.4 PURPOSE OF THIS DOCUMENT

Both NEPA (42 USC 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.) require that governmental agencies disclose information about proposed activities that may affect the environment, evaluate the potential environmental impacts of their proposed actions before making formal commitments to implement them, and involve the public in the environmental review process. This site-specific EA/IS for the proposed action has been prepared to comply with NEPA and CEQA. This EA/IS evaluates the environmental impacts of the proposed action, recommends project design features or mitigation measures to minimize impacts, and is designed to facilitate lawful implementation under all applicable laws.

This site-specific EA/IS for the proposed action is tiered to the previous analysis in the *Trinity River Mainstem Fishery Restoration Final EIS/EIR* (FEIS/EIR; USFWS et al. 2000). It also incorporates by reference the analyses in the Master EIR and EA/EIR (Regional Water Board and Reclamation 2009).

The Trinity River FEIS/EIR serves as a NEPA analysis from which site-specific projects may tier. NEPA allows for tiering, as described in Sec. 1508.28 of the Council on Environmental Quality (CEQ) regulations. This section of the CEQ regulations states that tiering "refers to the coverage of general matters in broader environmental impact statements…with subsequent narrower statements or environmental analyses (i.e., regional or basinwide program statements or, ultimately, site-specific statements), incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared."

In 1994, the USFWS as the NEPA lead agency and Trinity County as the CEQA lead agency began the public process for developing the EIS/EIR for the Trinity River Mainstem Fishery Restoration Program. The FEIS portion of the Trinity River FEIS/EIR (USFWS et al. 2000) functions as a project-level NEPA document for policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing "first-tier" review of other potential actions, including the proposed action. However, because the Trinity County Board of Supervisors—the CEQA lead agency for the Trinity River FEIS/EIR—never certified

the EIR portion of the 2000 FEIS/EIR, the EIR portion was not available to tier from for the CEQA portion of this document or for other earlier TRRP CEQA documents. Consequently, four joint EA/EIRs were completed to analyze TRRP channel rehabilitation projects between 2004 and 2008. Based on the similarity of these projects and their environmental impacts and agreement that future TRRP projects would have similar impacts, a separate programmatic document, the Master EIR, was developed. The EA portion of the Master EIR – EA/EIR tiers from the Trinity River Mainstem Fishery Restoration FEIS/EIR (USFWS et al. 2000). The ROD, dated December 19, 2000, for the FEIS/EIR directed USDI agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the FEIS/EIR.

A Master EIR forms the basis for analyzing the effects of subsequent projects (CEQA Guidelines, Section 15175, et. seq.). The Master EIR meets the elements required for a Program EIR pursuant to California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15168. Therefore, the Master EIR provides programmatic CEQA level review, from which the Chapman Ranch Phase A project—a subsequent site-specific project—is tiered.

The Regional Water Board acted as the lead agency for the Master EIR (State Clearinghouse #2008032110) and for the initial study portions of subsequent site-specific EA/ISs. The Master EIR provides a discussion of the existing conditions, environmental impacts, and mitigation measures required to comply with CEQA (California PRC, Section 21000 et seq.). In addition to addressing direct and indirect impacts associated with the proposed project and alternatives, the Master EIR addresses cumulative and growth-inducing impacts that could be associated with activities at the remaining Phase 1 and Phase 2 sites. The Regional Water Board certified the Master EIR on August 25, 2009.

Because the Master EIR provides programmatic level review from which site-specific projects may tier, the analysis of the proposed action required under CEQA is tiered from that document. In addition, the EIS portion of the Trinity River FEIS/EIR functions as a project-level NEPA document for policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing “first-tier” review of other potential actions, including the proposed action. This EA/IS focuses only on site-specific activities for the proposed action and serves as a joint NEPA/CEQA document for project authorization by both federal and California state regulatory agencies.

Under 14 CCR, Section 15177, after a Master EIR has been prepared and certified, subsequent projects that the lead agency determines as being within the scope of the Master EIR will be subject to only limited environmental review. The California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15177, subd. (b)(2)) states that the preparation of a new environmental document and new written findings will not be required if, based on a review of the IS prepared for the subsequent project, the lead agency determines, on the basis of written findings, that no additional significant environmental effect will result from the proposal, that no new additional mitigation measures or alternatives are required, and that the project is within the scope of the Master EIR. Whether a subsequent project is within the scope of the Master EIR is a question of fact to be determined by the lead agency based on a review of the IS to determine whether there are additional significant effects or new additional mitigation measures or alternatives required for the subsequent project that have not already been discussed in the Master EIR.

This EA/IS for the proposed action provides site-specific details for the environmental impact analyses and has been prepared to comply with NEPA (42 USC, Section 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.). This EA/IS focuses only on site-specific activities for the proposed action and serves as a joint NEPA/CEQA document for project authorization by both federal and California state regulatory agencies. This EA/IS contains a site-specific project description and other information required to apply for enrollment under General Water Quality Certification R1-2015-0028 (or subsequent reissued certification) for Trinity River channel rehabilitation activities, which the Regional Water Board will consider in making its determination and approval decision.

1.5 OTHER REGULATORY REQUIREMENTS

In addition to CEQA and NEPA, the proposed rehabilitation activities are subject to a variety of federal, state, and local statutes, regulations, policies, and other authorities, such as the Clean Water Act, Endangered Species Act, California Fish and Game Code, National Historic Preservation Act[3], Wild and Scenic Rivers Act, and BLM's 1993 Redding Resource Management Plan (RMP). An addendum to the RMP, the Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl (1994) (Standards and Guidelines), provides survey and manage direction for management of BLM lands within northern spotted owl habitat (Appendix C and D). The primary responsible and trustee agencies are the U.S. Army Corps of Engineers (USACE), USFWS, National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife (CDFW), the Regional Water Board, and Trinity County. Chapter 3, Regulatory Framework, of the Master EIR includes descriptions of the actions required of these agencies and the applicable environmental statutes and identifies permits required for the TRRP work on the Trinity River.

The BLM's Redding Field Office manages public lands in the Trinity River Basin in accordance with the Federal Land Policy and Management Act of 1976 (FLPMA), its 1993 RMP and Record of Decision (BLM 1993), and the Standards and Guidelines (1994). The RMP discusses the general condition of natural resources in the plan area and prescribes appropriate land use management for lands within the plan jurisdiction, including BLM-managed lands at the site. Section 4.2.2 of the Master EIR provides additional information about the RMP. As part of the BLM decision-making process, BLM must evaluate the consistency of the proposed action with the RMP, as amended.

1.6 SCOPING AND PUBLIC INVOLVEMENT

Since the signing of the Trinity River Restoration ROD in 2000 and efforts to implement the TRRP, Reclamation and other agencies have held numerous public meetings and open houses to obtain public input and provide information on the overall TRRP rehabilitation activities. As part of ongoing TRRP outreach activities, TRRP staff members have met with local groups (e.g., fishing guides and mining groups) and individual landowners from the Junction City area

[3] Section 3.1.1 of the Master EIR provides a comprehensive discussion of Reclamation's approach to compliance with the National Historic Preservation Act, specifically with respect to Section 106 consultation requirements. Appendix D to the Master EIR documents the programmatic agreement between USFWS, Reclamation, BLM, Hoopa Valley Tribe, the California State Historic Preservation Office, and the Advisory Council on Historic Preservation.

numerous times to obtain stakeholder input and advice, most recently on the evening of March 15, 2017, at the North Fork Grange Hall on Dutch Creek Road in Junction City. Notice of public meetings and availability of project documents are announced the *Trinity Journal* and the *Redding Record Searchlight* and posted on the TRRP's website <http://www.trrp.net/>.

Assembly Bill 52 (AB 52) was signed by the Governor of California in September 2014. The bill requires that California state lead agencies consult with California Native American tribes traditionally and culturally affiliated with the geographic area of a project when the Tribe requests to be informed of such projects and requests the consultation in order to ensure that impacts to tribal cultural resources are minimized. AB 52 requirements apply to projects with a notice of preparation or a notice of negative declaration or mitigated negative declaration filed on or after July 1, 2015. The consultation requirements of AB 52 are not applicable to the proposed Chapman Ranch Phase A project; the Regional Water Board adopted the Master EIR in 2009.

Under the auspices of Reclamation, the TRRP entered into a Programmatic Agreement (PA) with the California State Historic Preservation Officer to ensure compliance with Section 106 of the National Historic Preservation Act. The PA ensures that tribal cultural resources were addressed in the Master EIR. The mitigation, monitoring, and reporting plan adopted by the Regional Water Board includes measures for the protection of tribal cultural resources, including tribal consultation and coordination; site evaluations; and avoidance, minimization, and other specific mitigation as necessary at the site scale.

Consistent with Reclamation and BLM's NEPA requirements, the public review of this EA/IS began when the agencies posted the document to their official websites on November 20, 2018. The official public review period began on that date and continued through December 21, 2018. At the onset of the review period, notices informing the public of the availability of this EA/IS for review were posted on the TRRP website, at the rehabilitation site, at the TRRP Weaverville and BLM Redding Field offices, and in the *Trinity Journal* and *Redding Record Searchlight* newspapers; the public notices were also mailed to local landowners and emailed to interest groups. An open house to describe the proposed action and receive public input was held on November 28, 2018, at the North Fork Grange Hall on Dutch Creek Road in Junction City, California.

Hard copies of the Draft EA/IS were available for review at the BLM office in Redding, the Reclamation (TRRP) office in Weaverville, as well as at the Weaverville Public Library. Comments were sent to Brandt Gutermuth at Reclamation's Weaverville office.

Copies of the EA/IS remain available for review on the TRRP website at <http://www.trrp.net/restoration/channel-rehab/chapman/ >, Reclamation's website at <https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=35981>, and BLM's website at <https://eplanning.blm.gov/epl-front-office/eplanning/projectSummary.do?methodName=renderDefaultProjectSummary&projectId=117018>.

A single comment letter was submitted to Reclamation by an individual. This letter contained 11 sub-comments that have been considered by the lead agencies. The coded comment letter and the associated responses are included as Appendix E to this document. The public review, coupled

with additional input from the design team, has resulted in minor changes to the project design and description. Staging of equipment and processing of materials have been adjusted in order to minimize crossings of the river; excavated materials from the Chapman Ranch Project would be processed on the same side of the river as they were excavated. Consequently, gravel from the left bank (e.g., IC-10) would be processed in U-4 or C-8 rather than on river right (in U-2) as described in the Draft EA/IS. These changes are reflected in Chapter 2, Appendix B, and Chapter 3.

Copies of the Master EIR, the 2000 ROD, and the Trinity River EIS/EIR are also available on the TRRP website <http://www.trrp.net/program-structure/foundational-documents/>.

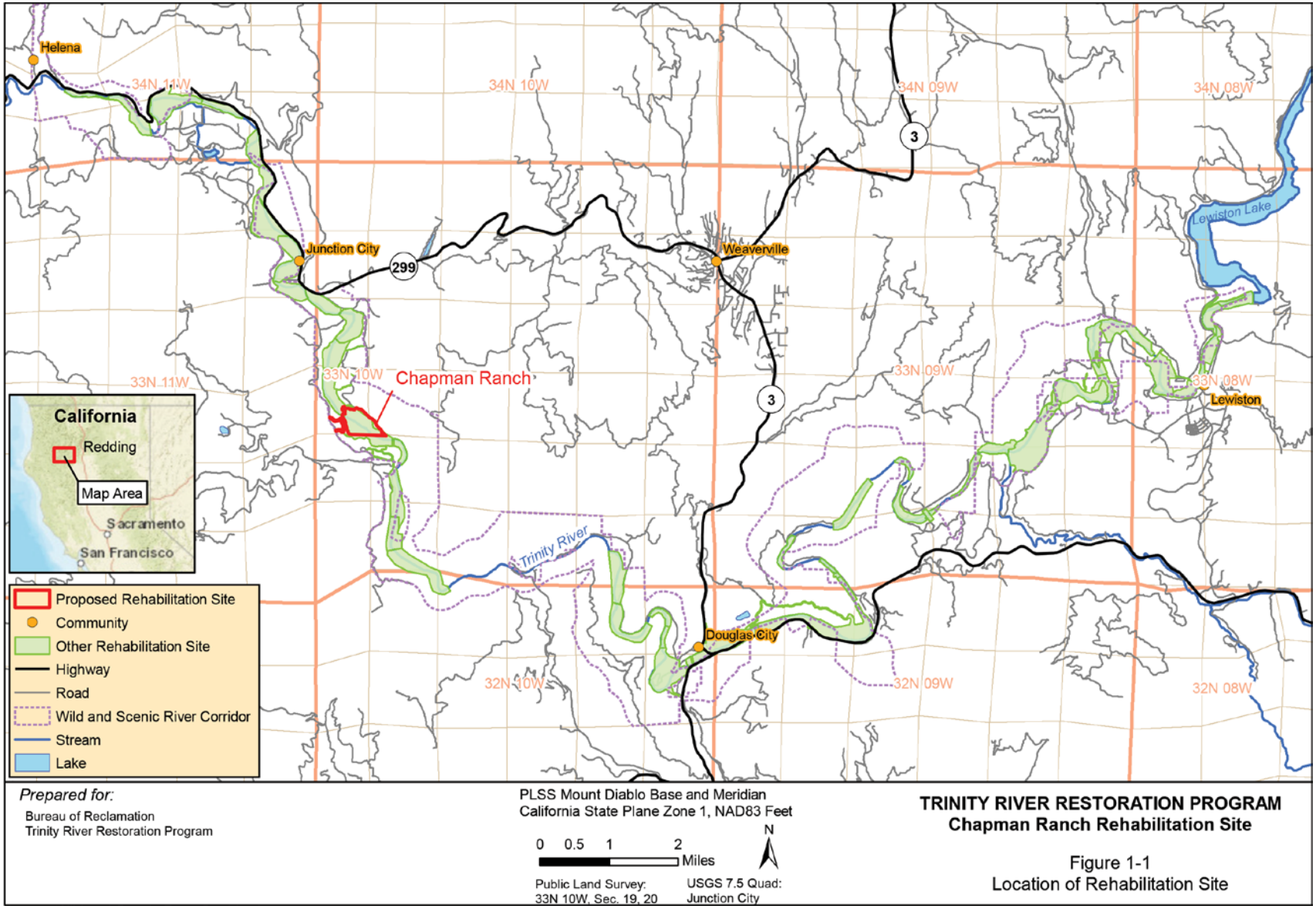


Figure 1-1. Location of Rehabilitation Site

2 DESCRIPTION OF ALTERNATIVES

This chapter describes the proposed action and the no action alternative for Chapman Ranch Phase A as well as alternatives that were eliminated from detailed analysis in this EA/IS. The NEPA term "proposed action" is used throughout this document rather than the CEQA term "proposed project"; however, the terms should be considered synonymous.

2.1 PROPOSED ACTION

The Chapman Ranch reach begins approximately 3 miles upstream of the Dutch Creek Road Bridge in Junction City. Habitat for salmonids and other aquatic and riparian species is currently impaired throughout this reach by a legacy of dredger mining and water diversions. The proposed action has been developed to strike a balance between hard and soft methods for restoring aquatic and riparian habitat, while providing the river opportunities to express the dynamic processes that existed before Lewiston Dam was completed, on a smaller scale.

The proposed action consists of a number of rehabilitation activities at the Chapman Ranch Phase A site. These activities are based on those described and analyzed in Section 2.3.2 of the Master EIR (Regional Water Board and Reclamation 2009).

The proposed rehabilitation activities are briefly described below. Appendix B provides a more in-depth description of the design objectives and discusses each activity area in detail. With the exception of recontouring and vegetation removal, each activity type and area has been assigned a unique alphabetic and numeric identification and descriptive label that corresponds to the type and location of activity area illustrated on Figure 2-1[4], provided at the end of this chapter. These labels are used throughout this document.

2.1.1 Recontouring and Vegetation Removal

Under the recontouring and vegetation removal activities, the ground surface would be modified to reduce riparian encroachment and the risk of stranding juvenile salmonids. To varying degrees, vegetation would be cleared and removed at all activity areas that would be subject to rehabilitation activities with the exception of crossings. Where recontouring is part of the proposed action (e.g., floodplain lowering), the entire site would be subject to vegetation removal. Where possible, riparian vegetation (e.g., willows) would be salvaged for use in on-site revegetation efforts.

Grading would be required to construct or enhance topographic features that could develop into functional riparian habitat; excavation and the placement of fill would be balanced. In addition to the vegetation removed from activity areas, individual trees in other activity areas could be removed to enhance safety and operability of the work area. As shown on Figure 2-1, upland and

[4] This figure has been revised to reflect minor adjustments in the size and location of activity areas based on public comment t and design team updates.

contractor use areas (e.g., U-4, C-3) include discrete locations where removal of vegetation is anticipated based on consultation with, and authorization by, BLM and landowners.

Vegetation removed from activity areas, including contract use areas, would be used for in-river placement as large wood or would be chipped or masticated for use as part of revegetation efforts to increase nutrients in depositional areas and enhance the water holding capability of these deposits. There are a limited number of mature trees at the site but, as available, they may be used in the construction of habitat and flow modification features. Activities would be accomplished using a variety of methods, including hand tools and heavy equipment such as excavators, bulldozers, scrapers, and dump trucks. Where feasible existing riparian vegetation will be maintained to facilitate future recruitment.

2.1.2 Riverine Construction (R) - Lowered Floodplains, Collection Channel

Two types of inundated surfaces (e.g., floodplains, collection channel) would be constructed to inundate and function at flows ranging from 350 to more than 6,000 cubic feet per second (cfs). Construction of these surfaces would also enhance the type and degree of connection to the mainstem at various flows as portions of the existing mainstem channel (e.g., at R-7 and R-9) would maintain water and aquatic habitat during all flows. These activities are intended to expand the surface area of the channel that could be inundated by reoccurring flows below the ordinary high-water mark (i.e., 6,000 cfs). Vegetation would be cleared as necessary, and earth would be excavated to meet design elevations for periodic inundation.

Newly inundated surfaces would provide important rearing and slow-water habitat for juvenile salmonids and other native anadromous fish and wildlife. They would also increase the likelihood of channel migration resulting in enhanced sinuosity, thereby providing the habitat variability that was historically present and is required to support rapid growth of native fishes.

These treatment areas would rely on a combination of natural recruitment of native riparian vegetation and riparian planting to establish a more diverse assemblage of native vegetation. Revegetation efforts would be consistent with requirements and commitments outlined in the TRRP's Draft Riparian Mitigation and Monitoring Plan. This plan requires supplemental efforts (e.g., in-planting, weed control, irrigation) as necessary to establish riparian vegetation to meet the standard of no net loss in riparian vegetation from pre-project levels.

2.1.3 In-Channel Construction (IC)

In-channel construction (IC) includes those activities that would occur in the river under base flow conditions (e.g., 450 cfs) during the in-channel construction window (July 15 to September 15) authorized by the California Department of Fish and Wildlife. The construction of various types and sizes of grade control structures, including construction or excavation of alluvial features (e.g., bars, riffles, and pools), would increase channel complexity through promotion of channel migration, increased sinuosity, reduced fine sediment storage, increased coarse sediment transport, and restoration of depositional features available for spawning and rearing habitat. Riffles are the shallower, faster moving sections of a river. Gravel bars and islands provide habitat complexity as well as other ecological functions.

During construction of in-channel activity areas, earthen berms and turbidity curtains would isolate constructed features to ensure that water quality standards are met. These berms would be removed at the end of construction if the water within these contained areas is of appropriate quality for discharge to the river or they may be left in place for removal by subsequent high flows. Alternatively, water in the constructed features may be pumped to uplands or slowly metered into the mainstem river post-construction. These techniques would ultimately reduce the amount of turbid water that would reach the Trinity River and would ensure that water quality permit requirements are met (e.g., no more than 20 nephelometric turbidity units (NTU) at 500 feet downstream of construction).

2.1.4 Meander Channel Complex (Bars, Riffles and Pools)

A meander channel complex that includes activity areas IC-5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16 is intended to create a meander sequence with a bar-pool-riffle morphology that functions under the current TRRP flow regime. Construction of this complex would increase channel length, complexity, sinuosity, and reduces slope in this section of the channel.

Collectively, the construction of these activity areas would provide a diversity of water depths and velocities across a wider range of flows than the existing mainstem channel configuration. Activity areas IC-5, 8, 12, 13 and 16 are riffles that would link the bars together and separate the pools. The general location of the pools is associated with IC 7, 10 and 15 as shown on Figure 2-1.

2.1.5 Upland (U)

Excavated materials (e.g., fill) that would not be used for instream construction would be placed in upland environments as fill on terraces formerly subjected to a variety of placer mining activities. However, as shown on Figure 2-1, an area along the A-12 access road has been identified as an interpretative site with signage for the tailings viewshed; this area would be excluded from the use of fill. Six activity areas (U-2, 4, 5, 6, 7, and 8) have been located to ensure that their placement would not increase the elevation of the 100-year flood, consistent with requirements of Trinity County's Floodplain Ordinance. Several of these areas (e.g., U-6) may be used for processing alluvial material (e.g., fish rock) necessary for the construction of in-channel and riverine activity areas.

These activity areas would be used to place excess material excavated in the construction of riverine and in-channel activity areas. Within these activity areas, the depth of fill would range from about foot near their edges to as much as 20 feet, depending on the size and location of the activity area. Fill materials would be spread in uniform layers that would blend in with the natural terrain and provide stable slopes for revegetation. Activity areas U-4 and 5 would be used for placement of material excavated from activity areas on river left. Activity areas U-2, 6, 7 and 8 would be used for placement of material excavated from activity areas on river right.

2.1.6 Detailed Master EIR Activities Described to Provide Additional Clarity Beyond That in Table 2-1 of Master EIR

Impacts associated with the use of organic (e.g., large wood, slash) and inorganic (e.g., boulders) materials were covered in the Master EIR under Sediment Management activities along with

other activities that would facilitate channel construction and maintenance (e.g., excavation and placement of alluvial material in in-channel and riverine areas). The TRRP would use appropriate materials to cause and enhance changes in the river channel to improve aquatic and wildlife habitat. The addition of large rock (>6 inches) as ballast for rock/wood structures (e.g., structured log jams (SLJs)) would ensure that these structures would remain in place and confine the river, thereby increasing the power of the river to scour and maintain adult salmonid holding habitat.

As appropriate, large wood and accompanying slash removed as part of vegetation clearing activities would be retained and used for construction of SLJ and wood placement (WP) during riverine and in-channel activities to provide additional hydraulic and habitat complexity and temporary erosion control measures. This activity could include large wood placement of individual pieces, small accumulations, and large habitat structures. Construction of SLJs and WP would develop topographical and hydraulic complexity and increase bank length to provide additional salmonid rearing habitat over a wide range of flows. The use of wood would also improve spawning, holding and rearing habitat for anadromous salmonids.

Woody material is a natural part of healthy rivers. It provides important habitat for aquatic species by providing cover from high flows and predators. The low-velocity areas collect suitable spawning materials, and woody organic materials are a food source for aquatic insects. It can help create and maintain beneficial habitat features such as pools, islands, and gravel bars.

Processed alluvial material would be created on-site, obtained and imported from off-site gravel processing areas, or purchased from local vendors for delivery. Unprocessed material or “pit-run” dirt and gravel from onsite excavation may not be placed directly in-river but may be used in construction of features and for habitat enhancement when using methods that would be continuously monitored for compliance with turbidity standards during work in or near the river.

All large wood features would be designed so that local velocities would be safe for navigation during relatively low river flows (less than approximately 2,000 cfs). Natural wood material would be placed in a manner to reduce the chances of hazardous contact with swimmers and boaters at flows less than about 2,000 cfs.

Because of uncertainties about the availability, types, shapes, and sizes of the wood and the planned construction methods, the exact amounts and locations of wood placement are not known at this time. Trees, tree tops, and branches for use in constructing large wood structures would be obtained on-site and/or opportunistically from other lawful sources (e.g., public or private lands where vegetation management activities have occurred) and delivered to the project area. Final WP locations and dimensions of SLJs would be determined in the field based on direction from Reclamation’s field engineer.

2.1.7 Contractor Use Areas (C)

There are 12 activity areas that would be available as staging and contractor use areas and, in some instances, processing of alluvial material. Five of these (C-6, 7, 9, 10, and 11) would be limited to vehicular access and parking through existing open areas. Minimal clearing or grading would occur at these areas. Five of these areas (C-2, 3, 5, 8, and 13) would be directly associated with the construction and revegetation of riverine and in-channel activity areas (including in-

channel wood features). These areas would be necessary for the temporary storage of equipment and materials (e.g., gravel, large wood, slash). Typically, these activity areas are subject to clearing and/or grading to varying degrees to ensure safe and efficient temporary work areas. Collectively, all C areas serve as transportation corridors for moving equipment and materials from one activity area to an adjacent one. Water would be applied to these areas for dust abatement as directed by the Contracting Officer.

2.1.8 Access Routes (A)

There are 10 routes identified as discrete activity areas; two of these have multiple segments (e.g., 7a). Only one of these is associated with an existing road open to the public; A-11 begins at the intersection of Sky Ranch Road and follows the alignment of a BLM route that accesses the Deep Gulch Channel Rehabilitation site to a point where it intersects with A-12. Route A-11 currently provides access to an active mining claim and following project construction, this route would be restricted to administrative access as approved by BLM. Any changes in the alignment of temporary routes required during construction would be approved by the appropriate landowners/managers prior to proceeding. Activity areas A-8 and A-9 provide access through private lands to that portion of the project area on river left. Following authorized use of these routes, rehabilitation measures (e.g., erosion control, revegetation) would occur at the conclusion of the project. In addition to these measures, Activity Areas A-10 and A-11 would be reduced to a nominal width of 10 feet; necessary for a high clearance passenger vehicle.

These routes would primarily be used by a wide array of heavy equipment and other vehicles, often requiring pull-outs (which would be placed at appropriate locations in the field) for two-way traffic. The site-specific design and use of these routes would consider factors like topography, soils, existing vegetation, and the need for future vehicle access, e.g. for revegetation maintenance. Best management practices would be used to reduce the impacts of road-related sediment on the riparian and aquatic environments.

2.1.9 Temporary Crossings (X)

Two temporary river crossings (X-1, X-2) would be required. These would be fords constructed using imported clean gravel and native alluvial materials excavated from the bed and bank of the Trinity River or adjacent sources (i.e., fish rock). All temporary crossings would be designed and constructed to meet the requirements for heavy equipment such as trucks and excavators. Material used in the construction of these crossings would be primarily extracted from authorized activity areas. The number of vehicle trips using the river crossings would be minimized to the extent possible and these fords would not be used to transport excavated materials across the river. All extracted material would be placed on the same side of the river from which it was taken.

Due to requirements to retain passage for fish, aquatic organisms, and boats, at least one-third of a river crossing would be submerged to a minimum depth of 1 foot under base flow conditions. The construction of these temporary crossings would likely require some vegetation removal on either side of the crossing within an approved activity area adjacent to the crossing (e.g., IC-8).

2.1.10 Revegetation

Impacts to vegetation are anticipated in most activity areas. The site-specific revegetation design is described in Appendix B; revegetation of riparian and upland areas would rely on a combination of planting and natural recruitment of native species consistent with TRRP's Draft Riparian Mitigation and Monitoring Plan and the needs of the BLM. Native willows from the impact areas would be replanted as clumps during construction to speed recovery of vegetation. Replanting of affected native vegetation (e.g., willows and cottonwoods) would be completed after construction in accordance with a site-specific plan. This activity may include watering during the first 3 years post-planting.

In general, the TRRP objective is to ensure that riparian vegetation is minimally affected by TRRP activities and is replaced at a 1:1 ratio (no net loss of riparian habitat) within the Trinity River corridor. Revegetation would provide aquatic refugia at high flows, improve terrestrial habitat for birds and other wildlife, provide future wood recruitment, and provide future terrestrial nutrient input to the river. Additional planting, seeding, mulching, and irrigation in the upland areas would occur using native seed and rooted stock available to Reclamation. In order to restore native plant communities, Reclamation would opportunistically remove noxious and invasive plants such as tree-of-heaven (*Ailanthus altissima*) and scotch broom (*Cytisus scoparius*) from activity areas. About 16 acres would be planted with riparian plants, and about 1 acre planted with upland plants. In addition, 28 acres (much of it overlapping planted areas) would be seeded with native grasses and mulched.

2.1.11 Overview of Chapman Ranch Phase A Rehabilitation Activities

The proposed rehabilitation activities outlined in Table 2-1 are briefly described below. Appendix B provides an in-depth description of the design objectives and discusses each activity area in detail.

Table 2-1. Overview of Activity Areas at Chapman Ranch Rehabilitation Site

Activity Areaa	Map Symbol	Design Feature to be constructed	Activity/ Treatment Area	Excavation Excavation (CY)c	Fill (CY)c
IC-5		In-channel - Riffle	0.40	0	2,500
IC-6		In-channel - Alcove	0.42	5,900	0
IC-7		In-channel - Pool	0.84	8,900	3,500
IC-8		In-channel - Riffle	0.74	3,100	3,000
IC-9		In-channel - Bar	0.12	0	1,200
IC-10		In-channel - Pool	1.26	17,400	100
IC-11		In-channel - Bar	0.20	0	700
IC-12		In-channel - Riffle	0.60	3,100	1,900
IC-13		In-channel - Bar	0.25	300	2,200
IC-14		In-channel - Bar	0.05	0	300
IC-15		In-channel - Pool	0.82	13,900	0
IC-16a		In-channel – Riffle	0.31	1,400	0
IC-16b		In-channel – Bar	0.34	0	2,900

Activity Areaa	Map Symbol	Design Feature to be constructed	Activity/ Treatment Area	Excavation Excavation (CY)c	Fill (CY)c
		IC Subtotal =	**6.36**	**54,000**	**18,300**
R-2		Riverine - Collection Channel	0.40	3,600	0
R-3		Riverine - Lowered floodplain	4.27	28,300	800
R-5		Riverine - Lowered floodplain	2.79	7,800	6,300
R-7		Riverine - Lowered floodplain	0.61	0	6,200
R-8		Riverine - Lowered floodplain	1.72	10,900	0
R-9		Riverine - Lowered floodplain	0.73	2,000	4,900
		R Subtotal =	**10.51**	**52,600**	**18,200**
SLJ-3		Structured log jam	0.10	0	0
SLJ-4		Structured log jam	0.07	0	0
SLJ-5		Structured log jam	0.11	0	0
SLJ-6		Structured log jam	0.21	0	0
SLJ-7		Structured log jam	0.12	0	0
		SLJ Subtotal =	**0.61**	**0**	**0**
WP-4		Wood Placement	0.14	45	45
WP-5		Wood Placement	0.09	30	30
WP-6		Wood Placement	0.43	140	140
WP-7		Wood Placement	0.04	15	15
WP-8		Wood Placement	0.71	230	230
WP-10		Wood Placement	0.52	170	170
WP-11		Wood Placement	0.14	45	45
WP-12		Wood Placement	0.08	25	25
		WP Subtotal =	**2.15**	**700**	**700**
U-2		Upland	2.50	0	37,000
U-4		Upland	4.00	0	20,400
U-6		Upland - Lower and Process	0.60	13,800	0
U-7		Upland	1.18	0	7,400
U-8		Upland	2.37	0	20,000
		U Subtotal =	**10.64**	**13,800**	**84,800**
A-5		Access Route	0.08	–	–
A-6		Access Route	0.31	–	–
A-7		Access Route	0.65	–	–
A-7a		Access Route	0.04	–	–
A-7b		Access Route	0.05	–	–
A-7c		Access Route	0.07	–	–
A-8		Access Route	0.78	–	–
A-9		Access Route	0.79	–	–
A-10		Access Route	0.10	–	–
A-10a		Access Route	0.01	–	–

Activity Areaa	Map Symbol	Design Feature to be constructed	Activity/ Treatment Area	Excavation Excavation (CY)c	Fill (CY)c
A-11		Access Route	0.22	–	–
A-12		Access Route	0.13	–	–
A-13		Access Route	0.30	–	–
		A Subtotal =	**3.53**	**–**	**–**
C-2		Contractor Use Area	1.08	–	–
C-3		Contractor Use Area	1.50	–	–
C-3a		Contractor Use Area	0.46	–	–
C-5		Contractor Use Area	2.04	–	–
C-6		Contractor use - Limited	0.30	–	–
C-7		Contractor use - Limited	0.42	–	–
C-8		Contractor Use Area	6.10	–	–
C-8a		Contractor Use Area	1.30	–	–
C-9		Contractor use - Limited	0.64	–	–
C-10		Contractor use - Limited	0.80	–	–
C-11		Contractor use - Limited	2.49	–	–
C-13		Contractor Use Area	0.77	–	–
		C Subtotal =	**17.89**	**–**	**–**
X-1		Temporary River Crossing	0.13	0	150
X-2		Temporary River Crossing	0.13	0	150
		X Subtotal =	**0.26**	**0[d]**	**300[d]**

a IC = in-channel work area; R = riverine work area; U = upland fill area (fill); C = construction staging/contractor use areas; A = access roads; X = temporary river crossing; SLJ = structured log jam; WP = wood placement.
b Area calculated from geographical information system (GIS) data; ac = acre.
c Provided by TRRP; CY = cubic yard.
d These crossings would also be used to transport woody materials (logs and/or slash) to activity areas on river left and right.

2.1.12 Construction Methods and Schedule

In general, in-river construction would take place between July 15 and Sept 15 according to regulatory permits. Outside of the channel work may occur at other times of the year. Revegetation activities would primarily occur in the wet months. Any changes to design features required during construction would be approved by the appropriate landowners/managers prior to proceeding. Excavation and processing of gravel in upland areas and processing of gravel in contractor use areas could occur in discrete work periods throughout the year; processed material might be stock piled for use, as needed, for later construction on-site. These upland activities could be temporally separated from the remainder of the project's construction activities. Floodplain excavation would primarily occur in summer or fall. The project is proposed for initiation in summer 2019. As the site evolves over time, site revisits for maintenance or other enhancements would occur as needed to meet current or future TRRP objectives. A detailed discussion of the construction methods and anticipated schedule of activities is provided in Appendix B.

2.1.13 Environmental Commitments

Within the general confines of the defined activity areas and rehabilitation site boundaries, the designers used models to inform reviewers about the potential effects that changes in constructed topography (how the features are built – using various grades, side slope angles, and elevation on the ground) function under various flow conditions. The designers have evaluated how changes in design affect modeled water depths, velocities, and sheer stresses under post-construction conditions and how these results might affect long-term maintenance/evolution of features. Results of modeling were used to select optimal configurations, presented as the proposed action here, for maximum aquatic habitat quality for juvenile salmonids (e.g., Weighted Usable Area - WUA as presented in in Chap 3)) and to predict changes to the river and floodplain (e.g., erode, aggrade, or vegetate) under envisioned ROD flow conditions. The environmental commitments listed in Table 2-2 are fully described in Appendix F.

Table 2-2. Environmental Commitments

Resource	Commitments
Mineral Resources	EC-MR-1
Fluvial Geomorphology and Soils	EC-GS-1, EC-GS-2
Water Quality	EC-WQ-1, EC-WQ-2, EC-WQ-3, EC-WQ-4, EC- WQ-5
Fishery Resources	EC-FR-1, EC-FR-2, EC-FR-3, EC-FR-4, EC-FR-5
Vegetation, Wildlife, and Wetlands	EC-VW-1, EC-VW-2, EC-VW-3, EC-VW-4, EC-VW-5, EC-VW-6, EC-VW-7, EC-VW-8, EC-VW-9, EC-VW-10
Recreation	EC-RE-1, EC-RE-2
Cultural Resources	EC-CU-1, EC-CU-2
Air Quality	EC-AQ-1, EC-AQ-2, EC-AQ-3, EC-AQ-4
Noise	EC-NO-1, EC-NO-2
Public Services	EC-PS-1, EC-PS-2

2.2 NO ACTION ALTERNATIVE

The no action alternative represents ongoing activities and operations of the TRRP and other entities involved in restoring the Trinity River with the exception of the proposed action. Under the no action alternative, no rehabilitation activities would be implemented at the Chapman Ranch rehabilitation sites. Other activities already being implemented in compliance with the 2000 ROD would continue to be implemented. These include:

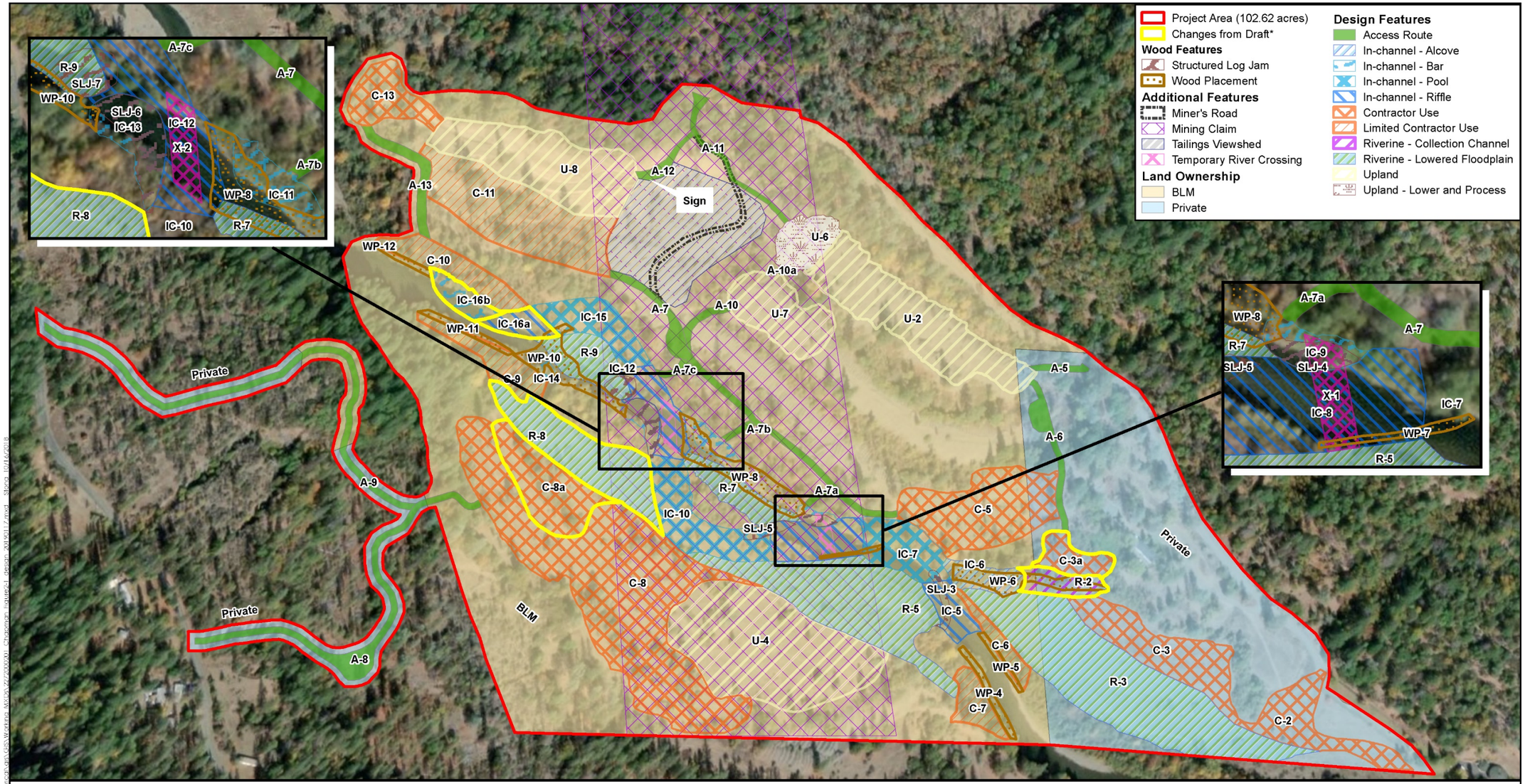
- Implementation of the annual flow release schedule based on recommendations of the Trinity Management Council (TMC) to Reclamation; and
- Implementation of annual high flow coarse sediment (gravel) augmentation, at designated long-term sites along the Trinity River mainstem, based on recommendations of the TMC to Reclamation; and

- Implementation of watershed restoration and rehabilitation projects at other locations in the Trinity River Basin, including those funded by the TRRP, members of the TMC, BLM, and the Trinity County Resource Conservation District.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER EVALUATION

Within the general confines of the defined activity areas and rehabilitation site boundaries, the designers used models to inform themselves about the potential effects that changes in constructed topography (how the features are built – using various grades, side slope angles, and elevation on the ground) might have on how constructed features function under various flow conditions. The designers have been evaluating how these changes in design affect modeled water depths, velocities, and sheer stresses under post-construction conditions and how these results might affect long-term maintenance/evolution of features. Results of modeling were used to select optimal configurations, presented as the proposed action here, for maximum aquatic habitat quality for juvenile salmonids (e.g., depth, velocity, and substrate) and to predict changes to the river and floodplain (e.g., erode, aggrade, or vegetate) under envisioned ROD flow conditions.

In addition, two alternatives were formally considered and evaluated in the Chapman Ranch Value Engineering (VE) study (Reclamation 2015). The two designs were generally similar; however, Alternative 1 included a large side channel complex on the left bank and Alternative 2 did not. The VE study concluded that Alternative 1 would provide up to an estimated 500,000 ft^2 of additional habitat over the existing condition at a discharge of 5,000 cfs. The study concluded the cost of the additional habitat in Alternative 1 was very high, most of which would come from the left bank side channel. The final design generally combines Alternative 1 and Alternative 2, transitioning the left bank side channel into a high flow side channel complex, resulting in less excavation, less cost, and less uncertainty.



Prepared for:
Bureau of Reclamation
Trinity River Restoration Program

*Changes from Draft Figure

Old		New
U5	=	changed to C-8a, slightly smaller
R-4	=	changed to C-3a, slightly smaller
R-2	=	remains R-2, slightly larger
R-8	=	remains R-8, slightly larger
IC-16	=	divided into IC-16a(riffle) and IC-16b(bar)

PLSS Mount Diablo Base and Meridian
California State Plane Zone 1, NAD83 Feet

0 75 150 300 Feet

N

Public Land Survey:
33N 10W, Sec. 19, 20

USGS 7.5 Quad:
Junction City

TRINITY RIVER RESTORATION PROGRAM
Chapman Ranch Rehabilitation Site

Figure 2-1
Proposed Rehabilitation Activities
January 2019

Figure 2-1. Proposed Rehabilitation Activities

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3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION TO THE ANALYSIS

This chapter describes the affected environment at the Chapman Ranch Phase A rehabilitation site and analyzes the potential environmental impacts associated with implementing the proposed action described in Chapter 2 and Appendix B. The analysis includes a discussion of the proposed action and the no-action alternative. The analysis for each resource area includes discussions of the existing environmental setting, applicable significance criteria, potential environmental impacts, and project design features (e.g., environmental commitments).

A number of design features have been developed and incorporated into the proposed action to reduce or eliminate adverse effects. Table 2-2 lists environmental commitments that have been incorporated into the proposed action to lessen impacts to various resources. Appendix F provides a comprehensive discussion of these commitments; in most cases, these commitments are equivalent to the CEQA mitigation measures described in Appendix G. This is consistent with guidance issued by the CEQ for federal agencies for implementing, monitoring, and evaluating environmental commitments identified in EAs completed for compliance with NEPA. Throughout this chapter, these environmental commitments are identified with a unique label (e.g., (EC-CU-1)).

There is a clear distinction between NEPA and CEQA with respect to mitigation measures. No CEQA mitigation measures were identified for the resource topics addressed in this chapter; the environmental commitments listed in Table 2-2 and fully described in Appendix F have been incorporated into the proposed action to ensure that there are no significant impacts as defined under CEQA. An alphanumeric coding system that corresponds to the CEQA mitigation measures found in Appendix E of the Master EIR/Programmatic EA is used to identify each CEQA mitigation measure incorporated into the proposed action as an environmental commitment pursuant to NEPA. Where a NEPA environmental commitment corresponds to a referenced CEQA mitigation measure as described in the Mitigation Monitoring and Reporting Program (MMRP) (Appendix E of the Master EIR), it is cross referenced, for example (EC-CU-1 [4.10-2a]).

Several resource topics or issues were considered but eliminated from further evaluation in this EA/IS due to the resource not being present or the issue not being a concern at this rehabilitation site. Table 3-1 identifies the resource topics considered in this document as well as those eliminated from further consideration, and Appendix A contains an Environmental Screening Checklist based on the Master EIR/Programmatic EA, which was used to screen and identify resource topics and issues to carry forward for further evaluation.

Table 3-1. Summary of Resource Topics Considered or Eliminated from Further Consideration in This EA/IS

Resource Topic	Analyzed in the EA/IS?	Comments
Visual Resources/ Aesthetics	Yes	Temporary and long-term changes to visual resources or aesthetics are addressed. Scenic resources associated with scenic highways are not present. Light and glare were addressed in the Master EIR, and no issues were identified.
Agricultural Resources	No	Agricultural lands and uses are not present.
Air Quality	Yes	Temporary construction-related emissions and dust are addressed. No long-term air quality impacts, including greenhouse gas contributions, are expected.
Cultural Resources	Yes	Impacts on tribal cultural resources, archeological resources, and historic properties/historical resources are addressed. The alluvial nature of the geology within the project area is not conducive to the occurrence of paleontological resources.
Environmental Justice	No	The proposed action would not disproportionately affect low-income or minority populations because no disadvantaged populations exist in the proposed project area.
Fishery Resources	Yes	Impacts on aquatic habitat and special-status fish are addressed.
Forestry Resources	Yes	Forestry resources are addressed. This topic is covered in the Vegetation, Wildlife, and Wetlands section.
Geology and Geologic Hazards	No	Unique geological resources are not present. Geologic hazards were addressed in the Master EIR, and no issues were identified.
Geomorphology and Soils	Yes	Soil disturbance, erosion potential, changes to the geomorphology of the river, and disposal of excavated materials are addressed in this section.
Greenhouse Gases	Yes	Greenhouse gas emissions are addressed in the Air Quality section.
Hazardous Materials	No	Hazardous materials were addressed in the Master EIR, and no issues associated with hazardous material sites were identified. Use of hazardous materials during construction activities is addressed in the Soils, Fishery Resources, Wildlife, and Water Quality sections.
Hydrology and Flooding	Yes	Changes to the hydrology of the river and floodplain effects are addressed.
Indian Trust Assets	Yes	Impacts on Indian Trust Assets associated with uses of the river and its resources are addressed. This topic is covered in the Cultural Resources section.
Indian Sacred Sites	No	No Indian sacred sites have been identified within or in close proximity to the project area.
Land Use	Yes	Consistency with federal agency resource management plans is addressed. Consistency with Trinity County General Plan is also addressed.
Mineral Resources	Yes	Impacts on recreational mining are addressed in the Recreation section. Impacts from use of mineral resources and impacts to the active placer gold mining claim are addressed in the Geomorphology and Soils section.
Noise	Yes	Increased noise during construction activities is addressed in the Noise section.

Resource Topic	Analyzed in the EA/IS?	Comments
Population and Housing	No	Population and housing are analyzed in the Master EIR. No populations or housing are located at the project site, so they therefore would not be affected.
Public Health and Safety	No	Hazards to the public were addressed in the Master EIR, and no issues were identified. Indirect public health or safety concerns are addressed in the Air Quality, Noise, Recreation, and Transportation and Traffic sections.
Public Services	No	Public services were addressed in the Master EIR, and no issues associated with the increased demand for, or disruption of, public services were identified. Access-related issues are addressed in the Transportation and Traffic sections.
Recreation	Yes	Potential disruptions to recreational uses are addressed.
Socioeconomics	No	Socioeconomics were addressed in the Master EIR as part of the population and housing section, and no issues were identified.
Transportation and Traffic	Yes	Increased traffic and access-related issues are addressed.
Tribal Cultural Resources	Yes	Tribal cultural resources are addressed in the Cultural Resources section.
Utilities and Energy	No	Utilities and energy were addressed in the Master EIR, and no issues were identified.
Vegetation, Wildlife, and Wetlands	Yes	Vegetation removal, disturbance to wildlife, and modifications of wetlands are addressed.
Water Quality	Yes	Temporary and long-term water quality impacts are addressed.
Wild and Scenic Rivers	Yes	The recreation and aesthetic values of the Trinity River are addressed.

3.2 LAND USE

3.2.1 Affected Environment

The project area encompasses 103 acres of land; 81 acres (79 percent) is managed by BLM and 22 acres (21 percent) is privately owned. Most of the private property within the project area occurs on river right. Five private parcels are intersected by the project boundary; two of these parcels are classified as residential use but only one residence is located within the project area boundary. The BLM lands are used primarily for recreational activities associated with the Trinity River. Historical use of the land included mining, and dredge tailings are present along the river corridor. The proposed temporary construction access routes on river right (A-5 and A-6) and river left (A-8 and A-9 [Figure 2-1]) would lead from the private parcels to the activity areas.

Lands managed by the BLM are administered in accordance with BLM's 1993 Redding RMP, as amended. This RMP discusses the general condition of natural resources in the plan area and prescribes appropriate land use management for BLM lands. For the Trinity Management Area, the RMP identifies the need to "Protect and enhance the anadromous fisheries of the Trinity River" as one of its resource condition objectives. The RMP was amended by the Northwest

Forest Plan in 1995 to include new land allocations (e.g., Riparian Reserves) and established requirements for compliance with the Aquatic Conservation Strategy (ACS) and other Standards and Guidelines to protect habitat for the northern spotted owl (*Strix occidentalis caurina*). A key component of this amendment to the RMP was the establishment of Riparian Reserves along rivers and streams to protect aquatic resources. Virtually all of the project area on BLM lands are considered Riparian Reserves and are subject to the ACS; private lands are not included in this land allocation. Also, the Trinity River from Lewiston Dam to Weitchpec is federally designated as a Wild and Scenic River for its recreational values. BLM manages sections of the Trinity Wild and Scenic River from Lewiston Dam to the North Fork Trinity River.

3.2.2 Environmental Consequences

Proposed Action

The proposed rehabilitation activities would not change the uses of the project area or require changes in land use allocations or zoning designations. Temporary disruptions to nearby property owners and recreationists using the river and areas adjacent to the project area could occur during the rehabilitation activities (i.e., 1-2 months gravel processing, 3 to 6 months construction, and up to 5 years post-project for revegetation efforts), but no long-term impacts are anticipated, and use of the land within the project area would be the same as under current conditions. The restored floodplain and habitats would enhance the area for recreationists and would maintain open space and scenic views near the private residences.

Based on the nature of the rehabilitation activities, the proposed action would be consistent with current uses and zoning of the project area, as defined by the BLM and Trinity County. The BLM's 1993 Redding RMP describes various resource condition objectives applicable to federal lands in the project area, and the rehabilitation activities would help the BLM achieve the objectives for the Trinity River. Additional details on the consistency of the TRRP activities with the RMP are contained in Appendices C (ACS), D (Survey and Manage Species), and H (Wild and Scenic Rivers).

The proposed action was developed to be consistent with the BLM RMP and the Trinity County General Plan. Therefore, CEQA-specific impacts would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, land use within the project area is expected to remain similar to existing uses. Therefore, there would be no impacts to land use as defined in the California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.3 RECREATION

3.3.1 Affected Environment

The project area encompasses both federally and privately owned land. The primary use of BLM lands within the project area is associated with various types of recreational activities associated with the Trinity River.

The Trinity River provides year-round recreational opportunities, including boating, kayaking, canoeing, rafting, inner tubing, fishing, swimming, camping, gold panning, wildlife viewing, 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 but are more prevalent between September-April.

BLM issues special recreation permits for about 100 commercial fishing guides along this reach of the river. Commercial river operators (rentals and shuttles) are also permitted by the BLM for operations on the Trinity River. Visitor use in the project is generally light throughout the year, though there is consistent drift boat or raft transit through the area, particularly during the fall-winter steelhead season.

There are no campgrounds or other formal recreational sites in the project area, and public access to BLM lands within the project area are limited to one location (A-12) on river right. There is no public access to the river on river left due to the pattern of private ownership within and adjacent to the project area, as well as the lack of a bridge or ford. The project would not result in long-term changes to vehicular access; however, the BLM maintains the discretion to convert project access routes post-construction to pedestrian access trails.

3.3.2 Environmental Consequences

Proposed Action

The proposed action would require construction within the active river channel, the floodplain, and adjacent upland areas. Construction activities could result in temporary disruptions to public access from Sky Ranch Road on river right and access to private lands on river left. However, river access and recreational opportunities would continue to be available at other locations along the river (e.g., Evans Bar). Because disruptions to recreational activities in the project area would be temporary, this impact would be less than significant.

Flows that typically contribute to good fishing tend to be clear; increases in turbidity as a result of this alternative may affect the recreational experience of anglers and the aesthetic values held by other recreationists. Increased turbidity and suspended solids levels would adversely affect water quality (refer to discussion in section 4.8, Recreation, of the Trinity River Master EIR) and could adversely affect aesthetic resources. Four specific environmental commitments developed to reduce water quality impacts are listed in Table 2-2 and fully described in Appendix F; these environmental commitments have been integrated into the proposed action to reduce the impacts of increased turbidity levels on recreational users. These commitments are EC-WQ-1 [4.5-1a-1e], EC-WQ-2 [4.5-2a – 2c], EC-WQ-3 [4.5-3a-3c], and EC-WQ-4 [4.5-1e].

Implementation of this alternative could increase turbidity and total suspended solids in the Trinity River for some distance downstream during construction activities. The level of the increase would be largely dependent on the flow regime at the time of construction. 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 such as recreation. 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 project 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.

Temporary construction activities associated with this alternative could pose a hazard to recreational users of the river. Potential hazards to recreationists include the presence of temporary river crossings, operation of construction equipment and vehicles in and around the rehabilitation site, changes in the river's subsurface movement as a result of the in-channel addition or removal of gravel, the addition of wood 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. Alternative public access points at Lorenz Gulch, Evans Bar, and Sky Ranch would be available to recreationists and the general public throughout the construction period.

An environmental commitment listed in Table 2-2 (EC-RE-1 [4.8-1a]) and described in Appendix F requires Reclamation to prepare and post precautionary signage and public notification warning of in-river construction in order to reduce the hazards to recreational users that would be associated with in-river construction activities. This approach has worked well for previous TRRP projects and has been particularly effective in reducing impacts on in-water recreational activities such as boating and fishing over the past 10 years.

After construction is completed, the 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.

With the inclusion of CEQA mitigation measures EC-WQ-1 [4.5-1a-1e], EC-WQ-2 [4.5-2a – 2c], EC-WQ-3 [4.5-3a-3c], EC-WQ-4 [4.5-1e] and EC-RE-1 [4.8-1a] described in this section, CEQA impacts would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, recreational resources and uses within the project area are expected to remain similar to existing conditions. Therefore, there would be no impacts to recreational resources or disruption of uses as defined in the California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

3.4 VISUAL RESOURCES/AESTHETICS

3.4.1 Affected Environment

The Trinity River is considered an important aesthetic and visual resource for residents of Trinity County and visitors to the area. The river is an integral component of the communities and residential areas throughout the County. Residents and visitors actively use the river for recreation, both on and adjacent to the river. The river also offers a variety of landscapes, many of which are incorporated into the rural residential lifestyle of Trinity County.

This section describes the scenic values and visual resources that are known to occur within the project area and evaluates the effects that the proposed action could have on these values and resources. The BLM is responsible for managing its lands for multiple uses while ensuring that the scenic values and open space characteristics of these lands are considered before authorizing actions on these lands. The BLM accomplishes these responsibilities through its Visual Resource Management (VRM) system. The VRM system classifies land based on visual appeal, public concern about 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 its 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. This alternative would affect BLM lands in the project area with a VRM Class Objective of II (BLM 1993).

Due to the lack of sensitive receptors, remote setting, and limited public access, key observation points were not developed for this project. Other than seasonal access by residents, the only public viewpoints of the project area are associated with activity area A-12 or floating through the project area.

On river right, Sky Ranch Road parallels the project boundary. On river left, Dutch Creek Road parallels the project boundary but is about a quarter mile south and about 300 hundred feet in elevation above the activity areas except for A-8 and A-9. One resident lives along Sky Ranch Road within the project area. Several patches of mature riparian vegetation west of U-2 and C-3 would be retained to provide screening from the rehabilitation activities, and the boundary of C-3a was shifted away from the residence. Due to the nature of the tailing deposits and extensive riparian vegetation, views from the river are limited other than directly upstream or downstream. From the river itself, most of the adjacent activity areas—i.e., the IC, R, SLJ, and WP activity areas—would be at least partially visible to boaters. The historic character of the tailings is considered a visual asset by some.

Because of the rural nature of the river corridor, the primary sources of artificial light within or adjacent to the project area are limited to vehicle headlights on Sky Ranch Road and Dutch Creek Road. Glare may occur during the daylight hours as the sun is reflected off vehicles and equipment that are occasionally operating or parked within activity areas on a temporary basis or the water or light-colored alluvium associated with floodplain and terrace features.

3.4.2 Environmental Consequences

Proposed Action

The potential impacts of the proposed action would include changes brought about by the removal of vegetation, construction of inundated surfaces and in-channel features, construction or improvement of access routes, creation and use of staging and gravel processing areas, and grading of upland areas for construction spoils. These various activities, once completed, 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. Although the adverse impacts are expected to be temporary and the long-term outcome should improve the visual diversity of the corridor, the short-term (i.e., 1-5 years) impacts would be observable for several years. The tailings viewshed south of activity area A-12

will be retained and signed as an interpretative site to preserve Trinity River mining district historical elements.

Activities associated with this alternative are intended to be not only functional (e.g., enhance fisheries and restore river meanders), but also to complement the aesthetic values and visual resources associated with the site. Overall, this alternative incorporates the project area's diversity of landscapes and vegetation types to define the location, character, and magnitude of the rehabilitation activities at the site. For example, materials excavated from R areas would be removed to U areas or used as a source of coarse sediment to enhance the alluvial function of the river. Material transported to U areas would be placed in a manner that blends the materials into the contours of the topography. Retention of existing vegetation at several activity areas (e.g., C-6, C-7, C-9, C-10, and C-11) to screen upland and staging activities would lessen the degree of visual impact. To the extent possible, SLJs would be installed so that they emulate naturally occurring log jams, with roughened edges and angled placement. The SLJs and log placement would blend in with the scenic character of the river.

The activities described in Chapter 2 provide a framework for reestablishing the physical process necessary to enhance the alluvial attributes and complexity of the river channel and floodplain over time, particularly those attributes that are flow dependent. Over time, this alternative 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.

Implementation of the proposed action would increase the potential for increases in turbidity levels during and, to a lesser degree, after construction. Flows that typically contribute to good fishing tend to be clear (though a small amount of turbidity may reduce fish wariness); increases in turbidity may therefore affect the recreational experience of anglers and the aesthetic values held by other recreationists. Increased turbidity and suspended solids levels would adversely affect water quality (refer to discussion in section 4.8, Recreation, of the Trinity River Master EIR) and could adversely affect aesthetic resources. As described in Table 2-2, four specific environmental commitments developed to reduce water quality impacts have been incorporated into this alternative to reduce the impacts of increased turbidity levels that could be visible to recreational users.

Under this alternative, sensitive receptors that could be exposed to changes in the visual character of the Trinity River and the adjacent corridor would be limited in terms of the number of viewers and the limited timeframe of activities. Because of the nature of the project, the rehabilitation activities would not result in degradation or obstruction of a scenic view. While some increase in the level of artificial light or glare associated with construction activities would occur, this impact would be limited in both time and intensity. Therefore, there would be no impacts to aesthetic resources as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

No Action Alternative

Under the no action alternative, there would be no degradation or obstruction of a scenic view as a result of construction because the project would not be implemented. The level of artificial light or glare would be similar to the existing condition. Therefore, there would be no impacts to

aesthetic resources as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.5 CULTURAL RESOURCES

Cultural resources are a broad aspect of the environment and include prehistoric, historical, unique archeological, and tribal cultural sites, districts, objects, structures, buildings and landscapes. The National Historic Preservation Act (NHPA) of 1966 is the primary federal legislation that outlines the federal government's responsibility related to cultural resources. Title 54 U.S.C § 306108, commonly known as section 106 of the NHPA, requires the federal government to take into consideration the effects of the undertaking on any historic property, i.e., cultural resources listed on or eligible for inclusion in the National Register of Historic Places (NRHP) and to comply with the FLPMA.

The project area's cultural resources identification and significance determinations were performed by Reclamation consistent with the terms and stipulations of a Programmatic Agreement (PA) (USFWS et al. 2000 b) pursuant to the NHPA's section 106 process and its implementing regulations at 36 CFR Part 800.

Assembly Bill 52 (AB52) was approved by the Governor of California in September of 2014. AB 52 requirements apply to projects with a notice of preparation or a notice of negative declaration or mitigated negative declaration filed on or after July 1, 2015. Therefore, the requirements of AB 52 did not apply to the preparation and adoption of the 2009 Master EIR prepared for the TRRP. However, the Programmatic Agreement ensures that tribal cultural resources were considered and incorporated into the Master EIR, which is incorporated by reference into this EA/IS. In fact, the MMRP for the Master EIR (Appendix E) adopted by the Regional Water Board includes measures consistent with the protection of tribal cultural resources, including tribal consultation, resource evaluations, and avoidance, minimization and other specific mitigation as necessary at the site-scale.

Background research used to develop this section included a review of the files at the Northeast Center of the California Historical Resources Information System and the files of BLM, Redding Field Office applicable to the area of potential effect (APE) delineated by Reclamation and BLM (see Figure 2-1). Previously produced archaeological and historical literature pertinent to the general location was given special attention. The current list of contacts from the Native American Heritage Commission (NAHC) was consulted and initial contacts were made. Additionally, several individuals representing local Wintu tribes collaborated in the investigation. The Trinity County Historical Society was consulted as well as archaeologists with the Shasta-Trinity National Forest and the BLM, Redding Field Office.

The survey report files at the Northeast Information Center indicated that several previous cultural resources surveys covered the current project area (environmental study limits). The current survey of the project area was performed by William Rich and Associates in 2015. These surveys resulted in the identification of two historical placer mines and two loci of historical dredge tailings in the proposed project area. These are the Chapman Mine and Ranch P-53-1224 and the Gribble Placer Mine P-53-2488. For these, the legal descriptions of the placer mine locations were used to define the resource boundary. Two additional locations of cobble tailings from later dredge mining are P-53-002354 on the right bank and P-53-002355, on the left bank.

No other cultural resources are known to occur in the area of potential effects for the proposed project.

The Chapman Mine and Ranch (P-53-001224) was recommended by Rich (2015), and Kerrigan (1982) as eligible for listing to the National Register of Historic Places (NRHP) and would therefore qualify as a Historic Property. Similarly, left bank dredge tailings, P-53-002355, have been recommended as not individually eligible, but are thought to be a potential contributor to a larger district eligible for NRHP listing. Both locations would be avoided for the purposes of this project.

The Gribble Mine, P-53-002488, was recommended by Rich (2015) as ineligible for listing to the NRHP as an individual or contributing resource, and therefore requires no further consideration.

3.5.1 Affected Environment

Archaeological research indicates people have been living in this general part of Trinity County for at least 7,000 years (Fitzgerald and Hildebrandt 2002). The prehistory of the Trinity River area has received considerable study in conjunction with various BLM, Reclamation and U.S. Forest Service projects conducted throughout the watershed, largely as the result of archaeological field work accomplished in preparation for reservoir construction in the river valleys, TRRP restoration projects and on BLM and U.S. Forest Service projects. Additional information on the cultural resources, Native American communities and mining history of the Trinity River watershed is provided in section 4.10.1 of the 2009 Master EIR.

The cultural resources investigation identified four historical mining sites within the project boundary. These include two placer mines and two dredge tailings features. The Chapman Mine and Ranch (P-53-001224) was recommended as eligible for listing on the NRHP but has no associated features within the proposed project area and no measures to protect resource integrity are recommended for the project as designed. The two dredge tailings features (P-53-002354 and P-53-002355) were recommended as not eligible but were found to potentially contribute to a larger district and will therefore be avoided. Reclamation and BLM subsequently refined the proposed action to include interpretative signage and to preserve the historic mining viewshed (Figure 2-1) in order to educate the public concerning the history of Trinity River placer mining.

3.5.2 Environmental Consequences

Proposed Action

The boundaries of the activity areas within the project area were adjusted to avoid the two historical Dredge Tailings features. Implementation of the proposed action will effectively avoid, minimize, or mitigate impacts to these resources, as required by the PA. By incorporating the environmental commitments outlined in Table 2-2 (see Appendix F) and following the stipulations of the PA prior to implementation, there would be no impacts to known cultural resources, and all actions under CEQA and NHPA will be fulfilled. Reclamation commits to fulfilling the stipulations of the PA prior to implementation of the proposed action. This commitment is shown in Table 2-2 (EC-CU-1 [4.10-2a])

TRRP rehabilitation activities have limited potential to affect unknown archaeological or cultural resources that may be present within the boundary of the proposed action. 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 statues. 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 (43 CFR 10). This commitment is outlined in Table 2-2 (EC-CU-2 [4.10-2a]).

Under this alternative, known cultural resources were considered in the design process and avoided. With the inclusion of CEQA mitigation measures EC-CU-1[4.10-2a] and EC-CU-2 [4.10-2a] described in this section, CEQA impacts to undiscovered cultural resources considered under this resource topic would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, the condition of cultural resources would remain similar to existing conditions. Therefore, there would be no impacts to cultural resources as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.6 TRANSPORTATION AND CIRCULATION

3.6.1 Affected Environment

The transportation network in the vicinity of the project area is typical of a rural environment, with low traffic and little development. State Route (SR) 299 is the main highway providing access to the site. The highway runs through Junction City approximately 3 miles north of the project area. Traffic counts along SR 299 between Weaverville, northeast of the project area, and Big Flat Camp, approximately 8 miles west of Junction City, were between 2,000 and 3,450 average annual daily trips in 2016 (Caltrans <http://www.dot.ca.gov/trafficops/census/volumes2016/Route280-405.html>).

Sky Ranch Road, part of the Trinity County road system, provides primary access to the project area from SR 299 on river right. Surveys conducted by Trinity County in 2012 and 2013 document that the section of the road in the general vicinity of the project area has a native soil subgrade with a chipseal overlay; the most recent surfacing was done approximately 15 years ago. Survey results provided by the County indicate that a segment of road north of the project area and south of SR 299 ranged in condition between good and poor at the time the survey was conducted. Since then, the road surface has become worse, according to local residents.

Dutch Creek Road intersects with SR 299 at Junction City and provides access to the project area on river left. Dutch Creek Road is a narrow two-lane paved road that is also maintained by

Trinity County. A traffic count placed on Dutch Creek Road approximately 3 miles north of the project area indicates a daily average of approximately 200 trips.

Based on the number of residences accessed via Sky Ranch Road, it is estimated that traffic counts along this road equal fewer than 200 trips on a daily basis. Primary travelers along local roads about a mile north of the project area are residents and property owners, with occasional recreationists, agency staff, or other users visiting the area. Access to BLM lands within the project area is via Sky Ranch Road to an unimproved route previously developed for the Deep Gulch-Sheridan Creek project (A-12).

3.6.2 Environmental Consequences

Proposed Action

Under the proposed action, construction equipment and vehicles would temporarily increase traffic on two roads, Sky Ranch Road and Dutch Creek Road. Construction equipment (e.g., large trucks, excavators, and backhoes) would be mobilized to the project area prior to rehabilitation activities and would be removed upon completion of these activities to minimize the number of daily trips, in accordance with the environmental commitments outlined in Table 2-2 (i.e., EC-TC-2 [4.16-2a, 4.16-5a]) and fully described in Appendix F. During construction, 20 to 30 workers and their vehicles would access the project area on a daily basis. SR 299 is a designated truck route that was built to withstand occasional use by heavy equipment and has a moderate volume of existing traffic. The temporary use of SR 299 for access to the project area during rehabilitation activities would not change its existing level of service or average traffic volumes and would not affect roadway conditions. In addition, trucks carrying heavy equipment and materials would operate within the legal weight limits, as determined by the state.

The temporary project use of Dutch Creek Road and Sky Ranch Road in conjunction with temporary access routes A-5, A-8, A-9 and A-11 could delay or restrict commercial, recreational, and residential access to BLM and private lands, but no road closures would be required. Traffic control measures would be implemented to alert travelers to the rehabilitation activities and minimize conflicts during the activities, in accordance with environmental commitments listed in Table 2-2 (EC-TC-1 and EC-TC-4 [4.16-2a, 4.16-5a]). Access to adjacent private properties and the mining claim would be maintained throughout the construction period in accordance with environmental commitment EC-TC-2; however, access to the project area would be restricted to project traffic based on individual agreements with land owners and would not available to the public during construction.

The use of local roads by trucks and heavy equipment could degrade roadway conditions due to increased wear and tear and require road restoration once the rehabilitation activities are complete. In accordance with EC-TC-3 [4.16-4a], Reclamation would survey the road conditions before the rehabilitation activities and assess the degree of post-construction restoration that may be needed. Access routes across private land may require some degree of grading and/or resurfacing to restore them to pre-disturbance conditions, and Reclamation would coordinate with the landowners to ensure that these routes are in acceptable condition after the rehabilitation activities. After construction of the project is completed, temporary access routes across public lands would be restored to preconstruction conditions. Post-construction, access route A-11 would be gated but would be available to BLM for administrative and authorized activities. It is

anticipated that the access route would be used for up to 5 years post-project for revegetation management (e.g., planting and irrigation) purposes. Subsequently, temporary access routes (e.g., A-7, A-7a, A-7b, a-7b, A-10, and a-10a) would be removed or converted to walking trails.

Post-construction activities (i.e., revegetation, maintenance, and monitoring) would require intermittent access by TRRP staff and consultants for 3 to 5 years and occasional access for construction equipment in the event that implementation of adaptive management measures is required to ensure success of the rehabilitation activities. This traffic would be minimal and would not affect local traffic volumes or roadway conditions.

With the inclusion of CEQA mitigation measures EC-TC-2 [4.16-2a, 4.16-5a] and EC-TC-3 [4.16-4a] described in this section, CEQA impacts on traffic and transportation would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, traffic conditions and traffic circulation would remain similar to existing conditions. Therefore, there would be no impacts to traffic conditions as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.7 AIR QUALITY

3.7.1 Affected Environment

Trinity County has a climate characterized by hot, dry summers and cold, moderately wet winters (United States Department of Agriculture 1998). Most precipitation in the county results from major storms originating in the Pacific Ocean; however, short thunderstorms resulting from localized climatic conditions occur in the summer months. Precipitation at the site is predominantly rainfall, with occasional snow in the winter (North Coast Unified Air Quality Management District 1995). Trinity County has an average summer high temperature of 93.9 degrees Fahrenheit (°F) and winter low of 27.3°F.

Trinity County's air quality is generally good. The low population density, limited industrial and agricultural operations, and minimal traffic congestion contribute to the good air quality. Ambient air quality data are available from the Weaverville air monitoring station, which is located approximately 6 miles from the site. Air quality data from this station may not be a precise representation of ambient air quality in the project area but it does provide a good indication of air quality in the general vicinity. Locally, air quality and contributions of greenhouse gas (GHG) to the atmosphere along the Trinity River corridor is influenced by topographic features, the microclimate, and pollutants such as road dust and smoke from wildfires in the summer and wood stoves/fireplaces during cold weather (i.e., particulate matter [particulate matter] 10 microns or less [PM10] and particulate matter 2.5 microns or less [PM2.5]).

Sensitive receptors consist of human populations, particularly children, seniors, and individuals with health risks, located where there is a reasonable expectation of human exposure to pollutants. The project area is not located near a school, hospital, senior housing, or other facilities where concentrations of sensitive receptors may be located. There are few residential

properties within or adjacent to the project area that would be exposed to temporary changes in air quality. One residential property is located within the project area, and access to this property is via a private driveway off Sky Ranch Road. This driveway would not contribute any additional dust as a result of the project, but adjacent dirt access routes used during construction may result in periodic sources of road dust (i.e., PM).

The majority of the residences in and adjacent to the project area use wood as a source of heat as well as burn piles to reduce fuels on private parcels. Operation of heavy equipment on private parcels within and adjacent to the project area occurs periodically and is a source of vehicle emissions. Both the burning of wood and other vegetation and the operation of heavy equipment periodically contributes to localized increases in pollutants such as PM and GHG, respectively. Reoccurring wildfires throughout the Trinity River watershed periodically result in smoke and ash that drastically increases the PM levels within and adjacent to the project area.

3.7.2 Environmental Consequences

Proposed Action

Rehabilitation activities associated with this alternative would require excavation, grading, disposal of earthen materials, and the use of vehicles and heavy equipment on unpaved access routes, all of which would generate fugitive dust in the project area. Fugitive dust emissions would also result from activities associated with vegetation removal and gravel injection.

Transportation and construction activity associated with project implementation would generate GHG emissions from diesel- and gasoline-powered vehicles and equipment. An environmental commitment listed in Table 2-2 (EC AQ-1 [4.11-a-1a], [4.11-2a] is incorporated into this alternative in order to reduce the impacts to air quality.

The following discussion of GHG is specific to CEQA and requirements outlined in the CEQA Guidelines. The following measures would be used to enhance the awareness of global climate change in conjunction with the proposed action:

- 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;
- require re-useable batteries for equipment that can use them.

In order to determine the significance of the impact of this alternative, a “carbon foot-print” was developed for the proposed action based on the project’s potential generation of GHGs (primarily carbon dioxide [CO_2]) from project activities. Project activities that would offset

potential impacts were weighed into the equation. This analysis indicates that the proposed action would produce approximately 10,442.56 pounds of CO_2 per day over the course of an 88-day construction period. Total GHG emissions resulting from the proposed action is estimated to be 388.33 metric tons of CO_2.

Based on those calculations, GHG emissions associated with the use of heavy equipment under the proposed action would be measurable over the course of the project; however, GHG emissions and any effects on global climate change would not be cumulatively significant considering the amount of GHG emissions generated by this alternative in the context of current local air quality conditions. As a result, this alternative represents a much smaller action than that analyzed in the Trinity River Master EIR.[5].

High levels of PM in Trinity County generally coincide with regional wildland fire events during the dry summer months and with localized woodstove use and brush burning activities during periods of cool, wet weather. Fugitive dust resulting from project activities would occur during the dry summer and early fall months when PM levels may be elevated by wood stove use, brush burning, or wildland fires. This alternative would increase the PM levels to varying degrees, depending on the type and extent of construction activity. Dust control measures will be used to reduce project-related impacts. Once rehabilitation activities have been completed, project impacts on air quality from fugitive dust would cease.

Diesel- and gasoline-powered equipment and vehicles used in project construction could also contribute to air pollution. Diesel particulate is an identified Hazardous Air Pollutant and Toxic Air Contaminant. As with PM, measures will be implemented to reduce project-related impacts as a result of the use of the diesel- and gasoline-powered equipment and vehicles. Once rehabilitation activities have been completed, the project impacts on air quality from fugitive dust would cease.

This alternative would include vegetation removal. All of the vegetative material not used in the construction of SLJ and WP features would be chipped and left on the floodplain or placed in upland areas to enhance growing conditions and reduce the potential for erosion. All areas not subject to inundation would be revegetated with native riparian and upland plant and tree species. In some locations, non-native grass may be planted as a short-term erosion control measure.

With the inclusion of CEQA mitigation measures EC AQ-1 [4.11-a-1a], [4.11-2a] and EC AQ-4 described in this section, CEQA impacts on air quality would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

[5] The Road Construction Emissions Model Version 8.1.0 was used to calculate GHG emissions for combustible fuel (Sacramento Metropolitan Air Quality Management District 2016) and the Construction Carbon Calculator was used to calculate GHG emissions for vegetation loss (Build Carbon Neutral 2007). The calculation is based on 88 days of construction at the project site and includes diesel fuel combustion and loss of vegetation.

No Action Alternative

Under the no action alternative, air quality conditions would remain similar to existing conditions. Therefore, there would be no impacts to air quality as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.8 NOISE

3.8.1 Affected Environment

Sensitive receptors are specific geographic points, such as residences or recreational features (floating through the reach), where people could be exposed to unacceptable levels of noise. Noise-sensitive land uses that have been identified in the project area include private residences and recreational use of the river corridor. Noise levels in the project vicinity are governed primarily by road noise along Sky Ranch Road and Dutch Creek Road from local residential traffic, occasional commercial traffic (e.g., logging trucks) and other miscellaneous sources (e.g., chain saws). There are approximately five private parcels that are adjacent to or near (i.e., approximately 0.5 mile) the project area; two of these parcels have one or more structures that may be occupied and susceptible to project-related noise. In addition, recreational use of the river corridor by boaters (i.e., anglers and rafters) occurs throughout the year. Recreational users may be close to one or more activity areas during the construction period as they float through this reach, but the duration of their exposure to construction noise would depend on the type of recreational activity. For instance, a boat floating through the project area may take as long as an hour to get through the project reach.

In 2002, a community noise survey was conducted for Trinity County (Brown-Buntin 2002) as part of the update for the County General Plan – Noise Element. The nearest survey points to the project area were two sites about 3 miles away in Junction City: Junction City School and Winton Pass Road (Lot 25). The community noise survey results indicate that noise levels at these two noise-sensitive areas range from 52 to 60 dB Ldn[6] at those locations. These are low noise levels typical of small communities and rural areas. Maximum noise levels observed during the noise survey were generally caused by local automobile traffic and heavy trucks (Brown-Buntin 2002). Occasional aircraft overflights and construction activities were other sources of maximum noise levels. Background noise levels in the absence of these maximum-noise generating events are largely attributable to distant traffic, wind, birds, and insects.

3.8.2 Environmental Consequences

Proposed Action

Under the proposed action, noise from construction activities would temporarily dominate the noise environment in and adjacent to activity areas for varying periods of time throughout the project area. Construction activities would generate maximum noise levels ranging from 65 to 84 dB Ldn 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 September (possibly longer so long as surface water runoff does not

[6] dB Ldn = 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.

increase turbidity of the mainstem Trinity River by more than 20 percent). The environmental commitments outlined in Table 2-2 (EC-NO-1 [4.14-1a] and 2 [4.14-1b]) would ensure that temporary noise impacts would be minimized by noise muffling devices, so sensitive receptors would not be negatively affected for extended periods of time. Construction activities will be scheduled between 7:00 a.m. and 7:00 p.m., Monday through Saturday; construction activities will be prohibited on Sundays unless a variance is granted by Trinity County.

Residences located near the site would be subjected to varying degrees of noise, primarily associated with construction traffic entering and exiting the project area during the authorized work periods. It is not anticipated that ground vibration created by project activities would be detectable at any sensitive receptor location nor would the activities result in any structural damage. Recreational users in the general vicinity of the site could encounter increased ambient noise levels during construction activities. While such an increase in noise could be significant, its impact would be temporary and localized, and it would be minimized with the implementation of environmental commitments EC-NO-1 [4.14-1a] and 2 [4.14-1b].

If activities are proposed prior to the completion of the nesting season, pre-construction surveys would be performed to identify specific activity areas where noise-related impacts would be deferred until after the nesting season is complete or until a qualified biologist has determined the young have fledged the nests. The increase in noise effects on wildlife (e.g., raptors, song birds, bat roosts, and ring-tailed cat dens) could be significant. These impacts would, however, be temporary and localized and would be minimized with the implementation of environmental commitments EC-VW-6 [4.14-1a] and 7 [4.14-1b].

With the inclusion of CEQA mitigation measure EC-NO-1 [4.14-1a], EC NO-2 [4.14-1b], and EC-VW-6 [4.14-1a] and 7 [4.14-1b] described in this section, impacts under CEQA related to noise would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, noise impacts to sensitive receptors would be similar to existing conditions. Therefore, there would be no noise-related impacts as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.9 GEOMORPHOLOGY AND SOILS

3.9.1 Affected Environment

The mainstem Trinity River generally flows north through the project area. Major influences on the river channel are flow regulation from Lewiston Dam, about 25 miles upstream of the project area, and a wide array of historical large-scale mining sites.

The 1-mile section of the river in the project area is characterized by a relatively wide alluvial valley bottom, relatively low water surface slopes, low sinuosity, and simple channel geometry. No deep pools or prominent bars exist within the site. The channel is almost exclusively single-thread, with some evidence of riffles, bars, or similar topographic elements. Sinuosity is low, with channel curvature being almost entirely driven by valley confinement. Grain size at the site

varies from relatively fine areas with a median (D_{50}) grain size of 30-60 millimeter and much coarser areas with a median grain size of 90-150 millimeter (Hoopa Valley Tribe Design Group 2018).

Several miles downstream of the site, Oregon Gulch discharged millions of cubic yards of mining debris from hydraulic mining at the LaGrange Mine on Oregon Mountain over a 60-year period ending in the 1930s, and similar hydraulic mining was pervasive upstream of the site. Massive aggradation during the period dominated by hydraulic mining was followed by large-scale dredge mining of the alluvial valley floor that continued into the 1950s. The channel and associated alluvial features of the Trinity River were dredged extensively, and the dredge tailing deposits are evident on the right side of the river throughout the project area.

Flows in the Trinity River downstream from Trinity and Lewiston dams have been regulated since Trinity Dam was closed in 1960. Diversion of up to 90 percent of the Trinity River to the Sacramento River basin in the 1960s and 1970s led to substantial geomorphic change in many locations along the Trinity River, with the predominant responses being channel narrowing and vegetative encroachment along the channel margins (USFWS and HVT 1999). Although flow regulation has certainly influenced current conditions, larger scale historical mining impacts are also important drivers of recent geomorphic evolution in the Junction City area. The channel through the Chapman Ranch Phase A site is deeply incised into the mining debris and has a simple, canal-like morphology. For much of its length, the channel is bounded on one side by tailings piles or a flattened tailings terrace as much as 20 feet higher than the current streambed and on the other side by large, heavily vegetated levees that were deposited along the pre-dam channel margin in the latter half of the 20th century.

Mineral resources in the project area consist primarily of gravel and cobble, which are considered suitable for use in river rehabilitation activities. Placer mining of alluvial gravel for gold using a variety of techniques over time has left tailing deposits of different types that are apparent throughout the project area; these deposits continue to influence the form and function of the Trinity River.

Other than mining activities authorized under the Surface Mining and Reclamation Act (SMARA), information on private mining activities in Trinity County is limited. According to BLM and Trinity County records, there are currently no approved mining activities operating under the provisions of the 1872 mining law or a county SMARA permit within or near the project area.

There is one active placer gold mining claim located on 35 acres in the middle of the project area that includes all or portions of 33 activity areas (see Figure 2-1). The claim (Dredger Camp #2) was located in 2011 and is therefore subject to the Surface Resources Act of 1955, which granted federal agencies authority to manage and dispose of the resources found on the surface of mining claims. If the proposed action is selected, BLM may issue Reclamation a Free Use Permit.

Seven soil map units (i.e., types) occur in the project area and are described in the Soil Survey of the Trinity County, California, Weaverville Area and Soil Survey of the Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California

(Natural Resources Conservation Service 2018). An overview of each soil type is presented in Table 3-2.

Table 3-2. Soil Map Units in the Project Area

Map Unit Name Taxonomy	Map Unit Reference Code	Drainage Class	Depth to Restrictive Layer	Hydric Soils
Atter Extremely Gravelly Loamy Sand, 9 to 15 percent slopes	101	Somewhat excessively drained	None	No
Atter-Dumps, Dredge Tailings – Xerofluvents complex, 2 to 9 percent slopes	102	Somewhat excessively drained	More than 80 inches	No
Xeralfs-Xerorthents complex, 5 to 50 percent slopes Xeralfs, xerorthents	213	Well-drained	10 to 60 inches to lithic bedrock	No, except stream terraces
Xerofluvents-Riverwash complex, 0 to 5 percent slopes Xerofluvents	217	Well-drained	More than 80 inches	Yes
Xerorthents-Rock Outcrop complex, 2 to 15 percent slopes	218	Well-drained	0 to 60 inches to lithic bedrock	No
Water	220	N/A	N/A	N/A

3.9.2 Environmental Consequences

Proposed Action

Under the proposed action, most of the rehabilitation activities would take place within the active channel or the existing floodplains and terrace features adjacent to the river. Approximately 121,640 cubic yards of material would be excavated, and about 136,900 cubic yards of fill would be placed at various activity areas throughout the project area. The excavation and fill of alluvial materials from alluvial and upland areas would expose these disturbed areas to erosion from wind and water to varying degrees, modifying the form and function of these disturbed landscapes.

General ground disturbance from equipment access and use, vegetation removal, stockpiling of materials, and other related activities would also disturb soils on approximately 53 acres of the project area (see Table 2-1) and increase the potential for erosion due to decreased soil cohesion and armoring as well as increase soil compaction in some activity areas. Sediment exposed to flowing water has an increased potential to mobilize and be transported downstream, resulting in other impacts, such as short-term increases in surficial and channel erosional processes; increases in turbidity levels at varying distances downstream; and changes to the type, volume, and character of deposition downstream. Increased wind and water erosion and subsequent downstream sediment transport in the Trinity River would occur if soils are exposed during the wet season (typically November through May) or during infrequent precipitation events (summer

thunderstorms). Soil compaction from heavy equipment can also increase runoff and subsequently increase the potential for erosion in disturbed areas. Disturbance areas would be minimized through the establishment of activity areas and clear markers (e.g., fencing, flagging) to designate work limits, in accordance with environmental commitment EC-GS-1[4.3-2a] (see Table 2-2 and Appendix F. Erosion control measures would be implemented during the rehabilitation activities to protect exposed soils and minimize erosion in accordance with EC-GS-2 [4.3-2b]. Indirect effects on the water quality of the Trinity River are discussed in section 3.11, Water Quality.

Surface and subsurface geology and soil conditions in the activity areas were evaluated as part of the design process, and the types of alluvial material (e.g., cobble, gravel, fines) available for the rehabilitation activities were characterized to determine how much material could be reused on site. Areas where fill placement occurs would be initially exposed to water erosion from the river, particularly during high flow and flood events, but the newly created features are expected to stabilize after grading efforts are completed, initial erosional events occur, and vegetation is reestablished in disturbed areas. Sediment would be transported downstream to be deposited on downstream alluvial features as part of the natural riverine process. The overall effects on river geomorphology would benefit aquatic resources and result in more natural alluvial processes that would result in an increase in the size, amount, and complexity of alluvial features that support diverse aquatic habitat, as discussed further in section 3.12, Fishery Resources.

Cobble, gravel, and other mineral materials associated with alluvial and dredge tailings deposits in the project area would be used on site to enhance the in-channel and riverine activity areas as part of the rehabilitation activities. During the design process, the boundaries of upland activity areas were revised to avoid affecting adjacent tailings deposits and other sensitive features. The processing and reuse of alluvial material excavated from in-channel and floodplain activity areas would minimize the need to obtain these materials from adjacent tailings deposits and other off-site sources. Some alluvial material may be imported from other rehabilitation sites available to the TRRP or from local commercial sources, depending on the quality and quantity required. The mineral materials used for the rehabilitation activities would be incorporated into the riverine and riparian environment.

Implementation of environmental commitments concerning erosion would minimize the potential for soil erosion and adverse effects on the river and its floodplain during the rehabilitation activities. Also, the rehabilitation activities are intended to modify the geomorphology of the river in the project area to benefit aquatic resources and restore fluvial processes.

BLM and Reclamation consulted with the claimant of Dredger Camp #2 and proposed the following design features to minimize interference with and potential impacts to the mining use. Activity area U-7 would be used to redeposit fine sediments from other activity areas in order to ensure the mining claimant has access to them in the future. The proposed gate at the entrance to access route A-11 would be available to the claimant for access to his mining claim, and the claimant may use access routes during the project that are located on his claim.

With the inclusion of CEQA mitigation measures EC-GS-1[4.3-2a] and EC-GS-2 [4.3-2b] described in this section, CEQA impacts related to geomorphology and soils would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, impacts to geomorphic processes, soils resources, and the active mining claim would remain similar to existing conditions. Therefore, there would be no impacts on these processes or resources as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.10 HYDROLOGY AND FLOODING

3.10.1 Affected Environment

The project area encompasses approximately 103 acres and a 1.0-mile-long reach of the Trinity River about 25 river miles downstream of Lewiston Dam. The Trinity River Division of the Central Valley Project (TRD) regulates flow in the 40-mile reach of the river in accordance with the 2000 ROD for the Trinity River Mainstem Fishery Restoration EIS. Since 2005, the flow schedule has been adjusted annually based on water year type and ranges from 369,000 acre-feet (af) in critically dry years to 815,000 af in extremely wet years. The minimum baseflow is approximately 450 cubic feet per second (cfs). Median flows experienced in various water year types range from 4,800 cfs in dry years to 16,850 cfs in Extremely Wet years as measured at the Junction City stream gage (Hoopa Valley Tribe Design Group 2018). The 100-year flood is defined as 58,810 cfs.

Streamflow in the project area exhibits seasonal patterns that reflect a combination of flow releases from Lewiston Dam and natural tributary accretion (Hoopa Valley Tribe Design Group 2018). During the late summer and fall, Lewiston Dam releases to the Trinity River range from 300 cfs to 450 cfs; contributions from tributaries upstream of the project area are minor. Reclamation has periodically increased releases during late summer–early fall for short periods of time to respond to water quality concerns downstream in the Klamath River. Between November and May, flow releases from Lewiston Dam are augmented by increased tributary flow and surface runoff. The tributaries can also cause large floods during intense winter storms, leading to high peak flows in the project area. In the month of May, peak flows originating from dam releases are typically followed by receding flows in the summer.

The Trinity River Flood Insurance Study (FIS) was updated for Trinity County in 2014 using a hydraulic analysis conducted by the California Department of Water Resources (DWR), Northern Region Office. This analysis consisted of creating and calibrating the Trinity River FIS hydraulic model, performing the floodway analysis, and mapping the 100- and 500-year floodplains. This FIS modeled the reach of the Trinity River from just downstream of the confluence with the North Fork Trinity River upstream to the Trinity Dam Boulevard bridge (RM 72.43 to 110.96). This analysis used the best available topographic and flow data, provided in part by the TRRP.

With the exception of some portions of staging and upland activity areas, most of the project area is within the 100-year floodplain, as defined in the 2014 FIS, and is subject to section 29.4 of

Trinity County's zoning ordinance (Flood Hazard Zoning District or Flood Hazard Overlay Zone). This section of the County's ordinance requires a floodplain development permit; provisions of this section require that "encroachments shall not result in any increase in [the base] flood elevation during the occurrence of the base flood discharge."

3.10.2 Environmental Consequences

Proposed Action

Under the proposed action, the elevation and extent of the floodplain of the Trinity River would be modified through the activities described in Chapter 2. This alternative was developed to ensure that none of the activities within the limits of the 100-year floodplain would conflict with the provisions of section 29.4 of Trinity County's zoning ordinance.

Through the design and review process, a number of activity areas (e.g., U-5) were relocated to areas upslope of the 100-year floodplain: no structures or facilities are located within activity areas below the Federal Emergency Management Agency (FEMA) base flood elevation (BFE). A key element in the selection of activity areas and subsequent engineering designs for activities in these areas was to ensure that encroachments into the floodway would not result in any increase in the BFE near structures during the occurrence of the base flood discharge within the project area. The hydraulic analysis conducted by McBain Associates and the Hoopa Valley Tribe used the FEMA-approved model developed for the 2014 FIS. This analysis indicates that removing all the excavated material from the riverine rehabilitation areas and placing it as coarse sediment within the channel or above the BFE in upland activity areas would not result in an increase in the FEMA BFE near structures on private property (Hoopa Valley Tribe Design Group 2018).

The proposed action was developed to be self-perpetuating and to dynamically evolve in response to changes in the flow and sediment regime. By increasing the area and timing of floodplain inundation, both in-channel and riverine activity areas would expect periodic increases in deposition and transport of sediment and woody debris (e.g., R-3), which could result in changes in the floodplain elevations over time in response to both managed and uncontrolled flow events. In any event, it is expected that, over time, in-channel and riverine activity areas will reach an equilibrium with the flow and sediment regime. Until riparian vegetation grows on the new floodplain features (e.g., R-3) a large flood could also induce rapid meander migration in the downstream direction starting at IC-1 and IC-8. However, SLJ and WP features combined with revegetation efforts are expected to limit the migration extent of the meander complex. A 100-year return interval flow could scour some of the riffle features to varying degrees.

The displacement of channel and floodplain materials would have only a minimal potential to change the groundwater hydraulics in the project area. The tendency of the surface water–groundwater system to move to equilibrium conditions and the overall absence of impacts to the regional driving mechanisms of groundwater recharge (seasonal precipitation and Trinity River flow regimes) indicate that no long-term impacts on water table elevations would occur.

The proposed action would not result in activities intended to increase the BFE within the project area. Activities intended to modify the bed and banks of the Trinity River within the project area could have indirect impacts to the bed and banks downstream.

While the fundamental objective of the activities associated with this alternative is to reestablish the alluvial features of the river, isolated instances of bank erosion could result in the loss of river bank, sedimentation, deposition of sediment on alluvial features, and loss of riparian vegetation. The environmental commitments listed in Table 2-2 are an integral component of this alternative. Overall, this alternative was developed to ensure that no people or structures would be exposed to a risk of injury, death, or loss involving flooding and/or erosional processes.

The proposed action was designed to ensure that the hydrologic function and potential for flooding meet the project objectives. No mitigation is required. CEQA impacts related to hydrology and flooding would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under this, impacts to hydrology and flooding would remain similar to existing conditions. Therefore, there would be no impacts on hydrology or flood occurrence as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.11 WATER QUALITY

3.11.1 Affected Environment

The release of water from Lewiston Dam influences water quality in the Trinity River, primarily in the 40-mile reach downstream of the dam. These influences are particularly important with respect to temperature, turbidity, and suspended sediments.

The activities described in Chapter 2 of this EA/IS are subject to compliance with the Water Quality Control Plan for the North Coast Region (Basin Plan; Regional Water Board 2011). The beneficial uses for the Trinity River defined in the Basin Plan are listed in Table 4.5-1 of the Master EIR. In addition to municipal and domestic water supply, the beneficial uses affected by the water quality of the Trinity River are primarily those associated with supporting high-quality habitat for fish. Recreation (contact and non-contact) is another important beneficial use potentially affected by various water quality parameters (e.g., sediment and temperature).

The Basin Plan identifies both numeric and narrative water quality objectives for the Trinity River. Table 4.5-2 in the Master EIR summarizes the water quality objectives for each of the categories that have been established by the Regional Water Board to protect designated beneficial uses. Section 4.5-1 of the Master EIR also provides a comprehensive discussion of water quality parameters that influence water quality in the 40-mile reach of the Trinity River below Lewiston Dam and its listing as an impaired river (by sediment) under the provisions of section 303(d) of the Clean Water Act (CWA). In 2001, the EPA established a total maximum daily load (TMDL) for sediment in the river. The Regional Water Board has continued to identify the Trinity River as impaired in subsequent listing cycles.

Due to the location of the site, the effects of the TRD are less than those documented in TRRP monitoring efforts upstream of Douglas City at about RM 92.6. Data from on-going sediment transport monitoring suggest that below Douglas City, additional streamflow and sediment contributions (from Indian, Weaver, and Reading creeks) significantly reduce the coarse sediment and streamflow deficits. Below Douglas City, dam releases and natural runoff events are generally capable of transporting sediment influxes. Local fishermen have expressed concern that TRRP gravel augmentation efforts have resulted in the filling, or partial filling, of fishing holes that serve as adult holding habitat with gravel. According to comments provided to the TRRP on this topic, the fishing holes referred to are all upstream of Douglas City.

Water temperature is one of the most important variables affecting salmonids and other aquatic organisms (Carter 2005). It influences feeding rates and growth, metabolism, development, timing of migration, spawning and rearing, and the availability of food. Since the construction of the TRD, discharge from Lewiston Dam has played an important role in regulating water temperatures in the Trinity River downstream. Depending on the type of water year and time of year, this effect diminishes to varying degrees with distance from Lewiston Dam.

A key objective of the TRRP's flow management is to improve the thermal regimes for all anadromous salmonid life stages that use the Trinity River. The TRRP has been using flow management practices to meet specific temperature management targets, and temperature monitoring data have been collected as part of the Adaptive Environmental Assessment and Management process since 2002. The project area is located between two water temperature monitoring sites, Douglas City and Junction City above Canyon Creek.

Water temperatures in the Trinity River through the project area are primarily influenced by flows, topography, and aspect. Flows in this reach typically exceed the temperature targets for short periods of time in the fall (Magneson and Chamberlain 2015). The river flows southwest through the project area with very little shade provided by topography or riparian vegetation. The extensive mining activities and infertility of dredge tailing deposits on both sides of the river inhibit the establishment of riparian vegetation.

The primary adverse impacts associated with excessive sediment in the Trinity River pertain to anadromous salmonid fish habitat, which the TRRP was formed to correct. Section 4.5.1 of the Master EIR provides a comprehensive discussion of this topic beginning on page 4.5-5.

On May 20, 2015, the Regional Water Board issued a General Water Quality Certification (Order R1-2015-0028) to the TRRP under the auspices of Reclamation. This order implements portions of the Trinity River TMDL and provides an allowable zone of turbidity dilution (protective of sensitive aquatic life), within which turbidity levels shall not exceed 20 nephelometric turbidity units (NTUs) or 20 percent above naturally occurring background levels, whichever is greater. During in-river project construction activities, the TRRP will monitor turbidity levels upstream within 50 feet of project activities (i.e., to serve as the natural background level) and 500 feet downstream of the in-river construction activities (point of compliance) that could increase turbidity. If naturally occurring background levels are greater than 20 NTUs, turbidity levels at the point of compliance shall not exceed 20 percent above the naturally occurring background level.

The Trinity River is typically very clear with natural background turbidity levels in the range of 0 to 1 NTU during low-flow conditions (300 to 450 cfs). Due to the very low background concentrations during the summer, turbidity levels immediately downstream of the most carefully planned and implemented in-channel restoration activities will likely be increased by more than 20 percent above background levels and plumes extending downstream of restoration activities may be visible. Due to the extremely low background turbidity levels during low-flow conditions, reduction of these turbidity levels to within 20 percent above background is generally not feasible, even with the environmental commitments listed in Table 2-2. However, short-term increases in turbidity levels that occur during permitted restoration activities are generally not considered to be biologically detrimental to aquatic organisms because their duration is short and fish are able to move away from the activity area. Monitoring turbidity increases during implementation of previous TRRP projects has shown that periods of increased turbidity are brief (generally less than 24 hours) at monitoring points located 500 feet downstream and that beneficial uses continued to be protected. In addition, the quantity of fine sediment introduced to the river during activities at low flows is typically small and is restricted with respect to timing and location; furthermore, not all activity areas are experiencing disturbance at the same time.

Over the years, the TRRP has increasingly conducted in-channel work in order to create immediate aquatic habitat and to create conditions to where river flows develop and maintain functioning river attributes (e.g., backwaters and alternating point bars). Through time various effective turbidity control measures for construction have developed. These include:

- Structural containment – structures such as earth barriers, K-rail containment dams, bladder dams, and silt curtains are used to isolate turbid water from the active channel. Containment typically remains in place until the riverine features are fully excavated and graded.
- Gravel Processing – Excavated gravel and cobbles from alluvial deposits (e.g., floodplains and dredge tailings) are processed (washed and/or sifted) to remove fines and ultimately to maintain low turbidity levels associated with placement of in and near channel materials (e.g., bars and riffles).
- Pace of construction – Controlling the pace of in-channel excavation and placement of alluvial material ensures that sediment input into the water column is consistent with permit requirements. This method requires direct field observations and real-time turbidity monitoring by on-site personnel.
- Flushing – Turbid water is flushed by allowing flow into isolated work areas and regulating the turn-over rate to ensure that downstream regulated turbidity levels are met.
- Channel bottom cleaning – This method entails removal of silt- and clay-sized sediment from the channel bottom, typically by pumping or hand excavation. Effluent from isolated work areas is pumped or carried to upland containment ponds and subsequently incorporated into site rehabilitation efforts.

TRRP monitoring data also indicate that turbidity levels downstream of the rehabilitation sites may be increased by overland flow during the initial high-flow events that occur following completion of construction activities. During spring time high-flow releases from Lewiston Dam (e.g., clear water released from the dam during channel maintenance flows), turbidity levels may

be increased by more than 20 percent at monitoring locations 500 feet or more downstream of recently completed channel rehabilitation sites. However, when the high flows are caused by natural stormwater runoff in the Trinity River Basin and the river is already carrying a substantial sediment load (e.g., turbidity greater than 40 NTUs), background levels are generally not increased by more than 20 percent at monitoring locations downstream of recently completed rehabilitation activities.

During natural high-flow events, the relative addition of fine sediment from recently completed channel rehabilitation projects is minimal compared to the sediment load already being transported by the river. Furthermore, in the Trinity River watershed where burning has occurred over the last several years (e.g., the Oregon fire in 2014, Helena fire in 2017, Carr Fire in 2018), it is expected that water quality in the restoration reach will be strongly influenced by run-off from burned areas during storm events. In these run-off events, the contribution of fine sediment associated with TRRP projects is expected to be relatively minimal compared to loading from burned area watersheds.

3.11.2 Environmental Consequences

Proposed Action

The activities incorporated into the proposed action have been developed to meet the physical, biological, and riparian objectives listed in section 1.3 of this EA/IS and are intended to reestablish functional fluvial and alluvial processes within and to some extent downstream of the project area. In the following discussion, the environmental consequences of this alternative on water quality and the associated beneficial uses of the Trinity River focus on three water quality parameters: sediment, temperature, and turbidity.

The consequences of the proposed action on water quality associated with the construction of in-channel activities and lowering of floodplains that would support spawning and rearing of anadromous salmonids would change the location and nature of sediment in and adjacent to the low-flow channel. The placement of spawning-sized gravel at X-1 and X-2 crossings necessary to access the activity areas on river left would add approximately 300 cubic yards of material to the river; the gravel used for these crossings would be sized to ensure that it would mobilize during high flows within the first year following construction and provide some augmentation of spawning habitat downstream.

The activities incorporated into this alternative are intended to reconnect the existing floodplains with the channel which would result in shallow depths and slow velocities across a wider range of streamflows than those currently being provided. Other activities incorporated into this alternative would increase the complexity of the channel to increase habitat for all life stages. Due to the location and aspect of the river within the project area, water temperature is heavily influenced by flow releases from Lewiston Dam as well as input from tributaries downstream. The general east-west orientation of this reach also influences afternoon shading that affects water temperature.

This alternative would result in clearing and grading a number of activity areas, some of which contain riparian vegetation. Functionally, the existing riparian vegetation has little influence on water temperature through this reach, but it does provide shaded riparian area habitat for aquatic

organisms at isolated locations along the channel margin. While there would be some localized effect on water temperature as a result of clearing and grading activities, the expansion of the main channel (e.g., IC-5, 6, 7) and lowering of the floodplains (e.g., R-3, 5) would result in an overall increase in riparian vegetation. Revegetation efforts associated with these activities would increase functional riparian vegetation that would in turn increase shade along the margins of these features under a wide range of flow conditions, including those that may occur during late-summer releases when air temperatures are high.

The activities described in Chapter 2 (and Appendix B) for this alternative would temporarily increase turbidity and total suspended solids in the Trinity River. The incorporation of environmental commitments listed in Table 2-2 (EC WQ-1 [4.5-1a, b], EC WQ-2 [4.5-1c], EC WQ-3 [4.5-1d], EC WQ-4 [4.5-1e, 4.5-2a-2c] and EC WQ-5 [4.5-3a-3c]) are intended to limit turbidity and suspended sediments in the Trinity River. Additionally, river's edge and in-channel construction activities would be staged to minimize potential turbidity effects. During in-channel construction activities, increases in turbidity levels could, however, occur because of the excavation of alluvial material. Initial inundation of new IC and R activity areas would result in short-term increases in turbidity levels as alluvium is removed from and/or redistributed downstream. Fine sediments may be suspended in the river for several hours following construction activities.

The extent of downstream sedimentation would be a function of the size and mobility of the substrate. For example, fine-grained sediments such as silts and clays can be carried several thousand feet downstream of construction zones, while larger-sized sediments such as coarse sands and gravels tend to drop out of the water column within several feet of the construction zone. Collectively, the activities included in the proposed action could result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially violate the Basin Plan objectives for turbidity in the Trinity River.

Two temporary crossings of the river at this site (X-1, X-2) would provide access for in-channel and riverine work areas. The low-flow channel crossings would be constructed of appropriately sized alluvial materials. Placement of alluvial fill materials could temporarily increase turbidity and suspended materials during and immediately following crossing construction. Removal and distribution of alluvial materials upon deconstruction of the low-flow channel crossing could also increase turbidity and suspended materials during and immediately following excavation.

With the inclusion of CEQA mitigation measures EC WQ-1 [4.5-1a, b], EC WQ-2 [4.5-1c], EC WQ-3 [4.5-1d], EC WQ-4 [4.5-1e, 4.5-2a-2c] and EC WQ-5 [4.5-3a-3c] described in this section, CEQA impacts related to water quality would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, impacts to water quality and associated beneficial uses would remain similar to existing conditions. Therefore, there would be no impacts on water quality as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.12 FISHERY RESOURCES

This section describes the fishery resources and aquatic habitats that are known to occur within the project area and evaluates the impacts of the alternatives on these resources. The discussion of fisheries resources is based on detailed design reports prepared for the Chapman Ranch Phase A project as well as a focused literature review, informal consultation with resource agencies, and observations made during site visits. Additional information on fishery resources is provided in the Master EIR (section 4.6 and Appendix G). The Magnuson-Stevens Fishery Conservation and Management Act and Essential Fish Habitat are also described in the Master EIR (section 4.6).

3.12.1 Affected Environment

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 2009 Master EIR.

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*), Pacific lamprey, 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 River 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 below Burnt Ranch Falls. Currently, brown trout are largely limited to the upper portions of the river below Lewiston Dam, although some brown trout exhibit anadromous characteristics.

Special-status fish species with the potential to occur in the project area include:

- Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) of coho salmon;
- Klamath Mountain Province steelhead ESU;
- Upper Klamath-Trinity River ESU Chinook salmon; and
- Pacific lamprey

In 2014, freshwater mussels were identified at a number of locations in the low-flow channel within the project area. In 2015, a number of ammocoete rearing areas were identified throughout the project reach.

In support of the TRRP, Reclamation developed a hydraulic model that has been used by the design teams to characterize existing and potential habitat within the project area for anadromous salmonid fry and presmolt life stages. Weighted useable area (WUA) is the metric used to characterize habitat under the existing conditions based on three attributes: depth, velocity, and cover. Table 3-3 provides WUA values in acres for both fry and presmolt life stages at flows ranging between 300 cfs and 11,000 cfs.

Table 3-3. WUA under Existing Conditions for Fry and Presmolt Habitat – Chapman Ranch Phase A Site

Flow (CFS)	300	450	700	950	1000	1250	1500	2000	2500	3500	6000	8500	11,000
Fry WUA (acres)	1.54	1.40	1.24	1.10	1.08	0.98	0.91	0.84	0.81	0.80	1.16	2.31	5.43
Presmolt WUA (acres)	1.72	1.62	1.48	1.35	1.32	1.21	1.12	0.99	0.91	0.84	1.12	2.24	5.37

3.12.2 Environmental Consequences

Proposed Action

A primary objective of the proposed action is to increase spawning and rearing habitat for anadromous salmonids in a manner that benefits coho salmon and other special-status fish species.

Activities related to implementation of this alternative include the following environmental commitments to reduce impacts to fishery resources: EC FR-1 [4.6-1a, 1b], EC FR-2 [4.6-4a-4e], EC FR-3 [4.6-4f], EC FR-4 [4.6-5b], and EC FR-5 [4.6a-6d]. The proposed action 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 project area and increase the potential for sediment delivery to the Trinity River. As discussed in section 3.11, Water Quality, this alternative would result in some project-related effects on erosional process and changes in the sediment regime within and to a limited extent downstream. The excavation and placement of alluvial materials within the channel and associated floodplain of the Trinity River would result in changes to the amount and character of sediment that may be mobilized post-construction.

In certain IC and SLJ/WP activity areas, processed alluvium (gravel and cobble) would be placed within and adjacent to the low-flow channel in a manner intended to increase spawning and rearing habitat for coho salmon and other salmonids. However, the environmental commitments listed above have been incorporated into this alternative to minimize the release of fine sediment to the water column during or following construction and to reduce the impacts to existing spawning and rearing habitat for short periods, primarily in conjunction with elevated turbidity

levels. The placement and use of two low-water fords across the river would require placement of coarse sediment (fish rock)[7] at riffles during in-river construction windows, possibly for several months. The fords would occur at locations not typically used by salmonids as spawning and rearing habitat. Proportionally, these fords would temporarily occupy a small percentage of the available habitat within the project reach.

Exposed soils in the upland, access, and staging areas are susceptible to mobilization from rainfall during early-season runoff events. In-river excavation is planned as part of the proposed action; it is expected that excavation and operation of heavy equipment would re-suspend silt and sand, resulting in localized and temporary increases in suspended sediment and turbidity. Any juvenile salmonids in the river during in-channel construction could be temporarily displaced or their social behavior could be temporarily disrupted by the turbidity created during this activity.

Erosion and deposition of fine sediments associated with implementation of the proposed action are expected to be localized and temporary. Some fine sediment may settle near or on spawning habitat located downstream of riverine activity areas, but this sediment is not expected to impair redd excavation or spawning activities. Excavation, grading, and the addition of coarse sediment within the channel would occur only during low-flow conditions between July 15 and September 15, minimizing the potential for adverse effects on adult holding habitat. Construction activities are proposed during the spawning period, and in-river construction, including construction of temporary crossings, may temporarily displace holding adult salmonids. Adult salmonids using holding habitat during the summer months may be displaced to other holding habitat either upstream or downstream of the project reach as a result of transient turbidity and sediment plumes created by construction activity. Juvenile salmonids using this reach during this timeframe could be temporarily displaced or their social behavior could be temporarily disrupted by an increase in turbidity. Behavioral disruption, even temporary disruption, could result in some increased vulnerability to competitive interactions or predation for salmonids. These temporary impacts were anticipated and addressed in the 2000 Biological Opinion (BO) and associated incidental take statement for the ROD as well as the amended BO for in-river work.

Adult Pacific lampreys migrate upstream from spring through early summer 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. In addition to ammocetes occupying alluvial substrate, freshwater mussel populations occur at locations through the project area. Mussel beds observed within the boundaries of in-channel activity areas will be flagged for avoidance and to the extent feasible, individuals will be relocated to nearby appropriate habitat that would not be disturbed (see EC-VW-10).

The environmental commitments incorporated into this alternative would be implemented in conjunction with the construction activities described in Chapter 2 and Appendix B. In addition to the typical practice of refueling construction equipment at upland activity areas (e.g., U-2, 5), this alternative also includes activities that would result in mechanized equipment (e.g., trucks, excavators) crossing and/or operating within the active channel for short periods. As a result,

[7] Fish Rock is a term used to describe a range of alluvial material important for anadromous salmonid spawning and rearing habitat.

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 water bodies within the project area. Oils, fuels, and other contaminants could have short-term effects on the various life stages of salmonids and other anadromous fish that are using habitat within close proximity to construction activities.

Coho salmon, which are federally listed as threatened, and other special-status aquatic species also occur in the Trinity River, and suitable salmonid rearing habitat is used within the project area year-round. Adult coho and other salmonids migrate through the project area 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 and other salmonids could occur during in-river construction and construction of the low-flow channel crossings. These in-water work activities would be conducted only during late-summer low-flow conditions (e.g., July 15 to September 15), thus minimizing the potential for direct mortality to rearing coho and other salmonids because this period corresponds to a time of the year when the fewest number of juvenile salmonids are known to occur in the project reach.

NMFS expects that all displaced juvenile fish, including coho salmon, would find suitable habitat within river reaches upstream or downstream of the project reach, because juvenile rearing habitat within the mainstem Trinity River is likely under-saturated during summer and fall months (National Marine Fisheries Service 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 during rapidly receding flood-flow periods in the winter and early spring when fry are emerging. Although stranding of fry under such receding flood conditions occurs naturally the constructed features could increase the potential for stranding. As fluvial channel migration occurs through these surfaces, the potential for fry stranding is expected to equilibrate to that of a natural stranding risk.

Table 3-4 illustrates the amount of WUA fry and presmolt salmonid habitat that would be provided with implementation of the proposed action as flows increase through the project reach.

Table 3-4. WUA for Fry and Presmolt Habitat Under the Proposed Action – Chapman Ranch Phase A Site

Flow (CFS)	300	450	700	950	1000	1250	1500	2000	2500	3500	6000	8500	11,000
Fry WUA (acres)	2.19	2.03	1.89	1.79	1.78	1.73	1.96	2.10	2.30	3.28	5.29	5.79	6.13
Presmolt WUA (acres)	2.37	2.26	2.16	2.07	2.05	1.99	2.15	2.25	2.40	3.22	5.37	6.30	6.72

Table 3-5 illustrates the increase in rearing habitat within the project reach over a range of flows. These beneficial effects will also apply to varying degrees to other aquatic organisms that use habitat within this reach.

Table 3-5. Increase in WUA Habitat Under the Proposed Action– Chapman Ranch Phase A Site

Flow (CFS)	300	450	700	950	1000	1250	1500	2000	2500	3500	6000	8500	11,000
Fry WUA (acres)	0.65	0.63	0.65	0.69	0.70	0.75	1.05	1.26	1.49	2.48	4.13	3.48	0.70
Presmolt WUA (acres)	0.65	0.64	0.68	0.72	0.73	0.78	1.03	1.26	1.49	2.38	4.25	4.06	1.35

With the inclusion of CEQA mitigation measures EC FR-1 [4.6-1a, 1b], EC FR-2 [4.6-4a-4e], EC FR-3 [4.6-4f], EC FR-4 [4.6-5b], and EC FR-5 [4.6a-6d] described in this section, CEQA impacts related to fisheries would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, there would be no effects on spawning and rearing habitat or WUA for fry and presmolt salmonids 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 since 2005. These projects continue to affect the Trinity River with regards to flows, sediments, channel morphology, and riparian vegetation and the associated influence on habitat for aquatic organisms.

Under this alternative, there would be no risk of accidental spills of hazardous material because the project would not be constructed.

Under this alternative, construction-related mortality to rearing salmonids would not occur because the project would not be constructed.

Under this alternative, loss of spawning, rearing and holding habitat would not occur because the project would not be constructed.

Under this alternative, impacts to fishery resources would remain similar to existing conditions. Therefore, there would be no impacts on fishery resources as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.13 VEGETATION, WILDLIFE, AND WETLANDS

3.13.1 Affected Environment

The project area supports a diversity of plant communities and wildlife habitats typical of the Trinity River corridor. Wildlife habitats described in this section are based on the California Wildlife Habitat Relationships (CWHR) system. These wildlife habitats are summarized in Table 3-6 and illustrated on Figure 3-1 at the end of this chapter.

Table 3-6. Plant Communities and Other Habitats in the Project Area

Wildlife Habitat Type	Estimated Amount in Project Area (acres)
Annual Grassland	24.76
Barren	18.40
Blue Oak-Foothill Pine	7.05
Douglas-fir	3.81
Mixed Chaparral	1.55
Montane Hardwood	1.45
Montane Hardwood-Conifer	0.99
Montane Riparian	28.58
Perennial Grassland	0.05
Ponderosa Pine	8.61
Riverine	4.62
Urban	2.77
Total	**102.64**

The dominant habitat types include annual grassland, montane riparian, barren, and ponderosa pine and make up 80 percent of the habitats in the project area. Blue oak-foothill pine, Douglas-fir, mixed chaparral, montane hardwood, montane hardwood-conifer, perennial grassland, riverine, and urban are the habitats that make up the remaining portions of the project area. Dominant plant species within these 12 habitat types include gray pine (*Pinus sabiniana*), canyon live oak (*Quercus chrysolepis*), Oregon white oak (*Q. garryana*), ponderosa pine (*Pinus ponderosa*), and Douglas-fir (*Pseudotsuga menziesii*), with occasional Pacific madrone (*Arbutus menziesii*) and incense cedar (*Calocedrus decurrens*). Understory vegetation includes white leaf manzanita (*Arctostaphylos viscida*), greenleaf manzanita (*A. patula*), birchleaf mountain mahogany (*Cercocarpus betuloides*), hollyleaf redberry (*Rhamnus ilicifolia*), and poison-oak (*Toxicodendron diversilobum*), rattail sixweeks grass (*Festuca myuros*), soft brome (*Bromus hordeaceus*), redstem filaree (*Erodium cicutarium*), black mustard (*Brassica nigra*), Maltese star thistle (*Centaurea melitensis*), miniature lupine (*Lupinus bicolor*), and English plantain (*Plantago lanceolata*).

The Trinity River is the primary drainage feature in the project area and is considered a navigable water that is subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps). It is also managed as a Riparian Reserve on public lands subject to BLM's RMP. The main channel of the river in the project area totals 5.7 acres (2,658 linear feet), and ranges from about 60 to 120 feet wide at the ordinary high-water mark. Figure 3-2 shows the boundaries of potential waters of the United States in the project area.

Several intermittent and ephemeral streams are located on both sides of the Trinity River; these streams convey water flows from upland areas near the outer limits of the project area into

wetlands, other streams, or the main channel of the river. These streams total approximately 0.02 acre (385 linear feet) and range between 2 and 3 feet wide at the ordinary high-water mark.

Riparian wetlands encompass approximately 9.20 acres in the project area along the main and side channels of the river and in depressions among historical mining tailings. The riparian wetlands contain a dominance of woody riparian and herbaceous species, such as willows (*Salix* sp.) white alder, Oregon ash, Himalayan blackberry, reed canary grass, and mugwort.

One seasonal wetland is present in the project area within areas disturbed by past hydraulic mining activities, totaling approximately 0.01 acre. Dominant vegetation within the seasonal wetland includes Mediterranean barley (*Hordeum marinum*) and tall fescue (*Festuca arundinacea*).

Table 3-7 provides a summary of the wetlands and other waters of the United States that occur within the project boundary.

Table 3-7. Summary of Waters of the United States Within the Project Area

Waters of the United States	Total Acreage	Total Linear Feet	Cowardin Type*
Riparian Wetland	9.20	N/A	PFO, PSS
Seasonal Wetland	0.01	N/A	PEM
Other Waters: Ephemeral Stream	<0.01	68	R4SB
Other Waters: Intermittent Stream	0.02	317	R4SB
Other Waters: Perennial Stream	5.75	2,658	R3UB, R3US
Total Waters of the United States	**14.98**	**3,043**	

*Note: The Cowardin classification system is a system for classifying wetlands, devised by Lewis M. Cowardin et al. in 1979 for the United States Fish and Wildlife Service.

Plant communities along the 40-mile reach of the Trinity River downstream of Lewiston Dam may support several special-status plant species, including species listed under the federal and state Endangered Species Acts (ESAs); BLM sensitive species; and species considered rare, threatened, or endangered in California based on the Rare Plant Rank (see Table 4.7-1 in Master EIR for complete list of species and their status). Botanical surveys were conducted at the Chapman Ranch Phase A site in May and July 2015 by Trinity County Resource Conservation District botanists, and no special-status plant species were identified (North Wind Resource Consulting 2015). The boundary of the project area was revised in 2017; additional botanical surveys to cover the new area will be conducted in 2019 prior to construction, and special-status plant species will be protected if discovered within the project area.

Vegetation surveys identified high-priority invasive species on the site. Prevalent species include Scotch broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus armeniacus*), and dalmatian toadflax (*Linaria genistifolia ss. dalmatica*) as well as other species. Efforts to opportunistically remove and bury non-native plants may be implemented along temporary access routes since invasive species are common in these areas.

No wildlife species listed under the ESAs as threatened, endangered, or candidates for listing as threatened or endangered have been observed in the project area during field surveys. The highly disturbed complex of dredge tailing deposits with isolated riparian and upland vegetation does not provide habitat for the northern spotted owl.

The Trinity River corridor provides habitat and travel corridors for various common wildlife species, such as black-tailed deer (*Odocoileus hemionus*), river otter (*Lontra canadensis*), beaver (*Castor canadensis*, cliff swallow (*Hirundo pyrrhonota*), and raccoon (*Procyon lotor*). The riparian vegetation along the Trinity River and the adjacent and nearby chaparral and woodland habitats provide connected habitat within an area that has been fragmented by rural residential development and road building. Special-status wildlife species that may use habitats in the project area include Pacific fisher (*Pekania pennanti*), a candidate for threatened status under the California ESA and a BLM sensitive species; ring-tailed cat (*Bassariscus astutus*), a California fully protected species; bald eagle (*Haliaeetus leucocephalus*), an endangered species under the California ESA, a BLM sensitive species, and a California fully protected species; foothill yellow-legged frog (*Rana boylii*), a candidate for threatened status under the California ESA and a BLM sensitive species; western pond turtle (*Emys marmorata*), a California species of special concern and a BLM sensitive species; and several birds and bats that are BLM sensitive species or California species of special concern. Most of these species are riparian species and may be found using trees in the montane and valley foothill riparian habitats or using wetlands in the project area. Additional details on these special-status species can be found in section 4.7, Table 4.7-1, and Appendix C of the Master EIR.

There are several activity areas (e.g., U-4, C-8, C-11) throughout the project area where montane hardwood, ponderosa pine, and montane riparian habitat occurs on lands managed by BLM. The BLM has reviewed this site and concluded that because it is the focus of a riparian and stream improvement project, the proposed action (including vegetation removal) would meet the criteria of Exemption C of the Pechman Exemptions (October 11, 2006 Order) under the Northwest Forest Plan (see Appendix D of this EA/IS). The riparian work would consist of riparian planting and obtaining material for in-stream placement, and the stream improvement work would consist of placement of large wood, channel and floodplain reconstruction, and increases in the complexity of aquatic, riparian, and upland habitat.

3.13.2 Environmental Consequences

Proposed Action

The proposed activities are intended to enhance the wetland, riverine, and upland habitats in the project area to improve the quality of spawning habitat for anadromous fish species. Temporary disturbance of these habitats during project implementation would result from the removal of vegetation (including invasive plants) and construction activities, as described in Chapter 2. Throughout the project area, activity areas were refined to avoid riparian vegetation where possible; however, several activity areas (e.g., U-2, C-11, A-6) require the use of upland areas and would include the removal of upland habitat. Tree removal outside these activity areas would be limited and subject to site-specific review and authorization by BLM in order to enhance habitat complexity, provide safe working conditions, and facilitate access. During the rehabilitation activities, invasive plant control measures, including using weed-free erosion

control materials and washing equipment, would be implemented in accordance with environmental commitment EC-VW-9 [4.3-2b] (see Table 2-2 and Appendix F) to prevent the spread of noxious weeds in the project area. All trees removed as part of clearing in addition to downed logs would be reused on site to establish the SLJ and WP features within and adjacent to the river. Riparian and wetland habitats outside the activity areas would be clearly marked for avoidance in accordance with EC-VW-1[4.7-1a]. Botanical surveys to date have not identified any special-status plants in the project area. A small portion of the project area would be resurveyed prior to construction and any special-status plants discovered would be protected consistent with federal and state requirements.

Construction activities associated with the proposed action would result in temporary impacts to riparian habitat, including CWHR montane riparian and riverine habitat types. A description of these habitat types is provided in section 4.7.1 of the Master EIR beginning on page 4.7-2. Figure 3-3 illustrates the size and location of riparian habitat that would be affected by the proposed action. Construction of the proposed action would result in direct impacts to 7.25 acres of montane riparian habitat and 3.12 acres of riverine habitat for a total of 11.32 acres. The access route, temporary channel crossing, and contractor use area would result in temporary impacts to 5.73 acres of montane riparian habitat and 0.20 acre of riverine habitat for a total of 5.93 acres. The impacts to riparian habitat associated with access and staging areas would be temporary, and the riparian habitat is expected to recover over time.

Construction activities associated with the proposed action would result in temporary impacts to waters under the jurisdiction of the Corps (jurisdictional waters), which include both the wetlands and river/streams identified in the project area. Figure 3-4 illustrates the size and location of jurisdictional waters that would be affected by the proposed action. The temporary impacts associated with the access routes and staging areas would temporarily affect up to 1.48 acres of riparian wetlands, less than 0.01 acre of intermittent stream, less than 0.01 acre of seasonal wetlands, and 0.23 acre of riverine habitat. A total of 2.53 acres of riparian wetlands and 4.90 acres of riverine habitat would be directly affected as a result of the rehabilitation activities. However, the impacts to jurisdictional waters are expected to be temporary, and it is anticipated that there will be a net increase in jurisdictional waters within 5 to 10 years after completion of the proposed action.

Revegetation would occur within all IC and U activity areas, as well as some A and C activity areas. The revegetation would result in the reestablishment of 6.43 acres of riparian habitat at IC activity areas, 10.61 acres of riparian habitat at R activity areas, and 2.15 acres of riparian habitat associated with SLJ and WP features, for a total of 19.19 acres of functional riparian habitat within these three activity types. In addition, riparian revegetation at access and staging areas would add 6.63 acres of functional riparian habitat. A total of 20.71 acres of riparian habitat would, therefore, be functional within 5 to 10 years after completion of the proposed action. Based on the impact tables on Figure 3-4, the proposed action would meet the TRRP’s objective of no net loss of riparian habitat in the long term.

Temporary disturbance associated with the proposed action could discourage wildlife use of the habitats in and near the project area. Most wildlife species, such as Pacific fisher, deer, beaver, and most birds, would be able to use nearby habitats to avoid the disturbance and return once the rehabilitation activities are complete. If authorized, vegetation removal would occur outside the

nesting season for birds (after August 1) and the breeding season for ring-tailed cat and before bats establish maternity colonies (i.e., in early February). If this is not practicable, pre-construction surveys would be conducted to identify active bird nest sites, bat roost sites, or ring-tailed cat dens in or adjacent to the project area. No-disturbance buffers would be established around the active sites or dens until they are no longer occupied in accordance with environmental commitments EC-VW-6 [4.7-7 a-d], EC-VW-7 [4.7-8a-d], and EC-VW-8 [4.7-9a-c] (see Table 2-5). With these environmental commitments, no take of ESA-listed bird species or ring-tailed cat would occur and impacts on other special-status avian and wildlife species would be minimized or completely avoided.

Both foothill yellow-legged frog and western pond turtle are known to use the Trinity River and adjacent habitats. The frog may use pools and slow-moving areas of the river with adequate substrate for egg laying, and disturbance to these areas during in-water activities could dislodge egg masses or injure frogs. Turtles may nest in upland areas adjacent to the river or be found in the water, and disturbance in these areas could damage nests or injure turtles. Pre-construction surveys for breeding and nesting activity of these species would be conducted in accordance with EC-VW-4 [4.7-5a-d] and EC-VW-5 [4.7-6a-e], and foothill yellow-legged frog egg masses or western pond turtle nests that could be disturbed by the rehabilitation activities would be relocated to nearby suitable habitat outside the activity areas. Precautionary measures would also be taken during the rehabilitation activities in the event a frog or turtle is encountered in an activity area, and the individual(s) would be relocated outside the activity areas in accordance with EC-VW-4 and EC-VW-5. With these environmental commitments, no take of foothill-yellow legged frog would occur and impacts on western pond turtle would be minimized or completely avoided.

Once the rehabilitation activities are complete, the habitats in the project area would include more riparian and wetland habitat. Revegetation of disturbed areas would return the activity areas to their current or better conditions and would ensure reestablishment of native plants while reducing the extent of non-native and invasive plants. If invasive plants recolonize the restored areas, Reclamation would implement targeted control methods to remove the plants and reestablish native plants in accordance with EC-VW-9 [4.7-13a-g]. No chemical invasive species control methods would be used on BLM lands. Long-term monitoring of the rehabilitation sites and adaptive measures to further enhance or create additional riparian or wetland habitat in accordance with EC-FR-4 [4.7-1b] would ensure no net loss of riparian or wetland habitat occurs, consistent with TRRP's 2016 Riparian Revegetation and Monitoring Plan. The rehabilitation activities would benefit wildlife, particularly wetland and riparian species, by enhancing the Trinity River corridor for nesting, breeding, roosting, foraging, and other activities. The corridor would continue to function as a movement corridor for many wildlife species, and the enhanced floodplain and riparian conditions could attract more wildlife to the project area.

With the inclusion of CEQA mitigation measures EC-VW-9 [4.3-2b], EC-VW-1[4.7-1a], EC-VW-6 [4.7-7 a-d], EC-VW-7 [4.7-8a-d], EC-VW-8 [4.7-9a-c], EC-VW-4 [4.7-5a-d], EC-VW-5 [4.7-6a-e], EC-VW-9 [4.7-13a-g], and EC-FR-4 [4.7-1b] described in this section, impacts under CEQA related to vegetation, wildlife, and wetlands would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, no temporary or permanent disturbance to the habitats, plants, wildlife, or wetlands and other waters would occur in the project area. Habitat conditions in the project area would be the same as current conditions, and the riparian corridor would be subjected to current Trinity River influences without the enhancements to the riparian and wetland habitats. The populations of invasive plant species would continue to dominate annual grassland habitat in the project area. Special-status wildlife species would continue to use habitats in the project area that are suitable for them.

Under the no action alternative, impacts to vegetation, wildlife and wetlands would remain similar to existing conditions. Therefore, there would be no impacts on these resources as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.14 WILD AND SCENIC RIVERS

3.14.1 Affected Environment

The Trinity River was designated by the Secretary of the Interior as a National Wild and Scenic River in 1981 under the 1968 Federal Wild and Scenic Rivers Act (WSRA). In addition to the mainstem Trinity River from the confluence with the Klamath River to 100 yards below Lewiston Dam, three other sections of the river were designated: the North Fork from the Trinity River confluence to the southern boundary of the Trinity Alps Wilderness Area, the South Fork from the Trinity River confluence to the SR 36 bridge crossing, and the New River from the Trinity River confluence to the Trinity Alps Wilderness Area. From 100 yards below Lewiston Dam downstream to Cedar Flat, this section of the mainstem of the Trinity River is classified as a “Recreational” wild and scenic river. In 1998, BLM delineated the wild and scenic river corridor.

The sections of the Trinity River described above were designated as Wild and Scenic to preserve the river’s free-flowing condition, water quality, and Outstandingly Remarkable Values (ORVs). The ORV that was identified on the date of designation was the anadromous and resident fisheries. Under an interagency agreement between the National Park Service, the BLM, and the Forest Service, the BLM has the responsibility for conducting WSRA Section 7 determinations for the mainstem Trinity River from Lewiston Dam to the confluence with the North Fork Trinity River. Appendix H provides additional information on this topic.

The section of the Trinity River within the project area was designated as Scenic under the federal and state Wild and Scenic Rivers Acts (WSRA; Public Law 90-542 1968). This designation serves to preserve the river’s free-flowing condition, water quality (e.g., extremely low turbidity levels under low-flow conditions), and ORVs. The section of the Trinity River subject to the proposed action was found to have ORVs due to its anadromous fishery. Appendix H provides a comprehensive analysis of and determination for this alternative consistent with the requirements of the Section 7 of the WSRA.

3.14.2 Environmental Consequences

Proposed Action

Construction and implementation of the proposed action 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 ORVs for which it was designated a federal Wild and Scenic River.

Implementation of the proposed action would increase the potential for increases in turbidity levels during and, to a lesser degree, after construction. Flows that typically contribute to good fishing tend to be clear; increases in turbidity may therefore affect the recreational experience of anglers and the aesthetic values held by other recreationists. Increased turbidity and suspended solids levels would adversely affect water quality (refer to discussion in section 4.8, Recreation, of the Trinity River Master EIR) and could adversely affect aesthetic resources. As described in Table 2-2, four specific environmental commitments developed to reduce water quality impacts have been integrated into this alternative to the reduce the impacts of increased turbidity levels that could be visible to recreational users.

Under section 7 of the federal WSRA, direct and adverse effects to the values for which the Trinity River was recognized as a Wild and Scenic River are prohibited. Based on the analysis and determination presented in Appendix H, the proposed action would enhance the fishery ORV as well as maintain the water quality and free-flowing conditions for which the Trinity River was designated. Therefore, the proposed action would be consistent with the provisions of the federal WSRA.

With the inclusion of CEQA mitigation measures EC-WQ-1 [4.5-1a-1e], EC-WQ-2 [4.5-2a – 2c], EC-WQ-3 [4.5-3a-3c], EC-WQ-4 [4.5-1e] and EC-RE-1 [4.8-1a], the impacts under CEQA would be less than significant (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

No Action Alternative

Under the no action alternative, there would be no degradation or obstruction of a scenic view as a result of construction because the project would not be implemented, nor would there be an effect on the scenic quality of the Wild and Scenic River. Therefore, there would be no impacts as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.15 CEQA SIGNIFICANCE

As described in section 3.1, this document is an integrated NEPA/CEQA document. Table 3-8 provides a summary of the CEQA mitigation developed for each resource topic discussed in this chapter (see Appendix G for details). It also identifies the level of significance as defined in California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382).

Table 3-8. Summary of Resource Topics Considered in This EA/IS

Resource Topic	CEQA Mitigation	CEQA Significance
Aesthetics	EC-WQ-1 [4.5-1a-e], EC-WQ-2 [4.5-2a-c], EC-WQ-3 [4.5-3a-c], EC-WQ-4 [4.5-1e], and EC-RE-1 [34.8-1a]	Less Than Significant
Air Quality	EC-AQ-1 [4.11-1a], [4.11-2a]	Less Than Significant
Cultural Resources	EC-CU-1 [4.10-2a] and EC-CU-2 [4.10-2a]	Less Than Significant
Fishery Resources	EC-FR-1 [4.6-1a-b], EC-FR-2 [4.6-4a-e], EC-FR-3 [4.6-4f], EC-FR-4 [4.6-5b], and EC-FR-5 [4.6a-d]	Less Than Significant
Geomorphology and Soils	EC-GS-1 [4.3-2a] and EC-GS-2 [4.3-2b]	Less Than Significant
Hydrology and Flooding	Not Applicable	Less Than Significant
Land Use	Not Applicable	Less Than Significant
Noise	EC-NO-1 [4.14-1a] and EC-NO-2 [4.14-1b]	Less Than Significant
Recreation and Wild and Scenic Rivers	EC-WQ-1 [4.5-1a-e], EC-WQ-2 [4.5-2a-c], EC-WQ-3 [4.5-3a-c], EC-WQ-4 [4.5-1e], and EC-RE-1 [4.8-1a]	Less Than Significant
Transportation and Traffic	EC-TC-2 [4.16-2a, 4.16-5a] and EC-TC-3 [4.16-4a]	Less Than Significant
Vegetation, Wildlife, and Wetlands	EC-VW-1 [4.7-1a], EC-VW-4 [4.7-5a-d], EC-VW-5 [4.7-6a-e], EC-VW-6 [4.7-7a-d], EC-VW-7 [4.7-8a-d], EC-VW-8 [4.7-9a-c], EC-VW-9 [4.3-2b], [4.7-13a-g], and EC-FR-4 [4.7-1b]	Less Than Significant
Water Quality	EC-WQ-1 [4.5-1a-b], EC-WQ-2 [4.5-1c], EC-WQ-3 [4.5-1d], EC-WQ-4 [4.5-1e, 4.5-2a-c], and EC-WQ-5 [4.5-3a-c]	Less Than Significant

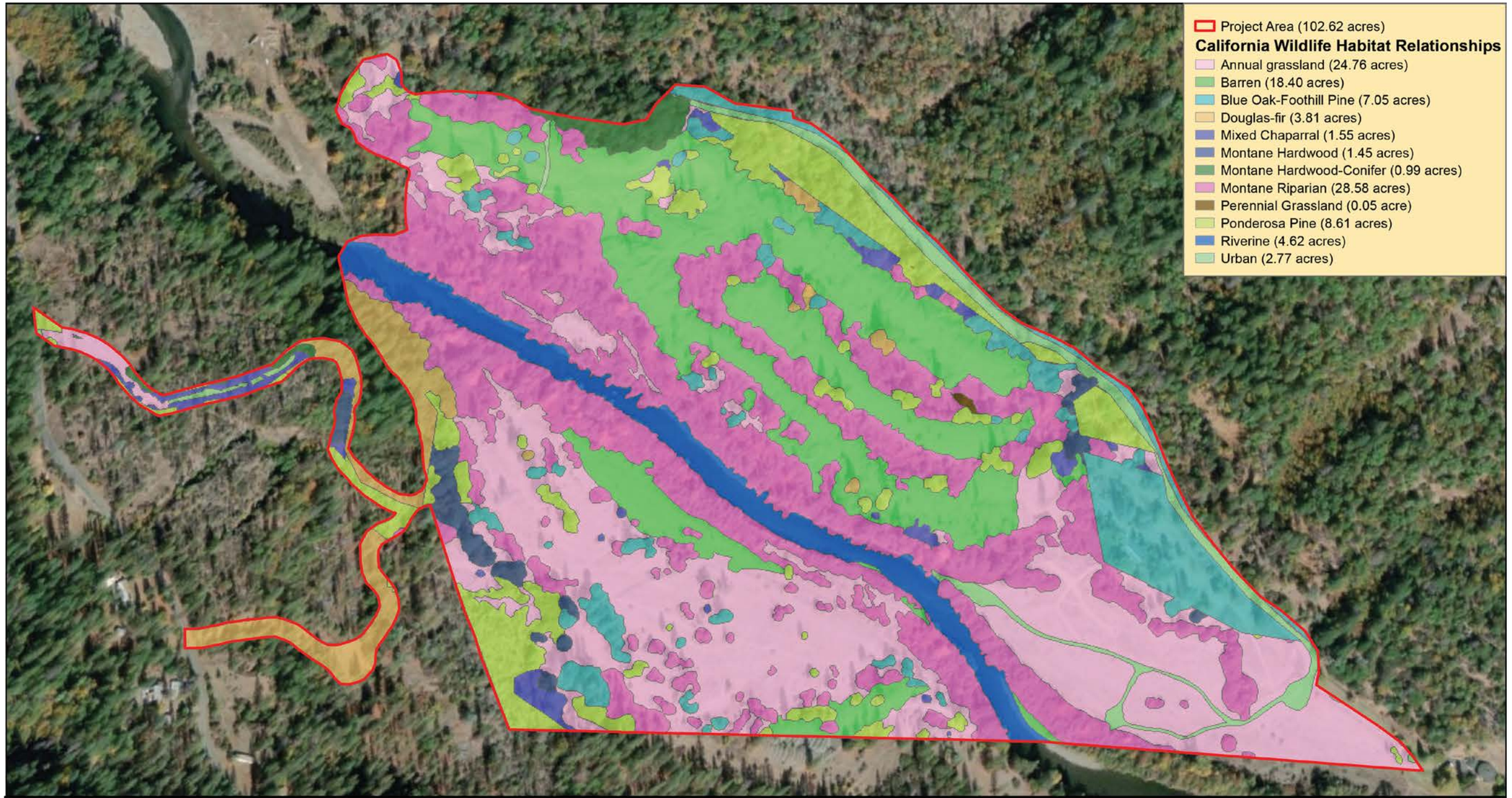
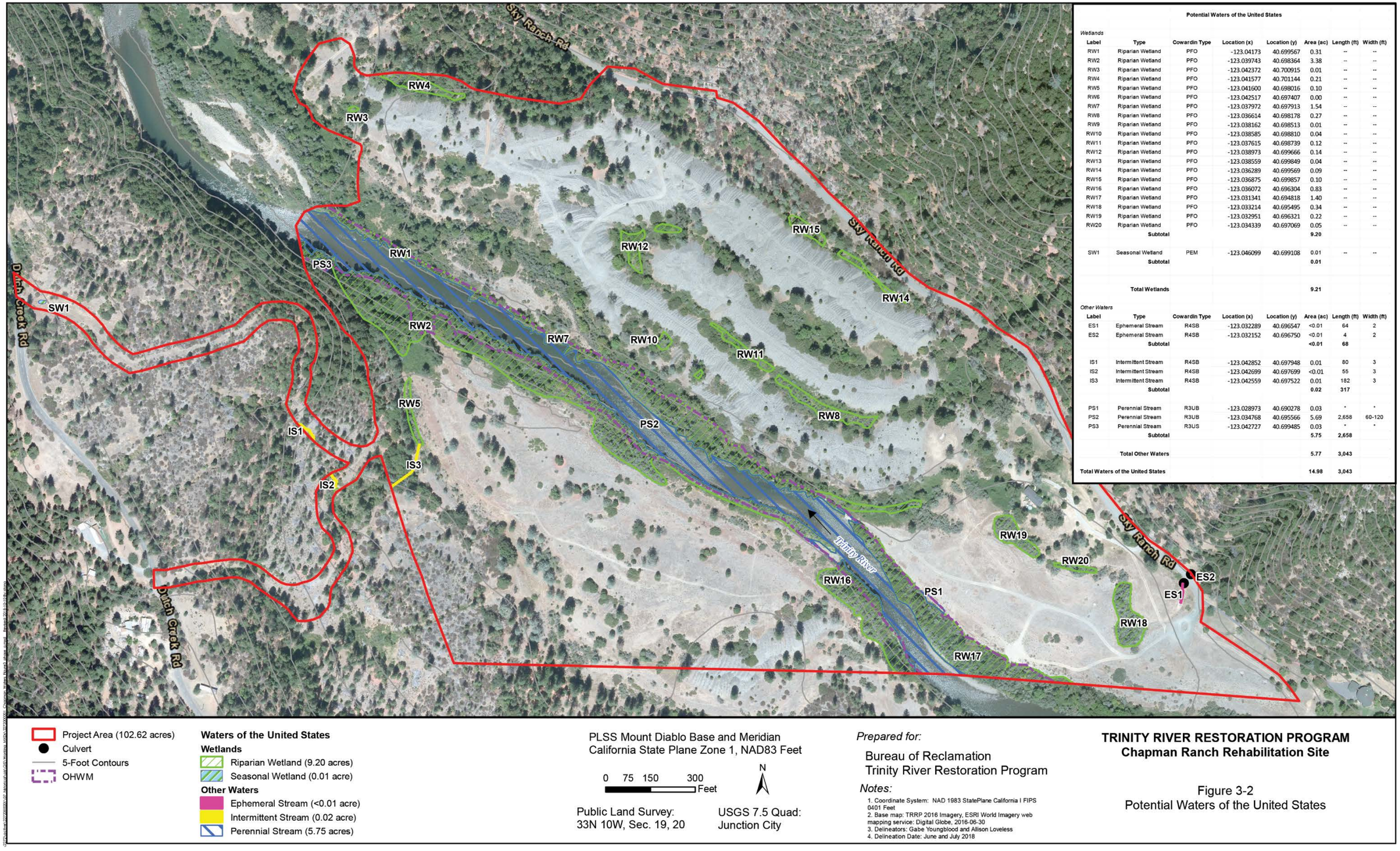


Figure 3-1. Habitat Types



Potential Waters of the United States

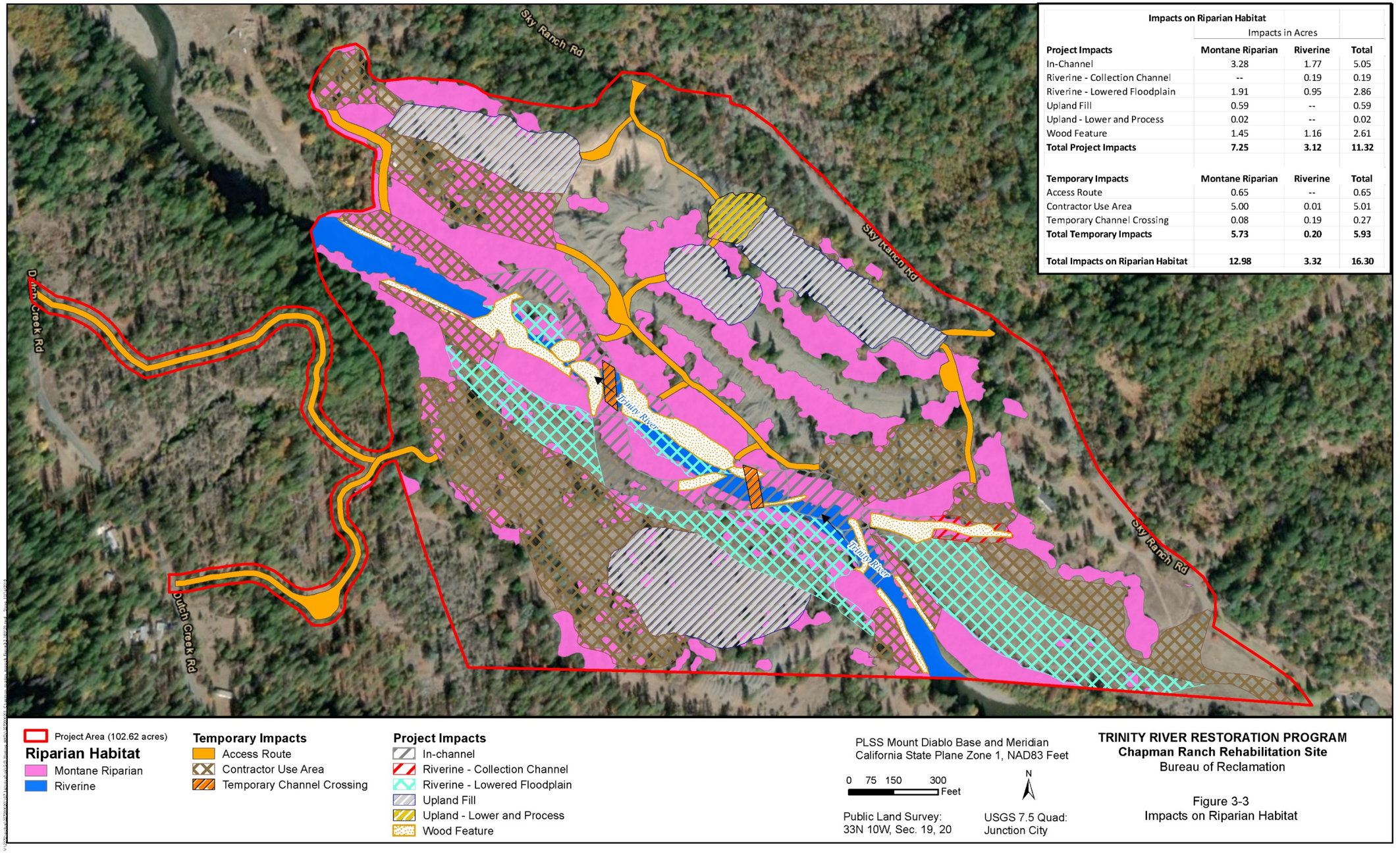
Wetlands

Label	Type	Cowardin Type	Location (x)	Location (y)	Area (ac)	Length (ft)	Width (ft)
RW1	Riparian Wetland	PFO	-123.04173	40.699567	0.31	--	--
RW2	Riparian Wetland	PFO	-123.039743	40.698364	3.38	--	--
RW3	Riparian Wetland	PFO	-123.042372	40.700915	0.01	--	--
RW4	Riparian Wetland	PFO	-123.041577	40.701144	0.21	--	--
RW5	Riparian Wetland	PFO	-123.041600	40.698016	0.10	--	--
RW6	Riparian Wetland	PFO	-123.042517	40.697407	0.00	--	--
RW7	Riparian Wetland	PFO	-123.037972	40.697913	1.54	--	--
RW8	Riparian Wetland	PFO	-123.036614	40.698178	0.27	--	--
RW9	Riparian Wetland	PFO	-123.038162	40.698513	0.01	--	--
RW10	Riparian Wetland	PFO	-123.038585	40.698810	0.04	--	--
RW11	Riparian Wetland	PFO	-123.037615	40.698739	0.12	--	--
RW12	Riparian Wetland	PFO	-123.038973	40.699666	0.14	--	--
RW13	Riparian Wetland	PFO	-123.038559	40.699849	0.04	--	--
RW14	Riparian Wetland	PFO	-123.036289	40.699569	0.09	--	--
RW15	Riparian Wetland	PFO	-123.036875	40.699857	0.10	--	--
RW16	Riparian Wetland	PFO	-123.036072	40.696304	0.83	--	--
RW17	Riparian Wetland	PFO	-123.031341	40.694818	1.40	--	--
RW18	Riparian Wetland	PFO	-123.033214	40.695495	0.34	--	--
RW19	Riparian Wetland	PFO	-123.032951	40.696321	0.22	--	--
RW20	Riparian Wetland	PFO	-123.034339	40.697069	0.05	--	--
	Subtotal				**9.20**		
SW1	Seasonal Wetland	PEM	-123.046099	40.699108	0.01	--	--
	Subtotal				**0.01**		
	Total Wetlands				**9.21**		

Other Waters

Label	Type	Cowardin Type	Location (x)	Location (y)	Area (ac)	Length (ft)	Width (ft)
ES1	Ephemeral Stream	R4SB	-123.032289	40.696547	<0.01	64	2
ES2	Ephemeral Stream	R4SB	-123.032152	40.696750	<0.01	4	2
	Subtotal				**<0.01**	**68**	
IS1	Intermittent Stream	R4SB	-123.042852	40.697948	0.01	80	3
IS2	Intermittent Stream	R4SB	-123.042699	40.697699	<0.01	55	3
IS3	Intermittent Stream	R4SB	-123.042559	40.697522	0.01	182	3
	Subtotal				**0.02**	**317**	
PS1	Perennial Stream	R3UB	-123.028973	40.690278	0.03	*	*
PS2	Perennial Stream	R3UB	-123.034768	40.695566	5.69	2,658	60-120
PS3	Perennial Stream	R3US	-123.042727	40.699485	0.03	*	*
	Subtotal				**5.75**	**2,658**	
	Total Other Waters				**5.77**	**3,043**	
Total Waters of the United States					**14.98**	**3,043**	

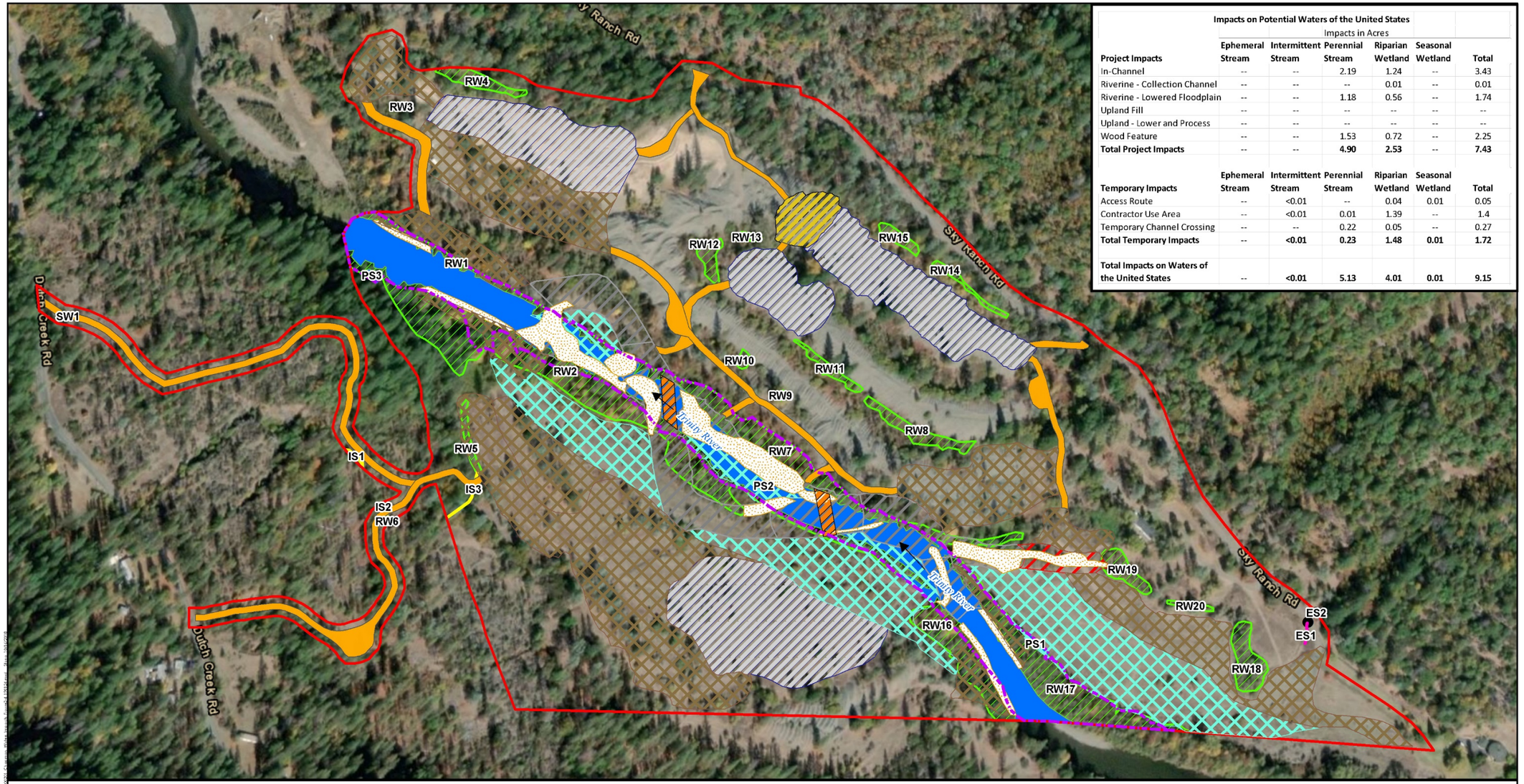
Figure 3-2. Potential Waters of the United States



Impacts on Riparian Habitat

	Impacts in Acres		
Project Impacts	**Montane Riparian**	**Riverine**	**Total**
In-Channel	3.28	1.77	5.05
Riverine - Collection Channel	--	0.19	0.19
Riverine - Lowered Floodplain	1.91	0.95	2.86
Upland Fill	0.59	--	0.59
Upland - Lower and Process	0.02	--	0.02
Wood Feature	1.45	1.16	2.61
Total Project Impacts	**7.25**	**3.12**	**11.32**
Temporary Impacts	**Montane Riparian**	**Riverine**	**Total**
Access Route	0.65	--	0.65
Contractor Use Area	5.00	0.01	5.01
Temporary Channel Crossing	0.08	0.19	0.27
Total Temporary Impacts	**5.73**	**0.20**	**5.93**
Total Impacts on Riparian Habitat	**12.98**	**3.32**	**16.30**

Figure 3-3. Impacts on Riparian Habitat



Impacts on Potential Waters of the United States

Impacts in Acres

Project Impacts	Ephemeral Stream	Intermittent Stream	Perennial Stream	Riparian Wetland	Seasonal Wetland	Total
In-Channel	--	--	2.19	1.24	--	3.43
Riverine - Collection Channel	--	--	--	0.01	--	0.01
Riverine - Lowered Floodplain	--	--	1.18	0.56	--	1.74
Upland Fill	--	--	--	--	--	--
Upland - Lower and Process	--	--	--	--	--	--
Wood Feature	--	--	1.53	0.72	--	2.25
Total Project Impacts	--	--	**4.90**	**2.53**	--	**7.43**

Temporary Impacts	Ephemeral Stream	Intermittent Stream	Perennial Stream	Riparian Wetland	Seasonal Wetland	Total
Access Route	--	<0.01	--	0.04	0.01	0.05
Contractor Use Area	--	<0.01	0.01	1.39	--	1.4
Temporary Channel Crossing	--	--	0.22	0.05	--	0.27
Total Temporary Impacts	--	**<0.01**	**0.23**	**1.48**	**0.01**	**1.72**
Total Impacts on Waters of the United States	--	**<0.01**	**5.13**	**4.01**	**0.01**	**9.15**

Figure 3-4. Impacts on Potential Waters of the United States

4 CUMULATIVE IMPACTS AND OTHER CEQA AND NEPA CONSIDERATIONS

The analysis in this chapter tiers from the "statutory considerations" discussion in Chapter 5 of the Master EIR; this EA/IS incorporates that discussion by reference. That discussion addressed certain topics required under CEQA, such as cumulative impacts, the significant environmental effects of the proposed action (Alternative 1), the significant effects that cannot be avoided if the proposed action is implemented, and the growth-inducing effects of the proposed action. Under NEPA, additional discussions are also required, namely 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 discussions are incorporated by reference from the Master EIR and are summarized below; see the Master EIR for complete discussions of these topics. This section also provides updated information concerning the cumulative impacts of projects that were not identified as foreseeable in the Master EIR.

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, of the Master EIR. 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 action when added to other closely related past, present, and reasonably foreseeable future projects.

The CEQ's implementing regulations for NEPA (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.

4.2 METHODOLOGY AND ANALYSIS

The methodology for the cumulative impact analysis is described in section 5.2.2 of the Master EIR. This assessment of cumulative impacts is considered in the same cumulative context; however, the list of related projects and programs considered in this analysis has been updated to include those closely related past, present, and reasonably foreseeable future projects listed below.

The cumulative impacts section provided in Chapter 5 of the Master EIR identified related foreseeable projects through the list approach, based on input from the lead and cooperating agencies. The geographic scope of the area examined in that assessment for cumulative effects was the Trinity River and the contributing watershed between Lewiston Dam and the confluence of the North Fork Trinity River at

Helena, California. The following projects were considered in that section and are still considered timely and relevant:

- Fish Habitat Management
- Trinity River Mainstem Fishery Restoration Project
- California Coastal Salmonid Restoration Program/Five-Counties Salmonid Conservation Program
- Clean Water Act Section 303(d) Total Maximum Daily Load Requirements Program

Since 2009, the TRRP has implemented projects at all of the Phase 1 Channel Rehabilitation Sites and implemented projects at nine of the Phase 2 sites; the Deep Gulch and Sheridan sites were completed in 2017 and the Bucktail site completed in 2010 was expanded in 2016 to include additional area coincident to the portion of the site completed in 2010 as part of the Lewiston-Dark Gulch complex. Concurrently, the TRRP has continued to implement coarse-sediment (gravel) augmentation at a number of locations downstream of Lewiston Dam, and fine sediment has been removed from both the Hamilton Ponds and Grass Valley Creek Reservoir. In addition, the TRRP-managed flows have been implemented yearly since the Master EIR was certified in 2009. Ongoing monitoring efforts by the TRRP and its partners continue to document improvements in habitat use and restoration of alluvial processes and riparian vegetation.

Since 2009, there have been a number of watershed restoration and road sediment reduction projects implemented by various agencies and organizations throughout the Trinity River basin. While some of these were listed and considered in the Master EIR, the Forest Service and the Trinity County Resource Conservation District have completed a wide array of additional projects intended to improve watershed conditions, restore aquatic habitat, improve aquatic connectivity, and reduce road-related sediment delivery to streams and rivers. The Helena Fire in 2017 and the Carr and Delta Fires in 2018 affected large portions of the Trinity River watershed and are expected to result in changes in vegetation (upland and riparian) and sediment flux throughout the watershed for some time to come. These changes could have impacts on water quality and habitat for aquatic, riparian, and terrestrial species for some period of time in the foreseeable future.

The TRRP has identified the need to develop a long-term source of coarse sediment (i.e., spawning gravel) for use in the lower reaches of the Trinity River (downstream of Douglas City). This need could result in harvesting and processing of dredge tailing deposits at various TRRP sites identified in the Master EIR. A project of this kind would have potential impacts on various resources, but it is speculative at this point in the planning cycle to be specific with respect to the location and/or type of impacts that may occur. Because historic tailings are being incorporated into various TRRP projects, the cumulative impact of removing or modifying tailings deposits has been addressed by the protection of the viewshed and interpretation of these features as part of the proposed action.

In 2017, the TRRP completed the Deep Gulch/Sheridan Creek channel rehabilitation project just downstream of the Chapman Ranch Phase A site. While there is a potential for cumulative impacts because of sediment delivery and transport from previous TRRP river rehabilitation and sediment management projects, this would be a beneficial process that would contribute to the

TRRP's overall objective of a functional alluvial river. It is assumed, however, that the impacts from those earlier projects have been mitigated, and the amount of time that has elapsed since they were completed has further dissipated the effects downstream. The previous issue-specific analysis in Chapter 5 of the Master EIR sufficiently addresses the cumulative impacts of the proposed action, and no substantial differences would arise in consideration of the proposed action separately.

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. Appendix I provides a tabular summary of the cumulative impacts considered in this EA/IS.

4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

NEPA (Section 102) and the CEQ's implementing regulations for NEPA (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 a proposed project should it be implemented.

The no-action 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 action 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 is foreseeable in association with the proposed action.

Implementation of the proposed action 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 other materials, and related construction and management activities in the project area. The material requirements for the proposed action 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.

4.4 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Section 102 of the CEQ's NEPA Implementing 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 and is incorporated by reference.

The proposed action 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 action is intentionally aimed at maintaining and enhancing the long-term biological and environmental productivity of the river system consistent with BLM's RMP and Trinity County's General Plan. Implementation of the proposed action would not sacrifice the long-term productivity of the project area for short-term uses during construction.

The short-term impacts on the environment associated with implementation of the proposed action are considered minimal compared to the long-term benefits and productivity that would result from the proposed action 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 proposed action. The proposed action, including the environmental commitments and project design features, would ensure that the maintenance and enhancement of the fisheries resources offset the short-term impacts.

4.5 GROWTH-INDUCING IMPACTS

Section 5.3 of the Master EIR evaluated the potential for growth that could be induced by implementation of the proposed action 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 in the project area would not remove any constraints to development, create new or improved infrastructure, or otherwise create conditions that would induce growth. The proposed action 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 action are not likely to directly or indirectly result in substantial development or population growth. Therefore, implementation of the proposed action would not result in a significant growth-inducing impact.

4.6 ENVIRONMENTAL COMMITMENTS AND CEQA MITIGATION MEASURES

Reclamation's NEPA implementation guidance recommends that a list of environmental commitments for the preferred alternative be included in an EA. Chapter 2 of this EA/IS includes a list of environmental commitments and project design features that are part of the proposed

action; these are fully described in Appendix F of this EA/IS. Where environmental commitments and project design features are cited in this document, they are also cross referenced with the relevant mitigation measures described in the mitigation, monitoring, and reporting plan (MMRP) in Appendix G. Because this document is a joint NEPA/CEQA document, mitigation measures have been identified for potentially significant CEQA 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 provides a comprehensive list of CEQA mitigation measures and identifies requirements for timing, responsible parties, and compliance verification.

4.7 SIGNIFICANT IMPACTS UNDER CEQA

CEQA establishes a duty for public agencies to avoid or minimize environmental damage when feasible (CEQA Guidelines Section 15021), and determinations of the significance of effects 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; wild and scenic rivers; cultural resources; air quality; visual resources; noise; public services and utilities; and traffic and transportation. These potential effects are discussed in the resource sections in Chapter 3, and Appendix A (Environmental Checklist) provides specific CEQA documentation. As part of the environmental impact assessment for each resource area, mitigation measures and/or design features have been identified that reduce the impacts to less-than-significant levels. The environmental analysis conducted for the proposed action did not identify any effects that, after implementation of the mitigation/design features, remained significant and therefore unavoidable; in addition, no significant irreversible effects associated with the proposed action were identified.

4.8 CONNECTED ACTIONS

CEQ's regulations for implementing NEPA (40 CFR 1508.25) state that some actions (other than unconnected single actions) may be interdependent parts of a larger action and may depend on the larger action for their justification. Such connected actions are closely related and should be addressed when discussing the larger action.

Connected actions that would occur related to implementation of the proposed action include activities that are required for construction of the proposed action, such as TRRP realty actions; transportation of logs, salvaged large woody debris, boulders, and alluvial materials from locations outside the project boundary; and related vehicle trips, increases in traffic circulation, and wear and tear on local roadways. These activities were analyzed in the Master EIR, and supplemental analysis of these actions is provided in Chapter 3 of this EA/IS. For the proposed Chapman Ranch Phase A Project, a mineral materials waiver has been requested from the on-site mining claimant (see Chapter 3, Geomorphology and Soils Section). The environmental analysis did not identify any effects that, after incorporation of environmental commitments, project design features, and CEQA mitigation measures, remain significant.

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APPENDIX A

Environmental Checklist Form

APPENDIX A

CHAPMAN RANCH PHASE A (RIVER MILE 82.8-83.5)
ENVIRONMENTAL CHECKLIST FORM

1. Project Title:	Trinity River Channel Rehabilitation Sites Chapman Ranch Phase A (RM 82.8-83.5)
2. Lead Agency Name and Address:	North Coast Regional Water Quality Control Board 550 Skylane Blvd., Suite A, Santa Rosa, California 95403
3. Contact Person and Phone Number:	Gil Falcone, (707) 576-2830
4. Project Location:	Trinity County, California
5. Project Sponsor's Name:	Bureau of Reclamation Trinity River Restoration Program
6. General Plan Designation:	Trinity County General Plan – Resource (RE), and BLM 1993 Redding Resource Management Plan — Other (Matrix)
7. Zoning:	Agricultural 10-Acre Minimum (A10) and Agricultural Forest 20-Acre (AF20) Minimum
8. Description of Project:	See Chapter 2 of the Environmental Assessment/Initial Study (EA/IS) for the Trinity River Channel Rehabilitation Site: Chapman Ranch Phase A (RM 82.8-83.5), in conjunction with Appendix B of the Environmental Assessment/Initial Study (EA/IS).
9. Surrounding Land Uses and Setting:	See Section 3.2.1 of the EA/IS

10. Other Public Agencies Whose Approval May Be Required (e.g., permits, financing approval, or participation agreement.)

- Bureau of Land Management, Redding Field Office (Special Use Permit)
- Trinity County Department of Transportation (Floodplain Development Permit, Federal Emergency Management Agency compliance)
- U.S. Army Corp of Engineers (Clean Water Act, Section 404 compliance)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

DETERMINATION: (TO BE COMPLETED BY THE LEAD AGENCY)

Based on this initial evaluation:

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

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

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

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

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

Under California Code of Regulations, title 14, section 15177, after a Master EIR[1] has been prepared and certified, subsequent projects which the lead agency determines as being within the scope of the Master EIR will be subject to only limited environmental review. Mitigation measures from the Master EIR will be implemented.

_____ _____

Signature Date

_____ _____

Printed Name For the Lead Agency

[1] North Coast Regional Water Quality Control Board and U.S. Bureau of 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

EVALUATION OF ENVIRONMENTAL IMPACTS

Each of these environmental factors listed above was fully evaluated and one of the following four determinations was made:

- **No Impact:** No impact to the environment would occur as a result of implementing the proposed project.
- **Less Than Significant Impact:** Implementation of the proposed project would not result in a substantial and adverse change to the environment and no mitigation is required.
- **Potentially Significant Impact:** Implementation of the proposed project could result in an impact that has a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (California Environmental Quality Act Guidelines Section 15382).
- **Less Than Significant Impact with Mitigation Incorporated:** A "potentially significant impact", as described above, that can be reduced to a less-than-significant level with the incorporation of project-specific mitigation measures.

ENVIRONMENTAL IMPACT CHECKLIST

I. AESTHETICS — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.4.2 of the EA/IS

(b) Refer to Section 3.4.2 of the EA/IS

(c) Refer to Section 3.4.2 of the EA/IS

(d) Not Applicable

Mitigation Measures

See California Environmental Quality Act (CEQA) mitigation measures described in Appendix D of the EA/IS: [4.5-1a-1e], [4.5-2a – 2c], [4.5-3a-3c], 4.5-1e] and [4.8-1a]

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

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104 (g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion of Impacts

(a) Not applicable

(b) Not applicable

(c) Not applicable

(d) Not Applicable

(e) Not Applicable

Mitigation Measures

Not Applicable

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

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b)	Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☒	☐
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.7.2 of EA/IS

(b) Refer to Section 3.7.2 of EA/IS

(c) Refer to Section 3.7.2 of EA/IS

(d) Refer to Section 3.7.2 of EA/IS

(e) Not applicable

Mitigation Measures

See CEQA mitigation measures described in Appendix D of the EA/IS: [4.11-a-1a], [4.11-2a]

IV. BIOLOGICAL RESOURCES — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

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

Discussion of Impacts

(a) Refer to sections 3.12.2 and 3.13.2 of the EA/IS

(b) Refer to sections 3.12.2 and 3.13.2 of the EA/IS

(c) Refer to sections 3.12.2 and 3.13.2 of the EA/IS

(d Refer to sections 3.12.2 and 3.13.2 of the EA/IS

(e) Not applicable

(f) Not applicable

Mitigation Measures

See CEQA mitigation measures for fisheries described in Appendix D of the EA/IS: [4.6-1a, 1b], [4.6-4a-4e], [4.6-4f], [4.6-5b], and Environmental Commitment (EC)-FR-5 [4.6a-6d].

See CEQA mitigation measures for vegetation, wildlife and wetlands described in Appendix D of the EA/IS: [4.3-2b], [4.7-1a], [4.7-7 a-d], [4.7-8a-d], [4.7-9a-c], [4.7-5a-d], [4.7-6a-e], [4.7-13a-g], and [4.7-1b].

V. CULTURAL RESOURCES — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?	☐	☒	☐	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
e)	Cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code Section 21074?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.5.2 of the EA/IS

(b) Refer to Section 3.5.2 of the EA/IS

(c) Not applicable

(d) Refer to Section 3.5.2 of the EA/IS

(e) Refer to Section 3.5.2 of the EA/IS

Mitigation Measures

See CEQA mitigation measures for cultural resources in Appendix D of the EA/IS: [4.10-2a] and [4.10-2a].

VI. GEOLOGY AND SOILS -- Would the project:

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

Discussion of Impacts

(a-i) Not applicable

(a-ii) Not applicable

(a-iii) Not applicable

(a-iv) Not applicable

(b) Refer to Section 3.9.2 of the EA/IS

(c) Refer to Section 3.9.2 of the EA/IS

(d) Not applicable

(e) Not applicable

Mitigation Measures

See CEQA mitigation measures for geomorphology and soil resources in Appendix D of the EA/IS: [4.3-2a] and [4.3-2b].

VII. GREENHOUSE GAS EMISSIONS — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion of Impacts

(a) Refer to Section 3.7.2 of the EA/IS

(b) Refer to Section 3.7.2 of the EA/IS

Mitigation Measures

See CEQA mitigation measures for air quality in Appendix D of the EA/IS: [4.11-a-1a] and [4.11-2a].

VIII. HAZARDS AND HAZARDOUS MATERIALS — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion of Impacts

(a-h) Hazards to the public were addressed in the 2009 Master EIR, and no issues were identified. Indirect public health or safety concerns are addressed under air quality, noise, recreation, and transportation and traffic.

Mitigation Measures

Not applicable

IX. HYDROLOGY AND WATER QUALITY — Would the project:

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

Discussion of Impacts

(a) Refer to Section 3.11.2 of EA/IS

(b) Not Applicable

(c) Not Applicable

(d) Refer to Section 3.11.2 of EA/IS

(e) Refer to Section 3.11.2 of EA/IS

(f) Refer to Section 3.11.2 of EA/IS

(g) Refer to Section 3.10.2 of EA/IS

(h) Refer to Section 3.10.2 of EA/IS

(i) Not Applicable

(j) Not applicable

Mitigation Measures

See CEQA mitigation measures for water quality in Appendix D of the EA/IS: [4.5-1a, b], [4.5-1c], [4.5-1d], [4.5-1e, 4.5-2a-2c], [4.5-3a-3c] [4.11-a-1a] and [4.11-2a].

No mitigation required for Hydrology and Flooding.

X. LAND USE AND PLANNING — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c)	Conflict with any applicable habitat conservation plan or natural communities conservation plan?	☐	☐	☐	☒

Discussion of Impacts

(a-c) Refer to Section 3.2.2 of the EA/IS

Mitigation Measures

Not applicable

XI. MINERAL RESOURCES — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b)	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion of Impacts

(a, b) Refer to Section 3.9 of the EA/IS

Mitigation Measures

Not Applicable

XII. NOISE -- Would the project result in:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.8.2 of the EA/IS

(b) Refer to Section 3.8.2 of the EA/IS

(c) Not applicable

(d) Refer to Section 3.8.2 of the EA/IS

(e) Not applicable

(f) Not applicable

Mitigation Measures

See CEQA mitigation measures for noise in Appendix D of the EA/IS: [4.14-1a] and [4.14-1b].

XIII. POPULATION AND HOUSING — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c)	Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion of Impacts

(a-c) Not applicable.

Mitigation Measures

Not applicable

XIV. PUBLIC SERVICES — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
	Fire protection?	☐	☐	☐	☒
	Police protection?	☐	☐	☐	☒
	Schools?	☐	☐	☐	☒
	Parks?	☐	☐	☐	☒
	Other public facilities?	☐	☐	☐	☒

Discussion of Impact

(a) Not applicable

Mitigation Measures

Not applicable

XV. RECREATION — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b)	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
c)	Degrade the quality of recreation activities or impede the use of recreation areas?	☐	☐	☒	☐

Discussion of Impacts

(a, b) Not applicable

(c) Refer to Section 3.3.2 of the EA/IS

Mitigation Measures

The CEQA mitigation measures that address impacts to water quality on recreational use of the Trinity River include: [4.5-1a-1e], [4.5-2a – 2c], [4.5-3a-3c], and [4.5-1e].

See CEQA mitigation measures for noise in Appendix D of the EA/IS: [4.14-1a] and [4.14-1b].

XVI. TRANSPORTATION AND TRAFFIC — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b)	Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
d)	Conflict with an applicable congestion management program, including, but not limited to level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
e)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
f)	Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
g)	Result in inadequate emergency access?	☐	☐	☐	☒

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
h)	Conflict with adopted polices, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.6.2 of the EA/IS

(b-h) Not applicable

Mitigation Measures

See CEQA mitigation measures for traffic and transportation in Appendix D of the EA/IS: [4.16-2a] and [4.16-5a].

XVII. UTILITIES AND SERVICE SYSTEMS — Would the project:

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

Discussion of Impacts

(a-c) Not applicable

(d) Refer to Section 2.1.15 and Appendix B (Project Design Elements) of the EA/IS

(e) Not applicable

(f) Refer to Section 2.1.15 and Appendix B (Project Design Elements) of the EA/IS

(g) Refer to Appendix B (Project Design Elements) of the EA/IS

Mitigation Measures

Not applicable

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE (To be filled out by Lead Agency if required)

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

(a) Refer to Sections 3.12.2, 3.13.2 and 3.5.2 of the EA/IS

(b) Refer to Chapter 4 of the EA/IS

(c) Refer to Chapters 3 and 4 of the EA/IS

APPENDIX B

Project Details

APPENDIX B

CHAPMAN RANCH PHASE A (RIVER MILE 82.8-83.5) PROJECT DETAILS

DESIGN CONTEXT

The wide valley width and minimal infrastructure within the Chapman Ranch reach present a unique opportunity to take a relatively aggressive restoration approach, allowing for reshaping of the channel geometry, increasing floodplain connectivity, adding large wood pieces, and creating an abundance of habitat features. This design began in 2011 and incorporates input from an independent value engineering study and numerous consultations with the Program and other members of the Trinity River Restoration Program (TRRP) design team. The Hoopa Tribal Fisheries design group prepared a design report that incorporated the input from consultants and the TRRP design team into the current design of the rehabilitation site. The design report includes exiting conditions at the project site as well as an evaluation of future desired conditions. Copies of these design reports are available on the TRRP data portal at http://odp.trrp.net/. The design allows for immediate and dramatic improvements in salmonid habitat for all life stages by introducing large areas with suitable flow depth, velocity and cover. Riparian ecosystem health and floodplain connectivity is addressed throughout the project site. The sharply meandering planform geometry creates opportunities for future entrainment of spawning gravel, lateral channel migration, and reworking of dredge tailings to dramatically increase the hydraulic complexity of the reach both near-term and into the future.

Design Considerations

The Chapman Ranch reach of the Trinity River has been identified by the TRRP as having high potential for rapid and dramatic improvement in salmonid habitat. The purpose of this analysis and design effort is to develop recommendations to advance one of the primary Program objectives, which is to mechanically reshape and scale the current channel form to interact with the contemporary flow regime, reestablishing physical processes that will create and maintain fish habitat.

The design objectives are as follows:

Physical (Geomorphic/Flow)

- Target width/depth ratios for gravel bars of at least 25 and preferably 40.
- Promote dynamic river processes (scour/deposition, width changes, lateral migration, sinuosity, etc.).
- Preserve alluvial potential of reach. Avoid armoring elements, such as ballast material using cobble/boulders greater than 6 inches and large wood pilings.

- Reduce dredger confinement of valley width.
- Promote fine sediment deposition on floodplain and low bench surfaces.
- Create multi-threaded, chute, and side channels where geomorphic conditions are appropriate for a multi-channel morphology.
- Utilize mainstem, tributary, valley wall water sources, and perched groundwater to reduce excavation to develop functional floodplains capable of natural riparian recruitment, as well as, benefit natural and constructed off-channel habitats.
- Create annual or seasonal surface water connection to existing water features.
- Reduce mainstem wood storage deficit (dynamic wood structures and standing inventory).
- Inundate floodplain benches with mainstem flows ranging between 1,500 cfs and 7,155 cfs.

Biological

- Increase and sustain fry rearing habitat area across a range of flows during the Jan 1 – April 30 time period.
- Increase lateral and longitudinal connectivity of fry/juvenile rearing habitat (Jan 1 – April 30) and pre-smolt / smolt habitat (April 1 – June 30).
- Increase area of vegetated surfaces experiencing continuous inundation duration of >= 14 days during normal and wetter years for fry/juvenile rearing (Jan 1 – April 30).
- Increase area of vegetated surfaces experiencing continuous inundation duration of >= 14 days during normal and wetter years for pre-smolt and smolt rearing (April 1 – May 31).
- Enhance existing good amphibian habitat (facilitate local warming in channel margin habitats to improve existing populations and breeding use).

Riparian

- Preserve patchy existing multi-story riparian vegetation and cottonwoods.
- Increase surfaces providing >21 days of moist soils within 0.85 ft of the ground surface during seed dispersal (April 1–June 30) in normal and wetter years surfaces for natural riparian regeneration, especially near local cottonwood seed sources. Surfaces meeting the flow duration criteria would inundate at approximately 2,200 cfs.
- Revegetate constructed floodplains and benches with native woody riparian, conifers, and understory species.

DESCRIPTION OF ACTIVITIES

The proposed action consists of a number of activity areas. The types of activities proposed for these areas are based on those described and analyzed in Section 2.3.2 of the Master Environmental Impact Report (EIR) (North Coast Regional Water Quality Control Board and Reclamation 2009). The activity areas include in-channel, riverine, upland, contractor use, and access areas. While these areas are intended to cover the full range of activities, the actual area that would be treated would typically be smaller. Riverine areas are labeled with an R preceding the site number (e.g., R-1, R-2); upland areas are labeled with a U (e.g., U-1, U-2); in-channel work areas are labeled with an IC; construction staging/contractor use areas and access roads are labeled with a C; structured log jams (SLJ) and wood placement (WP). These labels are used throughout this document.

Recontouring and Vegetation Removal

Under the recontouring and vegetation removal activities, the ground surface would be modified to reduce riparian encroachment and the risk of stranding of juvenile salmonids. To varying degrees, vegetation would be cleared and removed at all activity areas that would be subject to rehabilitation activities with the exception of crossings. Where recontouring is part of the proposed action (e.g., floodplain lowering), the entire site would be subject to vegetation removal but where possible, riparian vegetation (e.g., willows) would be salvaged and stored within the project area for use in subsequent revegetation efforts.

Grading would be required to construct or enhance topographic features that could develop into functional riparian habitat; excavation and the placement of fill would be balanced. In addition to the activity areas that would be cleared prior to grading, site-specific removal of trees (e.g., conifers and hardwoods) would be required to enhance the safety of the work site, reduce fuel loading, and improve local conditions for individual tree growth and wildlife; the trees that are removed would be used to construct large wood habitat structures. As illustrated in (Figure 2-1), upland and contractor use areas (e.g., U-4, C-3) include discrete locations where removal of vegetation is anticipated based on consultation with, and authorization by Bureau of Land Management (BLM) and landowners.

Vegetation removed from activity areas, including contract use areas would be used for in-river placement as large wood or would be chipped or masticated for use as part of revegetation efforts to increase nutrients in depositional areas and enhance the water holding capability of these deposits. While there is a limited number of mature trees within this site, as available, these may be used in the construction of habitat and flow modification features. Activities would be accomplished using a variety of methods, including hand tools and heavy equipment such as excavators, bulldozers, scrapers, and dump trucks. Where feasible existing riparian vegetation will be maintained to facilitate future recruitment.

Riverine Construction (R) - Lowered Floodplains, Collection Channel

Two types of inundated surfaces (e.g., floodplains, collection channel) would be constructed to be inundated and function at flows ranging from 350 to more than 6,000 cubic feet per second (cfs). Activities associated with the construction of these surfaces would also enhance the type and degree of connection to the mainstem at various flows. These activities are intended to expand the surface area of the channel that could be inundated by reoccurring flows below the ordinary high-water mark (i.e., 6,000 cfs). Vegetation would be cleared as necessary, and earth would be excavated to meet design elevations for periodic inundation.

Newly inundated surfaces will provide important rearing and slow-water habitat for juvenile salmonids and other native anadromous fish and wildlife. They will also increase the likelihood of channel migration resulting in enhanced sinuosity, thereby providing the habitat variability that was historically present and required to support rapid growth of native fishes.

These treatment areas would rely on a combination of natural recruitment of native riparian vegetation and riparian planting to enhance the establishment of a diverse assemblage of native vegetation. If initial revegetation establishment is less successful than anticipated, additional efforts would be made by Reclamation consistent with requirements and commitments outlined in the TRRP's Draft Riparian Mitigation and Monitoring Plan. This plan requires supplemental efforts (e.g., in-planting, weed control, irrigation) as necessary to establish riparian vegetation to meet the standard of no net loss in riparian vegetation from pre-project levels.

In-Channel Construction (IC)

In-channel construction includes those activities that would occur in the river under base flow conditions (e.g., 450 cfs) during the in-channel construction window (July 15 to September 15) authorized by the California Department of Fish and Wildlife. The construction of various types and sizes of grade control structures, including construction or excavation of alluvial features (e.g., bars, riffles, and pools), would increase channel complexity through promotion of channel migration, increased sinuosity, reduced fine sediment storage, increased coarse sediment transport, and restoration of depositional features (e.g., riffles, bars and islands) available for spawning and rearing habitat. Riffles are the shallower, faster moving sections of a river. Gravel bars and islands provide habitat complexity as well as other ecological functions.

During construction of in-channel activity areas, earthen berms would be left as necessary near the upstream and downstream ends of constructed features to ensure that water quality standards are met. These berms would be removed at the end of construction if the water within these contained areas is of appropriate quality for discharge to the river or they may be left in place for removal by subsequent high flows. Alternatively, water in the constructed features may be pumped to uplands or slowly metered into the mainstem river post-construction. These techniques would ultimately reduce the amount of turbid water that would reach the Trinity River and would ensure that water quality permit requirements are met (e.g., no more than 20 nephelometric turbidity units (NTU) at 500 feet downstream of construction).

Meander Channel Complex (Bars, Riffles and Pools)

A meander channel complex that includes activity areas IC-5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16 is intended to create a meander sequence with a bar-pool-riffle morphology that conforms to the current TRRP flow regime. Construction of this complex would increase channel length, complexity, sinuosity, and reduces slope in this section of the channel.

Collectively, the construction of these activity areas would provide a diversity of water depths and velocities across a wider range of flows than the existing mainstem channel configuration. Activity areas IC-5, 8, 12, and 16 are riffles that would link the bars together and separate the pools. The general location of the pools associated with IC-7, 10 and 15 are shown on Figure 2-1.

Upland (U)

Excavated materials (e.g., fill) that would not be used for instream construction would be placed in upland environments as fill on terraces formerly subjected to a variety of placer mining activities. Six activity areas (U-2, 4, 5, 6, 7 and 8) have been located to ensure that there would be no increase in the elevation of the 100-year floodplain, consistent with requirements of Trinity County's Floodplain Ordinance. One of these areas U-6 will be used for processing alluvial material (e.g., fish rock) that will be used in the construction of in-channel and riverine activity areas, and ultimately lowered to increase riparian function. Activity area U-7 would be used to re-deposit fine sediments from other activity areas to ensure the mining claimant has access to them in the future.

These activity areas would be used to place excess material excavated in the construction of riverine and in-channel activity areas. The boundaries of these fill areas were defined using a Federal Emergency Management Agency (FEMA) approved modeling process; field verification by surveyors and engineers was performed to ensure these areas would be located at an elevation above the FEMA 100-year floodplain. Within these activity areas, the depth of fill would range from about one foot near the edge to as much as 30 feet, depending on the size and location of the activity area. Fill materials would be spread in uniform layers that would blend in with the natural terrain and provide stable slopes for revegetation. Activity area U-4 and 5 would be used for placement of material excavated from activity areas on river left. Activity areas U-2, 6, 7 and 8 would be used for placement of material excavated from activity areas on river right.

Detailed Master EIR Activities Described to Provide Additional Clarity Beyond That in Table 2-1 of Master EIR

Wood Features – Structured Log Jams and Wood Placement

Impacts associated with the use of organic (e.g., large wood, slash) and inorganic (e.g., boulders) materials were covered in the Master EIR under Sediment Management activities along with other activities that would facilitate channel construction and maintenance (e.g., excavation and placement of alluvial material in in-channel and riverine areas). The TRRP would use appropriate materials to cause and enhance changes in channel geometry intended to improve aquatic and wildlife habitat. The addition of large rock (>6 inches) as ballast for rock/wood structures (e.g., structured log jams (SLJs)) would ensure that these structures would remain in place and confine the river, thereby increasing the power of the river to scour and maintain adult salmonid holding habitat.

As appropriate, large wood and accompanying slash removed as part of vegetation clearing activities would be retained and used for construction of SLJ and WP structures during riverine and in-channel activities to provide additional hydraulic and habitat complexity and temporary erosion control measures. This activity could include large wood placement of individual pieces, small accumulations, and large habitat structures. The creation of SLJ and WP structures would develop topographical and hydraulic complexity and increase bank length to provide additional salmonid rearing habitat over a wide range of flows. The use of these structures would also improve spawning, holding and rearing habitat for anadromous salmonids.

Woody material is a natural part of healthy rivers. It provides important habitat for aquatic species by providing cover from high flows and predators. The low-velocity areas collect suitable spawning

materials, and woody organic materials are a food source for aquatic insects. It can help create and maintain beneficial habitat features such as pools, islands, and gravel bars.

This activity may also include the construction of log jams (includes logs, slash/brush and sediment) to function as hydraulic controls and encourage the natural processes of scour and channel migration. Construction of larger habitat structures or log jams may incorporate rock and boulders as ballast to ensure that the structures themselves do not migrate with high flows.

Processed alluvial material would be created on-site, obtained and imported from off-site gravel processing areas, or purchased from local vendors for delivery. Unprocessed material or "pit-run" dirt and gravel from onsite excavation may be used in the construction of features and for habitat enhancement, using methods that would be continuously monitored for compliance with turbidity standards when equipment is working in or near the river.

All large wood features would be designed so that local velocities would be safe for navigation during relatively low river flows (less than approximately 2,000 cfs). Natural wood material would be placed in a manner to reduce the chances of hazardous contact with swimmers and boaters at flows less than about 2,000 cfs.

Because of uncertainties about the availability, types, shapes, and sizes of the wood and the planned construction methods, the exact amounts and locations of wood placement are not known at this time. Trees, tree tops, and branches for use in constructing large wood structures would be obtained on-site and/or opportunistically from other lawful sources (e.g., public or private lands where vegetation management activities have occurred) and delivered to the project area. The final locations and dimensions of SLJ and WP structures and placement would be determined in the field based on direction from Reclamation's field engineer.

Contractor Use Areas (C)

There are 10 activity areas that would be available as staging and contractor use areas. Six of these (C-6, 7, 9, 10 and 11) would be limited to vehicular access and parking through existing open areas. No clearing or grading would occur at these areas. Six of these areas (C-2, 3, 5, 8 and 13) would be directly associated with the construction and revegetation of riverine and in-channel activity areas (including in-channel wood features). These areas would be necessary for the temporary storage of equipment and materials (e.g., gravel, large wood, slash). Typically, these activity areas are subject to clearing and/or grading to varying degrees to ensure safe and efficient temporary work areas. Collectively, all C areas also serve as transportation corridors for moving equipment and materials from one activity area to an adjacent one. Water would be applied to these areas for dust abatement as directed by the Contracting Officer.

Access Routes (A)

There are 10 routes identified as discrete activity areas; two of these have multiple segments (e.g., 7a). Only one of these is associated with an existing route open to the public; A-11 begins at the intersection of Sky Ranch Road and follows the alignment of a BLM route that accesses the Deep Gulch Channel Rehabilitation site to a point where it intersects with A-12. Route A-11 currently provides access to an active mining claim and following project construction, this route would be restricted to administrative access as approved by BLM. Activity areas A-8 and A-9 provide access through private lands to that

portion of the project area on river left. Following authorized use of these routes, rehabilitation measures (e.g., erosion control, revegetation) would occur at the conclusion of the project. In addition to these measures, Activity Area A-11 would be reduced to a nominal width of 10 feet; necessary for a high clearance passenger vehicle.

These routes would primarily be used by a wide array of heavy equipment and other vehicles, often requiring two-way traffic. The site-specific design and use of these routes would consider factors like topography, soils, existing vegetation, and the need for future vehicle access (e.g., for revegetation maintenance). Best management practices would be used to reduce the impacts of road-related sediment on the riparian and aquatic environments.

Temporary Crossings (X)

Two temporary river crossings (X-1, X-2) would be required. These would be fords constructed using imported clean gravel and native alluvial materials excavated from the bed and bank of the Trinity River or adjacent sources (i.e., fish rock). All temporary crossings would be designed and constructed to meet the requirements for heavy equipment such as trucks and excavators. Except for rip-rap or other stabilizing materials, material used in the construction of these crossings would be primarily extracted from authorized activity areas. The number of vehicle trips using the river crossings would be minimized to the extent possible and these fords would not be used to transport excavated materials across the river. All extracted material would be placed on the same side of the river from which it was taken.

Due to requirements to retain passage for fish and boats, at least one-third of a river crossing would be submerged to a minimum depth of 1 foot under base flow conditions. The construction of these temporary crossings would likely require some vegetation removal on either side of the crossing within an approved activity area adjacent to the crossing (e.g., IC-8). All temporary crossings would be constructed in a manner that does not impede passage of aquatic organisms or navigability of vessels at the crossings.

Revegetation

The TRRP's objective for revegetation of the Chapman Ranch rehabilitation site is to promote the establishment and growth of a more diverse assemblage of riparian shrubs and deciduous hardwoods with varying ages so that the size, frequency, and distribution of native vegetation would increase in the future. By meeting this objective, the functions and values of native riparian and upland vegetation are expected to increase over time. In addition, the revegetation plan emphasizes the expansion of large conifers and hardwoods that could be naturally recruited as woody material into the mainstem. The revegetation activities described in this section are based on the TRRP's project experience and subsequent yearly monitoring efforts since the first channel rehabilitation site (Hocker Flat) was constructed in 2006.

Revegetation at the Chapman Ranch rehabilitation site would include preparing planting areas; planting a mixture of wetland, riparian, and upland plant species; and installing plant protection over woody plants after planting. A number of the plant species used for revegetation at these sites are used for various purposes by members of the Native American community. Revegetation efforts may also include the use of anadromous salmonid carcasses as a source of supplemental fertilizer in an effort to reintroduce marine nutrients into the riparian ecosystem. The plantings would include plants salvaged from the sites, nursery container stock available from U.S. Forest Service nurseries and or commercial sources, live hardwood poles, bareroot trees, and herbaceous plugs. Plant species in the revegetation plan include California brome (*Bromus carinatus*), incense cedar (*Calocedrus decurrens*), sedge (*Carex* spp.), wildrye (*Elymus*

spp.), rush (*Juncus* spp.), ponderosa pine (*Pinus ponderosa*), cottonwood (*Populus trichocarpa*), oak (*Quercus* spp.), and willow (*Salix* spp.). Mulch and other tree protection and stabilization devices (e.g., stakes, fencing, cages) would be installed after the planting is done. These devices would be removed once the revegetation efforts are deemed successful by the TRRP, typically within a 3-year period after vegetation is established. Revegetation activities may start during the latter part of construction efforts (e.g., planting and watering as appropriate) and would continue primarily in the wet season (October through March) after final grading and site stabilization measures are completed. Planting and seeding efforts may extend into the year following construction, depending on site and weather conditions. Herbaceous bare root material and hardwood poles would be used if planting occurs in or after November.

Most of the areas left barren after construction (e.g., spoils areas, graded features, and disturbed portions of contractor-use areas) will be planted, but no areas will be specifically disturbed so that they will be re-planted. The revegetation plan at the Chapman Ranch rehabilitation site includes several planting zones; each zone would have different combinations of herbaceous, shrub, and tree species (Table B-1). Plantings in wetland and toe zones would be herbaceous and have approximately 3 feet between plant centers, about 5,500 plants per acre. Plantings in willow, cottonwood, and transition zones would be sedges, shrubs, and trees and have approximately 5 to 8 feet between plant centers, with about 872 plants per acre. Plantings in upland zones would be shrubs and trees and have approximately 10 to 12 feet between plant centers with about 326 plants per acre. Seventeen acres would be planted with live plants, and 28 acres (much of it overlapping planted areas) would be seeded with native grasses and mulched.

Table B-1. Extent of planting types at the Chapman Ranch Channel Rehabilitation Project

Planting Type	Extent	Number of Species	Number of Plants
Willow Trenches	537 linear feet	1	6,448
Salvaged Willow Clumps	35 clumps	3	35
Emergent/Wetland	4 acres	6	31,679
Phreatophytic/Transitional	12 acres	16	14,207
Xeric (upland)	1 acre	6	1,386
Seed and Mulch	28 acres	6	1,723 pounds PLS

The TRRP anticipates that most accessible planting areas will be irrigated for up to three years after planting. Source water for any irrigation efforts would be pumped from the Trinity River consistent with existing riparian water rights available from willing landowners or from the river on public lands as authorized by the BLM. If this subsequent irrigation is needed, gasoline pumps and irrigation equipment would be brought into the site; where vehicle access is limited, irrigation equipment would be brought in using authorized watercraft. Equipment would be used to water plants as needed, stored on site for use during dry periods, or brought in as water demands require. Any irrigation measures would be temporary to improve establishment and survival of vegetation. The decision to implement irrigation measures would be based on site-specific monitoring information (e.g., soil moisture, plant stress) concerning planting areas during or after initial revegetation efforts. Irrigation measures would likely occur during the first 3 years following initial revegetation efforts. Post-project monitoring may indicate the need for additional irrigation and other measures to ensure successful revegetation. These measures may include weeding, in-planting, and replanting as conditions require.

Alluvial Materials

The implementation of the proposed action would require placement of alluvial materials at activity areas throughout the project footprint. The size of alluvial materials necessary to construct the in-channel, floodplain, and wetland/riparian features varies depending on the function and location of the activity areas. Table B-2 describes the size classes of processed alluvial materials. Dredge tailings and material excavated as part of floodplain construction would be processed and used as a source of alluvial material. In addition to processed materials, additional alluvial material may be used as fill without processing (i.e., pit).

Table B-2. Materials size class and volume summary.

Material	Description	D_{min} (inches)	D_{max} (inches)	Total Volume (Cu Yd)
Unsorted pit run	Sand to 8 inches	Sand	8	13,420
Fish rock	Sorted to be suitable for spawning gravel	5/8	5	11,060
Skeletal rock. Cobble and small boulder	Cobble and small boulders between 6 and 12 inches intermediate diameter	6	12	3,640
Ballast rock	Medium cobble and small boulders	12	24	4,820

Table B-3 illustrates the total volume of alluvial material anticipated to be processed, by size class.

Table B-3. Processed Material by Size Class

	Fines less than 5/8-in (CY)	Fish Rock (CY)	Skeletal Rock (CY)	Ballast (CY)
Total	14,000	12,000	4,000	5,000

Woody Material

The implementation of the proposed action would require large wood and slash for each of the proposed activity areas throughout the Chapman Ranch Rehabilitation Project. In addition, large wood structures that incorporate pin logs, root wads, and whole trees are proposed at SLJ and WP activity areas. Slash from on-site and off-site sources would be used to increase site productivity, provide effective ground cover on disturbed areas, and function as cover habitat for terrestrial organisms. Table B-4 illustrates the type and amounts of wood and slash necessary to implement the proposed action.

Table B-4. Woody Material Quantity Estimate

	Whole Trees (#)	Trees/Logs, Structural (#)	Trees/Logs, Habitat (#)	Slash (CY)
A	12	0	200	800

Notes: Whole trees are mature alders and willows roughly 40 feet tall which will be toppled into the river to add complexity to channel margins and provide cover. Structural logs include wood pieces both with and without rootwads to be used in construction of large wood hydraulic units. Habitat wood pieces generally have rootwads and will be used both in large wood hydraulic units and wood habitat elements.

Detailed Description of Rehabilitation Activities

The following section provides a detailed description of the IC, R, U, SLJ and WP activity areas.

In-Channel Areas

Area IC-5 spans the mainstem channel from River Mile (RM) 83.25 to RM 83.27 covering an area of 0.4 acres.

The mainstem is steep (greater than 1 percent) and the existing substrate is coarse (D84 of 10 in to 12 in). The design for Area IC-5 consists of a riffle composed of spawning gravel (minimum 4-inch D84 particle diameter) with a 1,484.8 ft crest elevation, 0.73 percent grade, and 170 ft in length. The IC-5 riffle will direct flow into the IC-7 meander complex. The geomorphic objective is to create a riffle composed primarily of spawning gravel (⅝-inch to 5-inch diameter), increase channel length, and steer flow toward the IC-7 meander complex. The flow objectives are to direct velocity vectors toward the IC-7 meander complex, raise the summer ground water elevation, and increase elevation of the upstream water surface profile such that the left bank side channel complex (R-11) will activate during summer baseflow.

Area IC-6 spans areas of fine dredge tailings from RM 83.24 to 83.28 for a total area of 0.4 acres. Existing vegetation consists of dense alder/willow, with the upper floodplain area vegetated with annual grasses on an alluvial mixture with approximately 60 percent spawning gravel.

The design for Area IC-6 includes a 450-ft long alcove habitat feature excavated approximately 8 ft below existing grade with 3:1 side slopes. The geomorphic objective is to create a nearly 500 lineal foot alcove feature with near-zero velocity adjacent to swift water zone to improve salmonid habitat for all life stages. The flow objective is to provide a nexus between the R-2 hillslope/surface water channel, the IC-7 meander complex, and the R-3 & R-4 floodplain and riparian planting areas.

Area IC-7 includes the right channel margin from RM 83.18 to RM 83.25 for a total area of 0.8 acres. Existing Condition include a dense stand of alder and willow growing on fine alluvium, bordered by coarse dredge tailings with approximately 70 percent spawning gravel.

The design for Area IC-7 includes a forced meander, point bar and pool feature. The geomorphic objectives are to create a forced meander into coarse dredge tailings with a dramatically low radius of curvature to: (1) increase channel sinuosity and migration to promote entrainment of spawning gravel from the right bank; (2) create and maintain pool feature to improve adult holding habitat; and (3) maintain a point bar that increases shallow low velocity edge along the inside of the forced meander. The flow objective is to capture at least 75 percent of the channel forming discharge (Q = 7,155 cfs) and direct it to impinge on the right bank. The design radius of curvature of the meander is 56 ft. Slope of the point bar at the apex is 6:1, and bank slope will increase upstream and downstream away from the apex to 2:1. The outside of the bend has a bank slope of 1:1 and will impinge on coarse dredge tailings with greater than 70 percent spawning gravel (Reclamation 2011). Depending on composition of substrate at constructed grade, the point bar may be over-excavated to a depth of 2 ft and backfilled with spawning gravel (⅝-inch to 5-inch gradation). Summer baseflow pool depth will be approximately 8.5 ft.

Area IC-8 spans the mainstem and includes the left floodplain from RM 83.14 to RM 83.19 for a total area of 0.7 acres. The mainstem channel substrate is coarse. The left channel floodplain is vegetated with

annual grasses and willows growing on a mixture of fine and coarse alluvium. The right channel margin is vegetated with dense alder and willow growing on fine alluvium.

The design for Area IC-8 consists of a riffle composed of spawning gravel (minimum 4-inch 84th percentile particle diameter) with a 1,483.6 ft crest elevation, 0.17 percent grade, and 260 ft in length. The geomorphic objectives are to create a 250+ ft long riffle feature that fills in the existing channel and provides additional substrate for benthic macroinvertebrate production and spawning, and to direct flow toward the IC-10 meander complex. The flow objectives are to direct velocity vectors toward the IC-10 meander complex, raise the summer ground water elevation, and increase the elevation of the upstream water surface profile to meet floodplain inundation objectives.

Area IC-9 spans the mainstem and includes the right channel margin at RM 83.16 for a total area of 0.1 acres. The mainstem channel substrate is coarse. The right channel margin is densely vegetated with alders growing on a fine depositional area.

The IC-9 design includes a vegetated bar feature constructed with spawning gravel and 20 percent fines. Side slopes are 5:1 and the feature height above the channel bed is 9 ft. The geomorphic objective is to maintain channel sinuosity and pool/riffle morphology by preventing recapture of the existing mainstem channel. The flow objective is to limit split channel flow to no more than 30 percent of geomorphic bankfull discharge, which will be accomplishes in conjunction with R-7 and IC-11. The vegetated bar will support SLJ features and control flow into the cutoff channel along the constructed R-7 floodplain, thereby directing flow into the IC-10 meander.

Area IC-10 spans the upper left floodplain and left channel margin from RM 83.06 to RM 83.16 for a total area of 1.3 acres. The upper left floodplain is vegetated with annual grasses growing on a mixture of fine and coarse floodplain deposits with approximately 60 percent spawning gravel (Reclamation 2011). The left channel margin is vegetated with willow and alder.

The IC-10 design consists of a forced meander, point bar and pool constructed into a mixture of upland floodplain deposits and sandy hydraulic mine tailings. The geomorphic objectives are to: (1) create a meander feature into these alluvial and hydraulic mine deposits with low radius of curvature to increase channel sinuosity and promote entrainment of spawning gravel from the left bank; (2) to create a pool feature to improve adult holding habitat; and (3) to create a point bar to increase low water length and benthic macroinvertebrate production. The flow objective is to capture at least 70 percent of the channel forming discharge (7,155 cfs) through the new meander and direct its energy into the left bank to promote bed scour, channel complexity, and dynamism. The design radius of curvature is 200 ft, Slope of the point bar at the apex is 6:1, and bank slope will increase upstream and downstream away from the apex to 2:1. The outside of the bend has a bank slope of 1:1. Depending on substrate composition at design grade, the point bar and outside bank may be over-excavated to an additional depth of 2 ft and backfilled with spawning gravel (⅝-inch to 5-inch gradation). Gravel from IC-10 would be processed on river left in U-4 or C-8. Summer baseflow pool depth is approximately 6 ft.

Area IC-11 spans the mainstem and right channel margin at RM 83.07 for a total area of 0.2 acres. The existing mainstem substrate is coarse, comprised of large cobble and small boulders. The right channel margin is vegetated with alders growing on fine floodplain deposits.

The IC-11 design consists of 8-ft tall vegetated bar composed of spawning gravel and roughly 20 percent fines. The geomorphic objective is to maintain channel sinuosity and pool/riffle morphology by preventing recapture of the existing mainstem channel. The flow objective is to limit split channel flow to no more than 30 percent of geomorphic bankfull discharge, which will be accomplished in conjunction with R-7 and IC-9. The designed bar will be located at the downstream end of the cutoff channel adjacent to constructed floodplain R-7 and riffle IC-13. It narrows the existing mainstem channel to 40-ft wide during summer baseflow, providing additional outflow control through the mainstem channel / new cutoff channel.

Area IC-12 spans the mainstem and includes the right and left channel margins near RM 83.05 for a total area of 0.6 acres. The existing mainstem substrate is coarse. The right bank riparian area is vegetated with alder and willow growing on fine dredge tailings and the left bank riparian area is vegetated with dense alder and willow growing on fine deposits.

The IC-12 design includes a constructed riffle with 1,483 ft crest elevation, 0.55 percent grade, and is 270 ft in length. The geomorphic objective is to create a riffle composed primarily of spawning gravel (⅝-inch to 5-inch diameter) sloping toward the IC-15 meander complex. The flow objectives are to direct flow toward the IC-15 meander complex and increase elevation of the summer surface and groundwater profiles to enhance pool depth in the IC-10 meander complex, meet floodplain inundation thresholds, and achieve riparian survival objectives.

Area IC-13 spans the mainstem and includes the left channel margin at RM 83.04 for a total area of 0.2 acres. The existing mainstem substrate is coarse. The left channel margin is vegetated with alder and willow growing on fine floodplain deposits.

The IC-13 design includes a vegetated skeletal bar feature that supports SLJ features and directs flow into the IC-15 meander. The geomorphic objectives are to increase bed height and narrow the width of the existing mainstem, direct flow into the IC-15 meander complex, and prevent recapture of the existing mainstem. The flow objective is to direct at least 70 percent of the channel forming discharge (7,155 cfs) through the new meander (IC-15). The constructed bar side slopes will be 5:1 and the feature height above the channel bed is 6 ft.

Area IC-14 spans the existing mainstem and includes the left channel margin at RM 82.98 for a total area of 0.1 acres. The existing mainstem substrate is coarse. The left channel margin is vegetated with alders growing on fine floodplain deposits.

The IC-14 design includes a vegetated bar feature at the downstream end of the constructed side channel adjacent to constructed floodplain R-9 and the IC-15 forced meander complex. The geomorphic objective is to maintain channel sinuosity and pool/riffle morphology by preventing recapture of the existing mainstem channel. The flow objective is to limit split channel flow to no more than 30 percent of geomorphic bankfull discharge, which could be accomplished in conjunction with R-9 and IC-13. The constructed vegetated bar would reduce the mainstem channel to a 25-ft wide side channel during summer base flow. This bar feature would help control outflow from the cutoff channel, reducing the risk of mainstem channel recapture. The design side slopes are 1:1 and the feature is 7 ft in height from toe to crest.

Area IC-15 spans the right overbank floodplain area from RM 82.95 to RM 83.03 for a total area of 0.8 acres. The existing riparian floodplain is vegetated with grasses, willow, and alder growing on fine dredge tailings.

The IC-15 design consists of a forced meander, point bar, and pool feature. The geomorphic objectives are to increase low water channel length, sinuosity, and complexity; to decrease meander wavelength and radius of curvature; to provide the physical template for future channel migration; and to increase connectivity between the mainstem channel and floodplain. The flow objective is to capture at least 70 percent of the channel forming discharge (7,155 cfs) through the new meander and direct its energy into the right bank to promote bed scour, channel complexity and dynamism. The design radius of curvature is 100 ft, and slope of the point bar at the apex is 6:1. Bank slope will increase upstream and downstream away from the apex to 2:1. The outside of the bend has a bank slope of 1:1 and impinges on fine dredge tailings. Depending on the composition of surface substrate at fishing grade, the point bar and outside bank may be over-excavated to a depth of 2 ft and backfilled with spawning gravel (⅝-inch to 5-inch gradation). Summer baseflow pool depth is approximately 6 ft.

Area IC-16 spans the mainstem and the right overbank floodplain area near RM 82.95 for a total area of 0.7 acres. The mainstem channel substrate is coarse. The riparian floodplain is vegetated with willow and alder growing on fine alluvium.

The IC-16 design includes a constructed riffle connecting the downstream-most forced meander complex to the existing mainstem alignment and a bar to promote flow shoaling into the left bank of the existing mainstem. The geomorphic objective is to create a riffle composed primarily of spawning gravel (⅝-inch to 5-inch diameter) sloping away from the IC-15 meander complex. The flow objectives are to direct flow toward the existing mainstem alignment and increase elevation of the backwater profile to enhance pool depth in the IC-15 meander complex. The design riffle crest elevation is 1,481.5 ft, with 0.13 percent bed slope, and is 160 ft long.

Riverine Areas

Area R-2 spans the upper floodplain area from RM 83.26 to 83.32 for a total area of 12,197 ft^2 (0.3 acre). The floodplain area is vegetated with annual grasses, willows and ground cover growing primarily on fine dredge tailings.

The R-2 design includes a tributary channel capturing groundwater and hillslope runoff, providing low velocity refuge for juvenile salmonid rearing habitat. The geomorphic goal is to create a tributary hillslope drainage channel increases low water bank length. The flow goal is to provide connectivity for hillslope runoff and groundwater seepage to the IC-6 alcove and mainstem Trinity River. The design tributary channel will have a minimum 15-ft bottom width, 50-ft top width, 2:1 side slopes, and 0.3 percent bed slope.

The R-2 right bank hillslope design is expected to collect surface runoff and groundwater seepage. Frequent wetting is expected to allow for natural recruitment of riparian vegetation within the channel, which will lower velocity and increase sediment deposition within the R-2 area over time. The constructed feature is expected to collect overbank flows when the mainstem flow rate exceeds 12,000 cfs and route them downstream to rejoin the main channel near IC-7. These infrequent large flows are expected to provide additional sediment transport capacity, helping to maintain the channel over time.

Area R-3 spans the upper floodplain area from RM 83.25 to 83.5 for a total area of 186,00 ft^2 (4.3 acres). The floodplain area is vegetated with annual grasses, willows and ground cover growing on an alluvial mixture with approximately 60 percent spawning gravel.

The R-3 design includes an excavated floodplain and riparian planting bench. The geomorphic goal is to lower floodplain elevations to decrease flow confinement and reduce stream power, thereby promoting deposition of gravel-sized material suitable for spawning. Flow interaction with the R-3 floodplain is complex due to its range in elevation and geometry. The lower area backwaters at flows of approximately 2,500 cfs, providing a large zone of low velocity refugia. The middle zone is activated by flows of at least 4,500 cfs. Flows greater than the geomorphic bankfull discharge (7,155 cfs) will breakout from the IC-4 riffle area and flow onto the upstream end of the floodplain. The riparian planting benches are designed with three sloping planting zones with average elevations of: 1,488 ft, 1,491 ft, and 1,494 ft. The zones are designed to be inundated by flows of 2,000, 4,500, and 7,200 cfs, respectively.

The R-3 lowered floodplain design is expected to provide opportunities for establishment of native vegetation and improve channel–floodplain hydraulic connectivity. Reinforcement by SLJ-2 is sufficient to delay erosion of the upstream end of the floodplain such that the new channel alignment is expected to become established, and the channel will not avulse across R-3 in the near term (i.e., 5 years).

Area R-4 spans the upper floodplain area from RM 83.27 to 83.3 for a total area of 26,300 ft^2 (0.6 acres). The floodplain area is vegetated with annual grasses, willows and ground cover growing on fine dredge material.

The R-4 design includes an excavated floodplain and riparian planting bench with two planting zones with average elevations of 1,488.8 ft and 1,486.8 ft. The geomorphic goal is to promote inundation of riparian planting areas and deposition of fine sediment by lowering floodplain elevations. The flow goal is to for the R-4 floodplain to be partially inundated when flows exceed 2,500 cfs and fully inundated by flows greater than 4,500 cfs. The R-4 lowered floodplain is expected to be a depositional zone and accumulate fine sediment over time.

Area R-5 spans the mainstem and includes the left bank riparian channel and left upland floodplain area from RM 83.12 to RM 83.28for a total area of 2.8 acres. The mainstem substrate is coarse. The left bank riparian channel is vegetated with alder and willow growing on fine alluvium. The upland floodplain area is vegetated with annual grasses, willows and ground cover.

The R-5 design includes a multi-level excavated floodplain area with three planting zones with average elevations of 1,487.4 ft, 1,490.4 ft and 1,493 ft. The geomorphic objectives are to: (1) promote long-term increased sinuosity, low-water bank length, coarse sediment entrainment, and channel complexity by filling in the mainstem and directing flow into the IC-7 meander complex; and (2) to promote inundation of riparian areas at or below geomorphic bankfull (7,155 cfs) and fine sediment deposition through terrace lowering. The flow objectives are to direct at least 75 percent of channel forming discharge into the IC-7 meander complex and to activate lower floodplain features at 2,500 cfs and middle floodplain features at 4,500 cfs, allowing for flow-through from the IC-6 riffle area. Flows greater than 7,155 cfs will inundate the entire constructed floodplain. The majority of the planting area is designed to an elevation ranging between 1,489 ft and 1,491 ft and inundated by flows greater than 4,500 cfs. The channel-fill areas of R-5 are designed to be composed primarily of spawning gravel with 20 percent fines to facilitate

establishment of plantings, plus a skeletal framework of large cobbles and small boulders on the upstream side that reduces immediate bed mobility risk and recapture of the existing mainstem channel.

Area R-7 spans the mainstem from RM 83.07 to RM 83.13 for a total area of 0.6 acres. The mainstem substrate is coarse. The R-7 design includes a bi-level floodplain and riparian planting area within the split channel adjacent to meander IC-10. The geomorphic objectives are to: (1) increase sinuosity, low-water bank length, coarse sediment entrainment, and channel complexity by filling in the mainstem and directing flow into the IC-10 meander complex; and (2) promote inundation of riparian areas and fine sediment deposition through terrace lowering. The flow objectives are to: (1) direct at least 70 percent of channel forming discharge into the IC-10 meander complex; and (2) activate lower floodplain features above 2,000 cfs and middle floodplain features above 4,000 cfs, allowing for flow-through from the IC-8 riffle area. Flows greater than 7,155 cfs will inundate the entire floodplain and flow directly across the feature. The floodplain design is composed primarily of spawning gravel with 20 percent fines, reinforced with large cobbles/small boulders on upstream end. Proposed design elevations of the two planting zones are 1,486.2 ft and 1,488.2 ft. The floodplain is designed to be inundated by flows greater than 2,000 cfs and 4,000 cfs, respectively.

Area R-8 spans the upper left floodplain area from RM 82.95 to RM 83.08 for a total area of 1.4 acres. The floodplain area is vegetated with annual grasses, willows and ground cover growing on poorly graded alluvial mix with approximately 60 percent spawning gravel (Reclamation 2011).

The R-8 design includes a bi-level excavated floodplain and riparian planting area on the left bank of the downstream end of the constructed IC-10 meander. The geomorphic objectives are to: (1) increase channel complexity and dynamic channel development by allowing flows to escape the mainstem and flow across the floodplain into a wooded riparian area; and (2) promote inundation of riparian planting areas and deposition of fine sediment adjacent to the IC-10 meander by lowering floodplain elevations. The designed flow objectives are to inundate the upstream half of the R-8 floodplain by flows ranging between 1,200 cfs and 2,700 cfs. Flows greater than 4,500 cfs will activate the entire R-8 floodplain surface and reconnect with the mainstem via a dense strip of riparian vegetation at the downstream end of the feature. Design elevations of the upstream and downstream floodplain areas are 1,485.5 ft and 1,487.3 ft. respectively.

Area R-9 spans the mainstem and right riparian area from RM 82.95 to RM 83.03 for a total area of 0.7 acres. The mainstem substrate is coarse. The right riparian area is vegetated with alder and willow growing on fine dredge tailings.

The R-9 design includes a floodplain and riparian planting area created by excavation of the existing right bank terrace and filling of the existing mainstem next to the IC-15 meander. The geomorphic objectives are to: (1) increase sinuosity, low-water bank length, coarse sediment entrainment, and channel complexity by filling in mainstem and directing flow into the IC-15 meander complex; and (2) to promote inundation of riparian areas and fine sediment deposition through floodplain lowering. The flow objective is to direct at least 70 percent of channel forming discharge into the IC-15 meander complex and activate floodplain features at 4,500 cfs, allowing for flow-through from the IC-12 riffle area. Flows greater than 7,155 cfs will inundate entire surface and flow directly across the R-9 area. Area R-9 mainstem channel fill is designed to reduce flow conveyance and mainstem channel recapture.

Upland Areas

Area U-2 occurs on upland coarse dredge tailings on the right floodplain from RM 82.98 to RM 83.25 for a total area of 2.5 acres. The area is vegetated with sparse hardwoods and no ground cover. Area U-2 contains approximately 244,600 cubic yards of spawning gravel (material from ⅝-inch to 5-inch diameter), 70 percent by volume (Reclamation 2011). The U-2 project area is both a source of coarse material (greater than ⅝-inch) for use in riffles, point bars, engineered log jams, large wood hydraulic units, and spawning gravel, and the location for material excavated from right bank project areas. Excavated Material less than ⅝-inch excavated from right bank will be stockpiled and placed atop U-2 to provide soil that better supports native vegetation.

Area U-4 occurs on the upland floodplain area on the left overbank from RM 83.1 to 83.25 for a total area of 174,300 ft^2 (4.0 acres). The area is vegetated with annual grasses and sparse hardwoods, growing on a mixture of coarse alluvium containing 60 percent spawning gravel. The U-4 design is a spoil area for excess fine material excavated from the channel and will be planted with native vegetation after construction is complete.

Area U-5 occurs on the upland floodplain area on the left overbank from RM 82.96 to 83.05 for a total area of 71,900 ft^2 (1.7 acres). The area is vegetated with annual grasses and sparse hardwoods, growing on a mixture of coarse alluvium containing 60 percent spawning gravel. The U-5 design is a spoil area for excess fine material excavated from the channel and will be planted with native vegetation after construction is complete.

Area U-6 occurs on an upland area affected by historic hydraulic mining activity on the right floodplain from RM 83.03 to 83.05 for a total area of 25,800ft^2 (0.6 acres). The area is vegetated with sparse hardwoods and little to no ground cover. Area U-6 contains gullies that were created due to hydraulic mining. These gullies are capable of accommodating roughly 4,000 cubic yards of excess fine material excavated from the channel and can thus serve as a contingency spoil area if needed. Spoiling and grading material in this area will contribute to restoring the terrain to a pre-mined state.

Area U-7 occurs on upland coarse dredge tailings on the right floodplain from RM 83.03 to 83.09 for a total area of 51,300 ft^2 (1.2 acres). The area is vegetated with sparse hardwoods and no ground cover. The U-7 design involves lowering the existing tailings pile to create a swale that conveys surface water. Material cut from U-7 will be processed and used in other activity areas.

Area U-8 occurs on upland coarse dredge tailings on the right floodplain from RM 82.85 to 82.98 for a total area of 86,800 ft^2 (2.0 acres). The area was previously used for placement of excavated material (spoils) during the Deep Gulch Sheridan Creek project. The U-8 design is an upland placement fill area for material excavated from the channel and will be planted with native vegetation after construction is complete. The topsoil and slash from the previous treatment will be stockpiled and reserved, and replaced in the same area at the completion of the project.

Large Wood Hydraulic Units and Habitat Elements, and Whole Tree Placement

Structured Log Jams

Area SLJ-3 spans the mainstem channel and left bank channel margin from RM 83.23 to 83.27 for a total area of 4,900 ft^2 (0.10 ac) The main channel substrate is coarse. The left bank channel margin is vegetated with dense alder and willow growing on fine alluvium.

The SLJ-3 design is a bank enhancement designed to reinforce the upstream edge of the R-5 floodplain and direct flow into the newly created IC-7 meander complex. The geomorphic goal is to protect the upstream face of the R-5 floodplain/channel infill feature with large woody debris, thereby promoting channel sinuosity and contributing to the prevention of original mainstem channel recapture. The flow goal is to maintain structural integrity during flows up to 9,000 cfs and provide low velocity refugia along channel margin.

The SLJ-3 design is expected to reinforce the upstream edges of channel infill areas and direct flow into the new channel alignment. It is meant to be less robust than an engineered log jam. SLJ-3 is expected to begin to break down, with large wood elements being transported downstream, at flows of about 9,000 cfs. It is expected to contribute meaningfully to the overall hydraulic complexity and encourage formation of the new channel alignment prior to decomposition by high flows.

Area SLJ-4 spans the mainstem channel and right bank channel margin near RM 83.16 for a total area of 2,900 ft^2 (0.07 ac). The main channel substrate is coarse. The right bank channel margin is vegetated with dense alder and willow growing on fine alluvium.

The SLJ-4 design is a bank enhancement composed of coarse sediment, large wood, and willow clumps constructed into the IC-9 forcing element that limits flow into the cutoff channel along the constructed R-7 floodplain. The geomorphic goal is to protect the upstream face of the IC-9 channel infill feature with large woody debris, thereby promoting channel sinuosity and contributing to the prevention of original mainstem channel recapture. The flow goal is to maintain structural integrity during flows up to 9,000 cfs and provide low velocity refugia along channel margin.

The SLJ-4 design is expected to reinforce the upstream edges of channel infill areas and direct flow into the new channel alignment. It is meant to be less robust than an engineered log jam. SLJ-4 is expected to begin to break down, with large wood elements being transported downstream, at flows of about 9,000 cfs. It is expected to contribute meaningfully to the overall hydraulic complexity and encourage formation of the new channel alignment prior to decomposition by high flows.

Area SLJ-5 spans the mainstem channel and left bank channel margin at RM 83.04 for a total area of 1,100 ft^2 (0.03). The main channel substrate is coarse. The left bank channel margin is vegetated with dense alder and willow growing on fine alluvium.

The SLJ-5 design is a bank enhancement designed to reinforce the upstream edge of the R-7 floodplain while providing hydraulic cover. The geomorphic goal is to protect the upstream face of the R-7 floodplain/channel infill feature with large woody debris, thereby promoting channel sinuosity and contributing to the prevention of original mainstem channel recapture. The flow goal is to maintain structural integrity during flows up to 9,000 cfs and provide low velocity refugia along channel margin.

The SLJ-5 design is expected to reinforce the upstream edges of channel infill areas and direct flow into the new channel alignment. It is meant to be less robust than an engineered log jam. SLJ-5 is expected to begin to break down, with large wood elements being transported downstream, at flows of about 9,000 cfs. It is expected to contribute meaningfully to the overall hydraulic complexity and encourage formation of the new channel alignment prior to decomposition by high flows.

Area SLJ-6 spans the mainstem channel and left bank channel margin near RM 83.03 for a total area of 5,300 ft^2 (0.12 ac). The main channel substrate is coarse. The left bank channel margin is vegetated with dense alder and willow growing on fine alluvium.

The SLJ-6 design is a bank enhancement composed of coarse sediment, large wood, and willow clumps, placed on the left bank of the main channel on the IC-13 forcing element. The geomorphic goal is to protect the upstream face of the IC-13 floodplain/channel infill feature with large woody debris, thereby promoting channel sinuosity and contributing to the prevention of original mainstem channel recapture. The flow goal is to maintain structural integrity during flows up to 9,000 cfs and provide low velocity refugia along channel margin. The SLJ-6 design would reduce flow into the cutoff channel and force the majority of flow into newly constructed mainstem channel.

The SLJ-6 design is expected to reinforce the upstream edges of channel infill areas and direct flow into the new channel alignment. It is meant to be less robust than an engineered log jam. SLJ-6 is expected to begin to break down, with large wood elements being transported downstream, at flows of about 9,000 cfs. It is expected to contribute meaningfully to the overall hydraulic complexity and encourage formation of the new channel alignment prior to decomposition by high flows.

Area SLJ-7 is a bank enhancement composed of coarse sediment, large wood, and willow clumps, placed downstream of SLJ-6, between IC-12 and R-9 near RM 83.03 for a total of 0.12 acres. Cut and fill volumes for this feature are included in the calculations for R-9.

The SLJ-7 design is a bank enhancement composed of coarse sediment, large wood, and willow clumps, placed on the left bank of the main channel on the IC-13 forcing element. The geomorphic goal is to protect the upstream face of the IC-13 floodplain/channel infill feature with large woody debris, thereby promoting channel sinuosity and contributing to the prevention of original mainstem channel recapture. The flow goal is to maintain structural integrity during flows up to 9,000 cfs and provide low velocity refugia along channel margin. The SLJ-7 design would reduce flow into the cutoff channel and force the majority of flow into newly constructed mainstem channel.

The SLJ-7 design is expected to reinforce the downstream edges of channel infill areas and direct flow into the new channel alignment. It is meant to be less robust than an engineered log jam. SLJ-7 is expected to begin to break down, with large wood elements being transported downstream, at flows of about 9,000 cfs. It is expected to contribute meaningfully to the overall hydraulic complexity and encourage formation of the new channel alignment prior to decomposition by high flows.

Wood Placement

Area WP-4 occurs on the left bank of the existing channel margin from RM 83.28 to 83.33 for a total of 6,200 ft^2. The main channel substrate is coarse. The channel margin is vegetated with dense alder and willow growing on fine alluvium.

The Area WP-4 is comprised of large whole trees lodged/placed between existing vegetation along channel margins to immediately increase wood loading and habitat cover within mainstem channel without impacting existing riparian tree canopy. Whole tree placement locations were chosen in places that provide benefits to the mainstem channel without impacting construction areas.

Area WP-5 occurs on the right bank of the existing channel margin from RM 83.25 to 83.31 for a total of 6,000 ft^2. The main channel substrate is coarse. The channel margin is vegetated with dense alder and willow growing on fine alluvium.

The Area WP-5 is comprised of large whole trees lodged/placed between existing vegetation along channel margins to immediately increase wood loading and habitat cover within mainstem channel without impacting existing riparian tree canopy. Whole tree placement locations were chosen in places that provide benefits to the mainstem channel without impacting construction areas.

Area WP-6 spans the low-lying area on the right overbank from RM 83.25 to 83.29 for a total area of 18,600 ft^2. The right overbank area is vegetated with willow and a dense groundcover of blackberry and grape growing on fine dredge tailings.

The WP-6 design is a habitat enhancement zone in the IC-6 alcove area. The geomorphic goal is to create areas of local scour and deposition. The flow goal is to provide immediate cover, depth, and velocity refugia for all salmonid life stages. Shear stress is generally less than 0.2 psf during a 7,155 cfs event, creating an opportunity for relatively “loose” wood placement for cover for salmonids of all life stages.

Area WP-6 is expected to provide cover for salmonids of all life stages, improve winter rearing habitat through introduction of low velocity refugia, and provide local variability in bed scour and deposition.

Area WP-7 spans the mainstem and includes the right and left bank channel margins from RM 83.18 to 83.2 for a total area of 2,000 ft^2. The mainstem substrate is coarse. Both the right and left bank channel margins are densely vegetated with alder and willow growing on fine alluvium.

The WP-7 design is a habitat enhancement area on the left side of the IC-8 riffle structure, downstream end of floodplain R-5. The geomorphic goal is to create areas of local scour and deposition. The flow goal is to provide immediate cover, depth, and velocity refugia for all salmonid life stages. Shear stress is less than 0.5 psf during a 7,155 cfs event along the channel bank. However, the middle third the proposed placement is

expected to be subject to shear stresses of 1 psf. Despite this pocket of high shear, there is an opportunity for relatively loose wood placement, i.e., rootwads placed in the channel facing upstream, possibly with pin logs, with minimal fill placement and no plantings.

Area WP-7 is expected to provide cover for salmonids of all life stages, improve winter rearing habitat through introduction of low velocity refugia, and provide local variability in bed scour and deposition.

Area WP-8 spans the retained channel of the existing mainstem (see Figure 2-1) and includes the right bank channel margins from RM 83.06 to 83.15 for a total area of 29,400 ft^2. The mainstem substrate is coarse. The right bank channel margin is vegetated with alder and willow growing on fine alluvium.

The WP-8 design is a habitat enhancement zone with relatively low shear stresses (generally less than 0.15 psf at 7,155 cfs in the middle of the cutoff channel and 0.5 psf at the margins), providing plentiful opportunities for large wood placement to provide cover for salmonids of all life stages. The geomorphic goal is to create areas of local scour and deposition. The flow goal is to provide immediate cover, depth, and velocity refugia for all salmonid life stages.

Area WP-8 is expected to provide cover for salmonids of all life stages, improve winter rearing habitat through introduction of low velocity refugia, and provide local variability in bed scour and deposition.

Area WP-10 spans the retained channel of the existing mainstem (see Figure 2-1) and left bank channel margin from RM 82.93 to 83.03 for a total area of 22,900 ft^2. The mainstem substrate is coarse. The left bank channel margin is densely vegetated with alder and willow growing on fine alluvium.

The WP-10 design is a habitat enhancement zone with relatively low shear stresses (generally less than 0.1 psf at 7,155 cfs), providing plentiful opportunities for large wood placement to provide cover for salmonids of all life stages. The geomorphic goal is to create areas of local scour and deposition. The flow goal is to provide immediate cover, depth, and velocity refugia for all salmonid life stages.

Area WP-10 is expected to provide cover for salmonids of all life stages, improve winter rearing habitat through introduction of low velocity refugia, and provide local variability in bed scour and deposition.

Area WP-11 occurs on the left bank of the existing channel margin from RM 82.90 to 82.94 for a total of 6,000 ft^2. The main channel substrate is coarse. The channel margin is vegetated with dense alder and willow growing on fine alluvium.

The Area WP-11 is comprised of large whole trees lodged/placed between existing vegetation along channel margins to immediately increase wood loading and habitat cover within mainstem channel without impacting existing riparian tree canopy. Whole tree placement locations were chosen in places that provide benefits to the mainstem channel without impacting construction areas.

Area WP-12 occurs on the right bank of the existing channel margin from RM 82.85 to 82.89 for a total of 3,400 ft^2. The main channel substrate is coarse. The channel margin is vegetated with dense alder and willow growing on fine alluvium.

The Area WP-12 is comprised of large whole trees lodged/placed between existing vegetation along channel margins to immediately increase wood loading and habitat cover within mainstem channel without impacting existing riparian tree canopy. Whole tree placement locations were chosen in places that provide benefits to the mainstem channel without impacting construction areas.

Construction Methods and Schedule

Earthmoving equipment that may be used to complete the rehabilitation activities includes off-road articulated dump trucks, wheel loaders, tracked excavators, dozers, push-pull scrapers, water tenders, and graders. For materials that are hauled from off-site, such as large wood, trucks capable of hauling up to 20 cubic yards at a time would obtain the materials from private forested lands throughout the Trinity River watershed. Large boulders, cobbles, and gravel would primarily be obtained through processing of alluvial material in the project area or would come from a local commercial source. Gravel would be transported from clean stockpiles stored at previous TRRP channel rehabilitation/gravel processing sites. Potential stockpiles include those on private lands at the Lower Junction City and Upper Junction City sites, as well as at other authorized sources on BLM lands.

The proposed rehabilitation activities are planned for construction between 2019 and 2021; the availability of funding may accelerate some elements of the project. Some staging of materials, such as trees and gravel, may occur on private land within the project area before construction begins, and on

BLM lands after completion of the National Environmental Policy Act process and acquisition of required permits. The flow release schedule established for a particular water year may limit surface disturbance activities below the ordinary high-water mark during the late spring through early summer. Processing of alluvial and material and dredger tailings (i.e., Areas U-6) is expected to take 4 to 6 weeks and could be accomplished at any time of year. Although the majority of in-channel and river left excavation and grading activities would typically occur between July 15 and September 15, excavation may continue later if surface water runoff does not increase the mainstem Trinity River turbidity by more than 20 percent. (Trinity River summer turbidity is typically very low at between 0.5 and 5.0 nephelometric turbidity units [NTUs]). Revegetation work (e.g., planting of willow pole cuttings and/or container plants and seeding with native grasses) would generally take place in the wet season (fall/winter) following construction or during the year after construction. If access across the river is needed for revegetation work, equipment would use the crossings only during the in-river work window from July 15 to September 15. Construction of in-river work at the site would be a priority, and it would be preferable to also perform the efforts associated with processing alluvial material at both sites to reduce noise and air quality impacts.

Processing and stockpiling activities would ideally occur once, rather than several times during the course of the project to increase efficiency and reduce construction-related impacts. To the extent possible, activity areas U-2, U-6 and U-7 would be the priority area for processing and stockpiling within the project area. After all of the in-river work (IC areas) is completed, excavation and grading on the left bank channel would continue through the fall with project construction completed by December. Alternatively, construction would be sequenced as funding and environmental constraints allow, within the guidelines discussed previously this section.

APPENDIX C

Aquatic Conservation Strategy Consistency Evaluation

APPENDIX C

CHAPMAN RANCH PHASE A (RIVER MILE 82.8-83.5) AQUATIC CONSERVATION STRATEGY CONSISTENCY EVALUATION

INTRODUCTION

The Bureau of Reclamation (Reclamation), under the auspices of the Trinity River Restoration Program (TRRP), is the proponent for implementing a series of channel rehabilitation and sediment management activities throughout the 40-mile reach of the Trinity River below Lewiston Dam. This evaluation is for the Chapman Ranch Phase A site (River Mile 82.8-83.5), as described in Chapter 2 of this Environmental Assessment/Initial Study (EA/IS).

This document evaluates and determines the consistency of the TRRP activities with the Aquatic Conservation Strategy (ACS) in the Record of Decision (ROD) for the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Related Species within the Range of the Northern Spotted Owl. The ACS was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The ROD amended the Redding Resource Management Plan (RMP) prepared by the Bureau of Land Management (BLM) in 1994.

The intent of this evaluation is to ensure that decision makers have the information necessary to determine whether the proposed TRRP activities at the Chapman Ranch Phase A site is consistent with the ACS objectives. This evaluation incorporates information provided in the Mainstem Trinity River Watershed Analysis (U.S. Bureau of Land Management 1993), incorporates by reference the 2009 Master Environmental Impact Report prepared by Reclamation in cooperation with BLM, and other information in the administrative record to assist the decision maker. To make the finding that a project or management activity “meets” or “does not prevent attainment” of the ACS objectives, the decision maker must ensure that management actions that do not maintain the existing condition or lead to improved conditions in the long term would not be implemented.

The ACS states that species-specific strategies aimed at defining explicit standards for habitat elements would be insufficient for protecting even the targeted species. The intent of the ACS is to maintain and restore ecosystem health at watershed and landscape scales to protect habitat for fish and other riparian-dependent species and resources and to restore currently degraded habitats. This approach seeks to prevent further habitat degradation and restore habitat over broad landscapes as opposed to implementing individual projects or focusing on small watersheds. Because the ACS is based on natural disturbance processes, the ROD recognized that it is a long-term strategy that may take decades, and possibly more than a century, to accomplish all its objectives.

The ACS contains four components: riparian reserves, key watersheds, watershed analysis, and watershed restoration. Each component is integral to improving the health of the aquatic ecosystems encompassed by the ROD. A detailed discussion of these components is provided in the ROD.

Since the BLM's RMP predated the ROD, it was subsequently amended to include Attachment A of the ROD.

Attachment A of the ROD includes Standards and Guidelines (S&Gs) that were incorporated as management direction into the BLM RMP to ensure compliance with the ROD. This hierarchy of land allocations is described below.

1. *Congressional Reserved Areas – Includes wilderness, federal wild and scenic Rivers, national monuments, and other federal lands not administered by the Forest Service or Bureau of Land Management.*

2. *Late Successional Reserves – Lands identified with an objective of protecting and enhancing conditions for late-successional and old-growth forest ecosystems.*

3. *Adaptive Management Areas – Areas with objectives of developing and testing new management approaches to integrate ecological and economic health and other social objectives.*

4. *Managed Late-Successional Areas – Specific late-successional areas in the drier provinces where regular and frequent fire is a natural part of the ecosystem.*

5. *Administratively Withdrawn Areas – Areas identified in current Forest and District Plans or draft plan preferred alternatives. These areas include recreation and visual areas, backcountry areas, and other areas where management emphasis precludes scheduled timber harvest.*

6. *Riparian Reserves – As a key component of the ACS, riparian reserves provide an area along all streams, wetlands, ponds, lakes, and unstable/potentially unstable areas where riparian-dependent resources receive primary emphasis. These reserves are important to the terrestrial ecosystem as well, providing connectivity corridors and dispersal habitat for certain terrestrial species.*

7. *Matrix – The matrix consists of those federal lands outside the six previous allocations.*

The activities proposed by Reclamation under the auspices of the TRRP are confined to a narrow corridor that parallels the Trinity River from Lewiston Dam downstream to Helena, California. This section of the Trinity River is both federally and state designated as a wild and scenic river; it therefore meets the definition of a Congressionally reserved area. Riparian reserve and matrix designations are also used to classify lands within this corridor. This evaluation focuses on riparian reserves as defined in the RMP.

The following sections of this evaluation address the consistency of the TRRP's proposed action at the Chapman Ranch Phase A site with the four components of the ACS and the nine ACS objectives described in Attachment B to the ROD.

COMPONENTS OF THE AQUATIC CONSERVATION STRATEGY

Riparian Reserves

The project area contains riparian reserves, as defined in the BLM's RMP. Watershed analyses have been completed by BLM for federal lands within the Trinity River corridor; these analyses did not modify the designated widths of the riparian reserves established by the S&Gs described in the BLM's RMP as amended by the ROD. The width of the riparian reserves essentially correlates with the floodplain of the Trinity River, as well as a buffer around riparian features identified during the wetland delineation process within the project area defined for the Chapman Ranch Phase A site. Table E-1 at the end of this document shows the S&Gs that were integrated into the project.

Key Watersheds

There are no key watersheds within or downstream of the 40-mile reach of the Trinity River downstream of Lewiston Dam, although the Forest Service does manage key watersheds in the upper Trinity River watershed, primarily associated with the Salmon-Trinity Alps Wilderness Area. This component of the ACS is therefore not applicable to the activities proposed by the TRRP in the Chapman Ranch Phase A EA/IS.

Watershed Analysis

The BLM conducted watershed analyses for the lands within the Trinity River corridor. These analyses did not identify specific recommendations regarding the riparian reserve widths; therefore, the S&Gs established under the ACS are applicable to this project. Any activities proposed within these riparian reserves will conform to the site-specific conditions established in the S&Gs to ensure consistency with the ACS.

Watershed Restoration

By its nature, the proposed project is a comprehensive ecosystem restoration project intended to restore the physical processes and biological resources of the mainstem Trinity River. While some short-term impacts may occur to riparian-dependent species (e.g., short-duration turbidity increases), the scale of the activities proposed by the TRRP, including this project, ensures that restoration of ecological processes and functions will be consistent with the ACS.

Aquatic Conservation Strategy Objectives

The following section evaluates the consistency of the proposed action with the nine ACS objectives listed in Attachment B of the ROD.

The lands managed by the BLM within the range of the northern spotted owl will be managed to:

1. *Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.*

The project by its nature is intended to restore the landscape processes, specifically the alluvial and riparian functions, that have been impaired by construction of the Trinity River Division of the Central Valley Project. The activities that are proposed on BLM-managed lands subject to the ACS are an integral part of the larger project and are intended to assist BLM in attaining this ACS objective.

2. *Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.*

The project area defined in Figure 2-2 of the EA/IS for the Chapman Ranch Phase A project ensures that project activities are implemented in a manner that complements the functional values offered by the Trinity River between the Lewiston and Helena. The TRRP, in cooperation with BLM, has been involved in the identification and prioritization of channel rehabilitation sites for a number of years. The proposed project has been designed to acknowledge the interrelationship between aquatic and riparian habitats that occur throughout this reach. Specifically, this project includes a number of activities to enhance the connectivity of aquatic and riparian habitat in the general vicinity of the project area consistent with the overall objectives of the TRRP for the 40-mile reach of the Trinity River downstream of Lewiston Dam. Modifications of floodplains, removal of grade control structures, enhancement of main-channel habitat, and augmentation of spawning gravel are examples of restoring connectivity for a variety of aquatic and riparian-dependent species. The intent of this project is to assist the BLM in attaining this ACS objective.

3. *Maintain and restore the physical integrity of the aquatic system, including shorelines, banks and bottom configurations.*

A fundamental component of the proposed project are the activities intended to restore the bed, banks, and floodplain of the Trinity River. The modification of grade control, expansion of functional floodplain habitat, efforts to enhance the coarse sediment supply, and placement of large wood and boulders that provide refugia habitat are examples of the activities intended to restore the physical integrity of the aquatic system. Collectively, these efforts are designed to restore the alluvial habitat and associated riparian character of the Trinity River, which was impaired by reductions in flow and sediment upstream. The intent of this project is to assist the BLM in attaining this ACS objective.

4. *Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.*

By its nature, the project will require removal of vegetation and extensive grading activities, including construction within the active channel of the Trinity River. In 2015, the North Coast Regional Water Quality Control Board (Regional Water Board) reissued three General Permits to the TRRP that provide authorization for channel rehabilitation, fine sediment management, and coarse sediment management activities under Section 401 of the Clean Water Act (CWA). As a cooperating agency, BLM has also worked closely with the TRRP to ensure that Best Management Practices are incorporated into the project description as environmental commitments to minimize effects on water quality. Compliance with conditions established by the U.S. Army Corps of Engineers consistent with the requirements of Nationwide Permit 27 will ensure compliance with Section 404 of the CWA. As proposed, this project would be consistent with the requirements of the Regional Water Board and the BLM's RMP; it would therefore not prevent attainment of this ACS objective.

5. *Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.*

A fundamental element of the TRRP is restoration of the sediment regime in a manner that enhances the alluvial character of the 40-mile reach of the Trinity River downstream of Lewiston Dam. The Chapman Ranch Phase A project would ensure that the coarse sediment fraction of the sediment regime will be replenished on an ongoing basis, consistent with the timing, volume, and rates appropriate for the scaled-down channel. The inclusion of large wood and boulder features also increases the functional benefits of gravel augmentation with respect to delivery, transport, and storage. While there may be a change in the timing or volume of sediment input, overall the project is intended to assist BLM in attainment of this ACS objective.

6. *Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*

The proposed project would not influence any in-stream flows. No modifications to the flow regime of the Trinity River or its tributaries are proposed; therefore, this ACS objective would be met.

7. *Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.*

The activities to modify the bed, banks, and floodplains of the Trinity River within the project boundary are designed to maintain and/or restore the hydrologic connection between the river and adjacent wetland/riparian habitat. By reducing the floodplain elevations, the current flow regime could provide additional opportunities to establish functional, connected wetland habitat adjacent to the Trinity River. The creation of off-channel wetland complexes that are hydrologically connected to the Trinity River will dramatically increase the wetland and riparian habitat within this 1-mile long segment. This project would be consistent with this ACS objective.

8. *Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.*

A fundamental objective of the TRRP is to restore the species composition and structural diversity of native plant communities that occur along the mainstem Trinity River. The modifications proposed to the active channel, floodplain, and upland activity areas within the boundaries of the Chapman Ranch Phase A site would provide conditions that are receptive to the reintroduction of a diverse assemblage of native riparian vegetation and reduce the potential for non-native, invasive, and noxious plant species. Woody material of various size classes removed as part of the rehabilitation activities will be incorporated into the project as appropriate. Placement of large wood within and/or adjacent to constructed alluvial features will enhance channel complexity and edge habitat. On-site mulching of vegetative debris will provide effective ground cover and increase successful revegetation efforts. Overall, this natural recruitment of

riparian communities, supplemented by riparian planting efforts, will ensure that this project meets this ACS objective.

9. *Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.*

A fundamental objective of the TRRP is to restore the aquatic, riparian, and upland habitat along the 40-mile reach of the mainstem Trinity River. The project activities emphasize creation and/or rehabilitation of aquatic and riparian habitat within the boundaries of the Chapman Ranch Phase A site. Collectively, these activities are intended to generate geomorphic responses downstream that will further the overall habitat enhancement objectives by reestablishing the alluvial processes that were impaired by the construction and operation of the Trinity River Division. The activities that are proposed on BLM-managed lands subject to the ACS are an integral part of the overall objective of the TRRP and are intended to assist BLM in attaining this ACS objective.

Conclusion

Based on this evaluation, BLM finds that the project described in the NEPA decision document has been designed and would be constructed in a manner that does not prevent future attainment of the ACS objectives. The management actions incorporated into the preferred alternative will maintain the existing condition or lead to improved conditions in the long term, consistent with the intent of the ACS.

Table E1. ACS Applicable Standards and Guidelines

ALL LAND ALLOCATIONS	
Survey and Manage	
2	Survey prior to ground disturbing activities.
RIPARIAN RESERVES	
Timber Management	
TM 1-c	Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquired desired vegetation characteristics needed to attain ACS objectives.
Roads Management	
RF-1	Federal, state, and county agencies should cooperate to achieve consistency in road design, operation, and maintenance necessary to attain Aquatic Conservation Strategy objectives.
RF-2	For each existing or planned road, meet Aquatic Conservation Strategy objectives by:
RF-2a	Minimizing road and landing locations in Riparian Reserves.
RF-2b	Completing watershed analyses (including appropriate geotechnical analyses) prior to construction of new roads or landings in Riparian Reserves.
RF-2c	Preparing road design criteria, elements, and standards that govern construction and reconstruction.
RF-2d	Preparing operation and maintenance criteria that govern road operation, maintenance, and management.
RF-2e	Minimizing disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow.
RF-2f	Restricting sidecasting as necessary to prevent the introduction of sediment to streams.
RF-3	Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:

RF-3a Reconstructing roads and associated drainage features that pose a substantial risk.

RF-3b Prioritizing reconstruction based on current and potential impact to riparian resources and the ecological value of the riparian resources affected.

RF-3c Closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.

RF-4 New culverts, bridges and other stream crossings shall be constructed, and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved, to accommodate at least the 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

RF-5 Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is unfeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.

RF-7 Develop and implement a Road Management Plan or a Transportation Management Plan that will meet the Aquatic Conservation Strategy objectives. As a minimum, this plan shall include provisions for the following activities:

RF-7a Inspections and maintenance during storm events.

RF-7b Inspections and maintenance after storm events.

RF-7c Road operation and maintenance, giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian resources.

RF-7d Traffic regulation during wet periods to prevent damage to riparian resources.

RF-7e Establish the purpose of each road by developing the Road Management Objective.

Recreation Management

RM-1 New recreational facilities within Riparian Reserves, including trails and dispersed sites, should be designed to not prevent meeting Aquatic Conservation Strategy objectives. Construction of these facilities should not prevent future attainment of these objectives. For existing recreation facilities within Riparian Reserves, evaluate and mitigate impact to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy objectives.

LH-3 Locate new support facilities outside Riparian Reserves. For existing support facilities inside Riparian Reserves that are essential to proper management, provide recommendations to Federal Energy Regulatory Commission (FERC) that ensure Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, provide recommendations to FERC that such support facilities should be relocated. Existing support facilities that must be located in the Riparian Reserves will be located, operated, and maintained with an emphasis to eliminate adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives.

LH-4 For activities other than surface water developments, issue leases, permits, rights-of-way, and easements to avoid adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives. Adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that retard or prevent the attainment of Aquatic Conservation Strategy objectives. If adjustments are not effective, eliminate the activity. Priority for modifying existing leases, permits, rights-of-way and easements will be based on the actual or potential impact and the ecological value of the riparian resources affected.

General Riparian Area Management

RA-2 Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees on-site when needed to meet coarse woody debris objectives.

RA-3 Herbicides, insecticides, and other toxicants, and other chemicals shall be applied only in a manner that avoids impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

APPENDIX D

Compliance with Standards and Guidelines for Survey and Manage Species

APPENDIX D

CHAPMAN RANCH PHASE A (RIVER MILE 82.8-83.5) COMPLIANCE WITH STANDARDS AND GUIDELINES FOR SURVEY AND MANAGE SPECIES

The Trinity River Channel Rehabilitation Site: Chapman Ranch Phase A (River Mile 82.8-83.5) project is consistent with court orders relating to the Survey and Manage mitigation measure of the Northwest Forest Plan, as incorporated into the Redding Resource Management Plan, as amended.

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in Conservation Northwest, et al. v. Rey, et al., No. 08-1067 (W.D. Wash.) (Coughenour, J.), granting Plaintiffs' motion for partial summary judgment and finding a variety of National Environmental Policy Act (NEPA) violations in the Bureau of Land Management (BLM) and U.S. Forest Service 2007 Record of Decision (ROD) eliminating the Survey and Manage mitigation measure. Judge Coughenour deferred issuing a remedy in his December 17, 2009, order until further proceedings, and did not enjoin the BLM from proceeding with projects. Plaintiffs and Defendants entered into settlement negotiations that resulted in the 2011 Survey and Manage Settlement Agreement, adopted by the District Court on July 6, 2011.

The Ninth Circuit Court of Appeals issued an opinion on April 25, 2013, that reversed the District Court for the Western District of Washington's approval of the 2011 Survey and Manage Settlement Agreement. The case is now remanded back to the District Court for further proceedings. This means that the December 17, 2009, District Court order which found NEPA inadequacies in the 2007 analysis and records of decision removing Survey and Manage is still valid.

Previously, in 2006, the District Court (Judge Pechman) had invalidated the agencies' 2004 RODs eliminating Survey and Manage due to NEPA violations. Following the District Court's 2006 ruling, parties to the litigation had entered into a stipulation exempting certain categories of activities from the Survey and Manage standard (hereinafter "Pechman exemptions").

Judge Pechman's Order from October 11, 2006, directs:

> "Defendants shall not authorize, allow, or permit to continue any logging or other ground-disturbing activities on projects to which the 2004 ROD applied unless such activities are in compliance with the 2001 ROD (as the 2001 ROD was amended or modified as of March 21, 2004), except that this order will not apply to:
>
> A. Thinning projects in stands younger than 80 years old:
>
> B. Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned;
>
> C. Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream

improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions; and

D. The portions of project involving hazardous fuel treatments where prescribed fire is applied.

Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and management requirements except for thinning of stands younger than 80 years old under subparagraph a. of this paragraph."

Following the District Court's December 17, 2009, ruling, the Pechman exemptions still remained in place. The BLM has reviewed the Trinity River Channel Rehabilitation Site: Chapman Ranch Phase A (River Mile 82.8-83.5) Environmental Assessment/Initial Study in consideration of both the December 17, 2009, partial summary judgment and Judge Pechman's October 11, 2006, order. Because these sites are the focus of a riparian and stream improvement project where the riparian work is riparian planting and obtaining material for placing in-stream, and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions, the BLM has made the determination that this project meets Exemption C of the Pechman Exemptions (October 11, 2006, Order), and therefore may still proceed even if the District Court sets aside or otherwise enjoins use of the 2007 Survey and Manage ROD, since the Pechman exemptions would remain valid in such case.

APPENDIX E

Comment on Public Draft EA/IS and TRRP Response

APPENDIX E

CHAPMAN RANCH PHASE A (RIVER MILE 82.8-83.5) COMMENT ON PUBLIC DRAFT EA/IS AND TRRP RESPONSE

Letter 1

Linda M Allan
P.O. Box 152
Junction city
Ca. 96048
Dec 14th 2018

Brandt Gutermuth
Bureau of Reclamation
TRRP
P.O.Box 1300
Weaverville, Ca. 96093.

Dear Sir,

This letter is in response to the Chapman Ranch project draft EA/IS.

/I would like to thank all the agencies involved for the attempt to enhance fish populations in the Trinity River./The intent to restore fish populations to the levels existing before the dam and to reconnect the floodplain to its pre-dam site seems like highly unrealistic goals considering the fact that we do have a dam in place and a large amount of water being diverted./ A B

/ When discussing this project with others one of the main concerns seems to be the damage done to the surrounding area and displacement of wildlife./With the hints given that funding may be an issue in future I would hope that funding would be set aside to carefully monitor rehabilitation of wildlife and riparian habitat, especially for the projects which have already taken place./If your stated goals cannot be met in a timely manner and there is a lack of funding do we just have to live with the devastation of all this riparian habitat and loss of wildlife?/ C D E

/ I also hope that your agencies are coordinating with yearling releases from Trinity River Hatchery, which I think are released during the summer months, to avoid losses due to project construction./ F

/ I believe that there would be a larger recreation impact than stated./ G

/ Very little mention is made of animals such as otters and beavers,/increased activities of all kinds on the river have made these animals rarer to view./ H I

/Other alternatives could have been presented, perhaps one with less vehicle use, when possible, more manual labor, and a less invasive approach./ J

/ I am all for enhancing fish populations but as this project stands I think the damage to the rest of the environment cancels out the possible benefits to fish./ K

/ If other projects are planned in the future it would be helpful to the public if a synopsis was written in a non-technical manner. This way you might receive more comments./ L

Sincerely,

Linda M Allan

Comment 1A. Appreciation to Agencies

Comment noted. Thank you for your support.

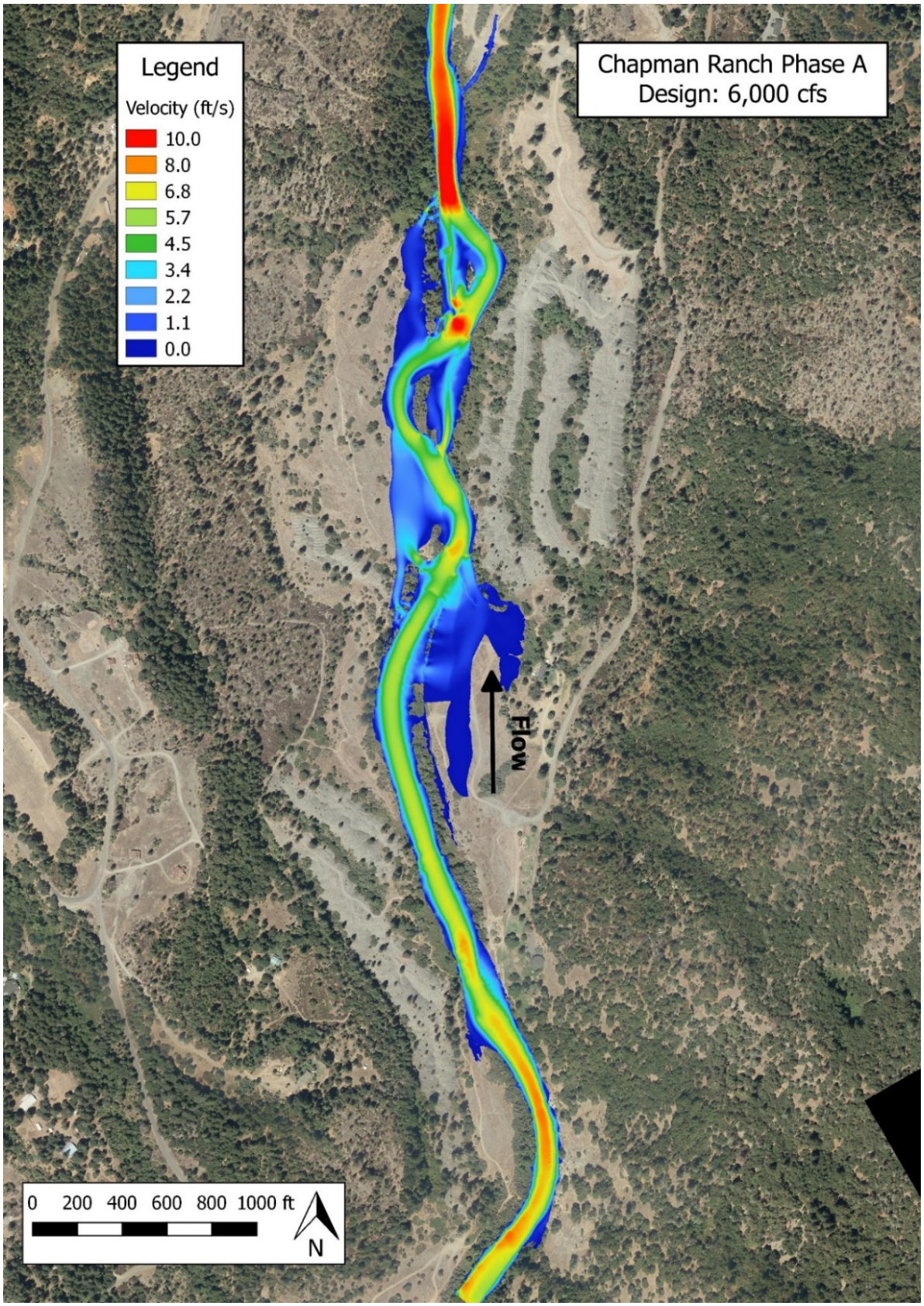
Comment 1B. Goals of Program

The Trinity River Restoration Program (TRRP) is mandated to implement the actions directed in the Trinity River Restoration Program 2000 Record of Decision (ROD; DOI 2000; http://www.trrp.net/library/document/?id=227) in a timely fashion to restore form and function to the Trinity River and recover fish populations. The admittedly lofty goal of restoring fish and wildlife populations to those that existed prior to construction of the Trinity River Division of the Central Valley Project is required under the Trinity River Basin Fish and Wildlife Management Act of 1984 (Public Law 98-541; http://www.trrp.net/library/document/?id=1900) as well as the Central Valley Project Improvement Act (http://www.trrp.net/library/document/?id=258). The decades of scientific studies on the Trinity River, synthesized in the Trinity River Flow Evaluation Study (http://www.trrp.net/library/document/?id=226), support the premise that implementation of the large-scale changes recommended by the Trinity River ROD (e.g., providing a more natural flow regime and reconnecting a large portion of the river with the floodplain while also managing the ROD implementation via an adaptive management program) will allow the federal government to meet its federal trust responsibilities "to protect the fishery resources" and "to meet the fishery restoration goals" of the 1984 Act.

Comment 1C. Surrounding Area and Wildlife

Section 3.13.2 of the Draft EA/IS acknowledges the short-term and temporary impacts to habitat and associated wildlife species related to the proposed project. In addition to the environmental commitments for vegetation, wildlife, and wetlands listed in Table 2-2 and fully described in Appendix F of the Draft EA/IS, the TRRP has modified the size and location of several activity areas to retain additional habitat for riparian-dependent species in response to public comments. Post-project monitoring of wetlands, vegetation, and wildlife species (e.g., fish, birds) for previous TRRP projects indicates that reestablishment of aquatic, riparian, and upland habitat supports a wide array of wildlife species after TRRP projects are implemented.

On page 1-2 of the Draft EA/IS, the lead agencies note that the TRRP approach to channel rehabilitation is to reconnect the river with its floodplain. Project objectives (described on page 1-3) include reestablishing functional complex floodplain habitat and increasing optimal habitat over a wide range of flows for fry and pre-smolt salmon. Figure 3-1 clearly shows the homogenous habitat that currently exists at the site current. The Chapman Ranch Phase A location is a specific Trinity River example of a riverine environment where vegetation has encroached on the floodplain. In addition, historic mining confines the river to a narrow valley where floodplain habitat is unavailable at increased flows. The proposed project would create functioning slow water habitat (for rearing juvenile salmon and steelhead), as shown on the cover of the Draft EA/IS and in the enlarged version below.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10.0
8.0
6.8
5.7
4.5
3.4
2.2
1.1
0.0
Chapman Ranch Phase A
Design: 6,000 cfs
Flow
0 200 400 600 800 1000 ft
N

Comment 1D. Funding for Monitoring

TRRP projects are authorized and implemented consistent with federal (i.e., BLM), state (i.e., North Coast Regional Water Quality Control Board (Regional Water Board)) and local (i.e., Trinity County) requirements. Collectively, these requirements include conditions of approval intended to avoid, minimize, and otherwise mitigate impacts to wetlands, riparian habitat, and water quality and document the performance of TRRP projects over time. We annually fund and implement monitoring protocols to comply with the requirements set forth in the 2009 Master EIR, including the Mitigation, Monitoring and Reporting Program contained in Appendix G of this document.

In addition to the environmental compliance–related requirements to mitigate impacts and demonstrate recovery, every TRRP channel rehabilitation project has a riparian restoration component that is intended to increase the structural complexity and plant species composition of the riparian corridor and ultimately enhance the habitat value of the riparian corridor for wildlife species. We do this through reconnecting the river channel with its floodplain and by directly planting native plants. Funding for this work is part of the overall project budget.

There are literally hundreds of wildlife species in the Trinity River riparian corridor that are not on the state or federal lists of threatened and endangered species, and, unfortunately, existing law provides little justification for monitoring and managing these species. Based on ecological theory, our expectation is that restoring the form and function of the riparian corridor will benefit the non-listed wildlife as well, but at the community level rather than at the level of the individual species. TRRP has funded a variety of wildlife and vegetation monitoring in the past, and the general trend for birds is that populations are holding steady (http://www.trrp.net/library/document/?id=2281); the areal extent of riparian vegetation is holding steady (http://www.trrp.net/library/document/?id=2232); and the population of western pond turtles is increasing (http://www.trrp.net/library/document/?id=2295). Foothill yellow-legged frogs appear to be declining, at least during the 2012–2015 time period, but their population trend seems to be more related to seasonal flow and water temperature patterns rather than channel rehabilitation projects.

Comment 1E. Timely Recovery of Habitat and Wildlife

The Regional Water Board requires impacts to riparian vegetation be mitigated within 10 years of the impact, consistent with the California Department of Fish and Wildlife (CDFW) no net-loss standard. Of course, a 50-year cottonwood gallery cannot be reestablished in 10 years, but our commitment to the regulatory agencies is to have an area of self-sustaining riparian vegetation growing 10 years after the project and on a trajectory to full recovery at least equal to that that existed before the project.

It is important to keep in mind that riparian areas, plants, and wildlife are very resilient to, and often even require, disturbance in order to persist in the watershed. In the Trinity River, huge floods frequently occurred before Trinity Dam was built, and these floods were up to 10 times more powerful than what the Trinity River can currently produce. These floods completely changed large vegetated areas to clean gravel bars and the wildlife communities that formerly used the vegetated areas to different wildlife communities. As the vegetation regrew over time

and its plant structure and species composition changed, so did the wildlife communities. This disturbance and the successional trajectory that it created are severely curtailed by contemporary Trinity River flows, and, without disturbance, the vegetation tends to become simplified in both structure and species composition, largely to the detriment of the wildlife communities. Channel rehabilitation can be viewed as an analog to pre-dam flood disturbance because it removes vegetation and creates new landforms, similar to what a large flood would do. The successional trajectory is reset, and, as the vegetation regrows, it provides habitat for different species than what an old stand of vegetation would provide, similar to what occurred in the pre-dam river.

Comment 1F. Coordination with Hatcheries

All TRRP projects conform to the in-channel work window established by the National Marine Fisheries Service (NMFS) in its 2000 Biological Opinion for the TRRP, as reflected in environmental commitment EC-FR-1 and Appendix F of the Draft EA/IS. This work window is from July 15 through September 15. Both NMFS and CDFW recognize this as the time period when the abundance of anadromous salmonids in the 40-mile reach of the river below Lewiston dam is relatively low. Annually, the abundance of hatchery (and wild) juvenile salmon and steelhead is lowest during the mid-summer period (see Table 1 below). Furthermore, fish released from the Lewiston hatchery are large enough to be capable of swimming away from equipment in the water and using short river reaches with elevated turbidity levels within the project area as cover from predators (e.g., fish-eating birds).

Table 1. General Release Target Numbers by Species/Run for Trinity River Hatchery Fish and Release Dates

Species/Run/Life History	Production Target	Approximate Release Dates
Fall-run Chinook salmon smolts	2,000,000	June 1–June 15
Fall-run Chinook salmon yearlings	1,000,000	October 1–October 15
Spring-run Chinook salmon smolts	900,000	June 1–June 15
Spring-run Chinook salmon yearlings	400,000	October 1–October 15
Coho salmon yearlings	448,000	March 15–May 1
Steelhead yearlings	300,000	March 15–May 1

Comment 1G. Recreation Impact

Section 3.3 of the Draft EA/IS provides a discussion of the affected environment and environmental consequences of the proposed action. A number of environmental commitments were incorporated into the project description to reduce potential impacts to recreation. The comment is acknowledged; however, no information is provided that supports the commenter's statement or enables the TRRP to expand the discussion of this topic in the Draft EA/IS.

Comment 1H. Common Species

Section 3.13.2 of the Draft EA/IS provides a general discussion of the wildlife species that use the aquatic, riparian, and upland habitat in and adjacent to the Trinity River. The comment is

acknowledged; however, no information is provided that supports the commenter's statement or enables the TRRP to expand the discussion of this topic in the Draft EA/IS. The emphasis in the Draft EA/IS is on species that have a special-status designation (e.g., federally listed as threatened Southern Oregon/Northern Coastal California coho salmon) so that impacts to these already diminished species can be evaluated, disclosed, and minimized.

Individuals of more common species, like beaver and otters, are generally capable of moving away from harm (equipment in the river), and, if an individual were harmed, the viability of the population would not be diminished. The project is also timed so that impacts to breeding animals would be minimal. For more information on the wildlife species that are known to occupy habitat within the Trinity River Corridor, impacts to these species, and mitigation measures for special-status species, the commenter is referred to the 2009 Master EIR prepared by Reclamation and the Regional Water Board.

Comment 1I. Wildlife Observations

It is not always the case that wildlife abundance and visibility are related through a simple, linear, cause-and-effect relationship. Many wildlife species are most visible when they are stressed. Most wildlife species, even otters, are potential prey for other species and are safest when they minimize their exposure to predation; in minimizing their exposure to predation, they often minimize their exposure to human observation. For example, when they are on the hunt for food or are searching for cover or mates, they are necessarily more visible; if resources are easily obtained, however, they gain nothing but risk of predation by being more visible than necessary. Otters can use open water surrounding an exposed boulder for cover and so remain more observable than many other animals, but truly wild otters will slip into the water as soon as they detect a human in their presence, which is usually well before the human detects the otter. Beavers are mainly nocturnal animals, so frequent daytime observations could indicate that they need more time to find food than they have at night or that a dispersing juvenile is having a difficult time establishing a new home range. Indeed, frequent observations of wild animals can signal a problem as much as it can indicate a desirable situation. Therefore, casual visual observations can be a misleading representation of population status.

While some wildlife species rapidly habituate to construction equipment and remain on-site during projects, others avoid the project during the construction season. Otters, for example, possibly would have more trouble locating prey with noisy equipment nearby and would be more likely to avoid channel rehabilitation project sites while construction is in progress. These highly mobile, wide-ranging animals can quickly find better areas to inhabit. However, observations by TRRP biologists and engineers indicate that displaced wildlife rapidly re-occupy the site after the construction activity ceases and are sometimes even easier to view than before because riverbanks are more accessible and there are more clearings to allow viewing of the river from a distance. If there are longer-term declines in beaver and otter abundance, it would more likely be related to population-level stressors, such as reduced prey, competition or predation from other animals, or diseases.

Furthermore, the proposed Chapman Ranch Phase A project also includes many aspects that would benefit otters and beavers in the future. The project includes revegetation with native cottonwoods, which are the beaver's preferred food, and otters have been seen recently using

many of the wood installations (structured log jams (SLJs); Figure 2-1) that the TRRP has installed along the river. In addition, beavers have been observed using the Beaver Dam Analog (BDA; man made beaver dam structure) that was built to enhance wetland conditions at the Bucktail project in Lewiston.

Comment 1J Alternative Approaches

Section 2.3 of the Draft EA/IS provides a discussion of alternatives considered but eliminated from further evaluation. To effectively and efficiently meet the project objectives described in section 1.3 of the Draft EA/IS, the TRRP design team developed a number of alternatives over a three-year process that ultimately resulted in the proposed action described in section 2.1 of the Draft EA/IS. The scale of the project with respect to the size of the area and the volume of material that would be moved (see Table 2-1) dictate the type of labor and equipment necessary to quickly implement the project and economically create the large changes in the topography required to return function to the river and create juvenile salmon and steelhead habitat.

Comment 1K. Impacts to Environment

As a program, the TRRP values the opinions of interested and informed stakeholders. In 2009, the Master EIR was prepared to examine the wide array of TRRP projects that were anticipated in the future. A key component of the Master EIR was identifying the potential impacts and benefits of future channel restoration, gravel augmentation, and sediment management projects at multiple scales. The Regional Water Board certified the Master EIR and made findings that recognized the need to balance benefits to the beneficial uses of the Trinity River with other potential environmental impacts (e.g., short-term impacts to wildlife habitat). Subsequent post-project monitoring efforts by the TRRP and its partners indicate that increased habitat for juvenile salmonids does not necessarily result in long-term impacts on recreation or wildlife.

A large part of the Chapman Ranch Phase A project would be to restore historic dredge tailings to more useable habitat. Simple removal of tailings from the valley floor would increase available riverine habitat that would in the long term support a variety of upland, riparian, and aquatic organisms.

Comment 1L. Public Synopsis Should Be Less Technical

This comment is acknowledged. It is challenging to craft a document that meets all of the requirements of multiple regulatory agencies without including substantial technical detail. The Draft EA/IS was prepared to the meet the regulatory requirements of Reclamation and BLM for NEPA consistent with recent direction to streamline the NEPA process. As an IS, the document was prepared consistent with the CEQA Guidelines for use by the Regional Water Board.

The TRRP also holds a public meeting concurrent with the release of a Draft EA/IS. This meeting offers an opportunity for the public to learn about the proposal in a less technical manner, meet TRRP and Partner personnel, ask questions, and provide input; written comments are also accepted at the meeting and taken into consideration in implementing the project. In addition, members of the public are also encouraged to ask TRRP staff in Weaverville about details of any proposed project. Staff are available at 530-623-1800.

APPENDIX F

Environmental Commitments

APPENDIX F

CHAPMAN RANCH PHASE A (RIVER MILE 82.8–83.5) ENVIRONMENTAL COMMITMENTS

Table F-1. Environmental Commitments (EC)

Label	Commitment
	Mineral Resources
EC-MR-1	Reclamation will provide notice of the project to landowners in and adjacent to the project area and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closures. Reclamation will coordinate with private landowners and owners of active mining claims to develop site-specific measures that can be implemented to avoid or lessen project-related impacts to mineral resources associated with the Trinity River and its tributaries.
	Fluvial Geomorphology and Soils
EC-GS-1	Reclamation will implement the following measures during construction activities: ▪ Areas where ground disturbance will occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation. ▪ All vehicular construction traffic will be confined to the designated activity areas, access routes, and staging areas. ▪ Disturbance will be limited to the minimum necessary to complete all rehabilitation activities. ▪ All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.
EC-GS-2	Reclamation will prepare a Storm Water Pollution Prevention Plan (SWPPP) to prevent erosion and control sediment into adjacent water bodies. Measures for erosion control will be prioritized based on proximity to the Trinity River. Reclamation will provide the SWPPP for review by associated agencies (e.g., Bureau of Land Management [BLM], the North Coast Regional Water Quality Control Board [Regional Water Board], National Marine Fisheries Service, and California Department of Fish and Wildlife [CDFW]) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction. The following features will be used as a guide to develop this plan: ▪ Restore disturbed areas to pre-construction contours to the fullest extent feasible. ▪ Salvage, store, and use the highest quality soil for revegetation. ▪ Discourage noxious weed competition and control noxious weeds. ▪ Clear or remove roots from steep slopes immediately prior to scheduled construction. ▪ Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. ▪ To the fullest extent possible, cease excavation activities during significantly wet or windy weather. ▪ Use bales, wattles, and/or silt fencing as appropriate. ▪ Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic. ▪ Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The furrowing of the river's edge will remove plant roots to allow mobilization of the bed but will also intercept sediment before it reaches the waterway. ▪ Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site will drain into a surface water feature, catch basins will be constructed to intercept sediment before it reaches the feature. Spoil sites will be recontoured and revegetated to reduce the potential for erosion.

Label	Commitment
	▪ Sediment control measures will be in place prior to the onset of the rainy season to ensure that surface water runoff does not occur. Project areas will be monitored and maintained in good working condition until disturbed areas have been seeded and mulched or revegetated in another fashion. If work activities take place during the rainy season, erosion control structures will be in place and operational at the end of each construction day.
Water Quality	
EC-WQ-1	The project will comply with the water quality objective for turbidity levels in the Trinity River, as listed in the most recent version of the Basin Plan for the North Coast Region (current version is dated May 19, 2011) or in the General Permits issued to the Trinity River Restoration Program (TRRP), whichever is more stringent: ▪ Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. The 2015 General Order provides an allowable zone of turbidity dilution within which turbidity levels may be increased to more than 20 percent above naturally occurring background levels. ▪ Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated are defined in the 2015 general discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500-linear-foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level. To ensure that turbidity levels do not exceed the thresholds described above during in-river project construction activities, Reclamation will monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. During in-river project construction activities, the Applicant shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities (point of compliance) that could increase turbidity. The Applicant shall monitor for turbidity increases and shall collect field turbidity measurements in accordance with Mitigation Measure 4.5 1a and Mitigation Measure 4.51b in the Mitigation Monitoring and Reporting Program. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results at the point of compliance indicate that turbidity levels exceed 20 percent above naturally occurring background or 20 NTUs, whichever is greater, remedial actions will be implemented to reduce and maintain turbidity at or below this threshold level at the point of compliance. Potential remedial actions include halting or slowing construction activities and implementation of additional Best Management Practices (BMPs) until turbidity levels are at or below 20 percent above naturally occurring background or 20 NTUs, whichever is greater. If naturally occurring background levels are greater than 20 NTUs, turbidity levels at the point of compliance shall not exceed 20 percent above the naturally occurring background level. A monitoring report containing all turbidity measurements shall be submitted in a tabular format to the Regional Water Board upon annual project completion. The monitoring report shall be written in a manner that clearly demonstrates compliance with all water quality monitoring requirements.

Label	Commitment
EC-WQ-2	Fill gravels used on the streambeds, stream banks, and river crossings or alluvial material used for coarse sediment additions will be composed of clean, spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Clean gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium available from the project area.
EC-WQ-3	Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.
EC-WQ-4	To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following design features: ▪ Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed as needed to reduce short-term erosion prior to the start of the rainy season. ▪ Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. ▪ Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels or other water bodies. ▪ Decompact or rip floodplain areas so that surfaces are permeable, and no surface water runoff occurs. To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas. Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.
EC-WQ-5	Construction specifications will include the following features to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary: ▪ Equipment and materials will be stored away from wetland and surface water features. No hazardous materials, including fuels, oils, and solvents, will be stored or transferred within 150 feet of the active Trinity River channel. ▪ Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Construction equipment that will come in contact with the Trinity River will be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water will be adequately treated prior to discharge if that is the desired disposal option. ▪ Areas for fuel storage, refueling, and servicing will be located at least 150 feet from the active river channel or within an adequate secondary fueling containment area. Gasoline engines and pumps operated on the floodplain will be isolated from the ground by an impermeable barrier so that any leaking petroleum products are isolated from the ground. ▪ Spill containment booms will be maintained onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times. ▪ The contractor will develop and implement site-specific BMPs, a water pollution control plan, and spill prevention and containment plan in accordance with applicable federal and state requirements. The contractor will be responsible for immediate containment and removal of any toxins released.

Label	Commitment
	Fishery Resources
EC-FR-1	The proposed construction schedule avoids in-channel work during the period in which it could affect spawning spring- and fall-run Chinook salmon, coho salmon, and steelhead or their embryos once in the gravel. As directed by the 2000 Biological Opinion (National Marine Fisheries Service 2000), Reclamation will ensure that all in-channel construction activities are conducted during late-summer, low-flow conditions (e.g., July 15-September 15). Alluvial material used for coarse sediment additions will be composed of washed, spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter; will be free of contaminants, such as petroleum products; and will pass Caltrans cleanliness test #227 with a value of 85 or greater.
EC-FR-2	To avoid or minimize potential injury and mortality of fish during riverine activities (e.g., addition and grading of coarse sediment), equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. Reclamation will minimize potential injury and mortality of fish during the use of low-flow channel crossings. This will be accomplished by minimizing vehicle traffic and by operating equipment and vehicles slowly and deliberately to alert and scare adult and juvenile salmonids away from the crossing area, or by having a person wade ahead of equipment to scare fish away from the crossing area. To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials in the active low-flow channel, equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. Reclamation will ensure that before submerging an excavator bucket or laying gravel below the water surface, the excavator bucket will be operated to "tap" the surface of the water, or a person will wade ahead of fill placement equipment to scare fish away from the work area. To avoid impacts to mobile life stages of salmonids that may be present in the water column, the first layers of clean gravel that are being placed into the wetted channel will be added slowly and deliberately to allow fish to move from the work area. To avoid impacts to juvenile salmonids during high flow gravel injections, gravel will only be injected in select locations where water velocities are too high and juvenile salmonids would not be expected to be holding.
EC-FR-3	Monitoring of the constructed inundation surfaces for salmon fry stranding will be performed by a qualified fishery biologist immediately after recession of flood flow events designated as a 1.5-year or less frequent event (i.e., Q >6,000 cfs) for a period of 3 years following construction. These flows, and associated fry stranding surveys, will typically occur between January and May. If substantial stranding is observed, Reclamation will take appropriate measures to return stranded fishes to river habitats and to subsequently modify the constructed surfaces prior to the next managed flow release to reduce the likelihood of future occurrences of fry stranding.
EC-FR-4	Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the Trinity River Division. Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the U. S. Army Corps of Engineers, Regional Water Board, and CDFW, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be re-delineated 5 years post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after project implementation and wetland delineation 5 years after implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian and jurisdictional wetland habitat within rehabilitation site boundaries after 10 years.

Label	Commitment
EC-FR-5	Low water crossings will only be constructed and used between July 15 and September 15. The number of vehicle and equipment crossings of the Trinity River will be minimized. Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and water depths will not be less than 12 inches in two-thirds of the river channel to provide adequate depth for adult salmon and steelhead passage. Reclamation will not impede the physical features or hydraulic process of the Trinity River in a fashion that would be inconsistent with the 2000 Biological Opinion (National Marine Fisheries Service 2000) or result in a temporary impairment to fish passage related to a bridge.
Vegetation, Wildlife, and Wetlands	
EC-VW-1	Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats and jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.
EC-VW-2	A qualified botanist will conduct a minimum of two pre-construction surveys to determine if special-status plant species occur within the project site. Surveys shall be conducted during the blooming periods of the plants potentially occurring at the site to determine (1) if the species occur and (2) the quality, location, and extent of any populations. If a special-status plants species is found within 250 feet of any proposed disturbance, the following measures will be implemented. ▪ Prior to the start of disturbance, exclusionary fencing will be erected around the known occurrences. If necessary, a qualified botanist shall be present to assist with locating these special-status plant populations. The exclusionary fencing will be periodically inspected throughout each period of construction and be repaired as necessary. ▪ If a population cannot be fully avoided, Reclamation will retain a qualified botanist to (1) determine appropriate salvage and relocation measures and (2) implement appropriate measures in coordination with CDFW staff.
EC-VW-3	Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, the following measures will be implemented. ▪ Grading and other construction activities will be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 1 through July 31. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, the following measures will be implemented. ▪ A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey(s) will be used to ensure that no nests of this species within or immediately adjacent to the rehabilitation site will be disturbed during project implementation. To the extent possible given timing for construction and with the contract award, pre-construction surveys will conform to methodologies identified in a Willow Fly Catcher Survey Protocol for California available online at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=84019&inline> (Bombay et al., 2003). If an active nest is found, CDFW will be contacted prior to the start of construction to determine the appropriate mitigation measures. ▪ If vegetation is to be removed by the projects and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.

Label	Commitment
EC-VW-4	If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for the foothill yellow-legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey will be conducted within the construction boundary no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist will relocate them to a suitable location outside of the construction boundary. In the event that a foothill yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until qualified personnel have moved the frog(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.
EC-VW-5	A minimum of one survey for western pond turtle nests will be conducted during the nesting season (generally late June-July) prior to construction. A qualified biologist will be retained by Reclamation to conduct the survey. If a western pond turtle nest is found, the biologist will flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, the nest will be excavated by the biologist and reburied at a suitable location outside of the construction limits. Prior to construction in open water habitat, a qualified biologist will trap and move western pond turtles out of the construction area to nearby suitable habitats. During construction, in the event that a western pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until qualified personnel have moved the turtle(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.
EC-VW-6	Prior to the start of construction, a qualified biologist will conduct surveys of the rehabilitation sites to determine whether suitable nesting habitat for California yellow warblers, yellow-breasted chats, and Vaux's swifts is present. If suitable habitat is present, the following measures will be implemented. Grading and other construction activities will be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through July 31. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, the following measures will be implemented. A qualified biologist will conduct a minimum of one preconstruction survey for these species within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction surveys will be used to ensure that no nests of these species within or immediately adjacent to the rehabilitation sites will be disturbed during project implementation. If an active nest is found, a qualified biologist will determine the extent of a construction-free buffer zone to be established around the nest. If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.
EC-VW-7	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 US Fish and Wildlife Service to protect the bald eagle, modified commitments are outlined below. These measures are now stricter than those outlined in the Master Environmental Impact Report 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): Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether potential Bald Eagle or northern goshawk habitat occurs. If potential habitat occurs, Reclamation will implement the following commitment. Construction will be scheduled to avoid the bald eagle and northern goshawk nesting season to the extent feasible. The nesting season for most raptors in Trinity County extends from February 15 through July 31. Thus, if construction can be scheduled to occur between August 1 and February 14, the nesting season will be avoided and no impacts to nesting bald eagles or northern goshawks would

Label	Commitment
	occur. If infeasible to schedule construction during this time, Reclamation will implement the following measures. Reclamation will conduct surveys at any known bald eagle nest sites within ¼ mile of the project area. If bald eagles are present and the nest is considered active, Reclamation will conduct weekly monitoring to determine nesting chronology and establish baseline behavioral information for the bald eagle pair and nest. This monitoring will provide information used during subsequent pre-construction and construction monitoring to provide baseline reference for eagle activity, such as timing and frequency of feeding and roosting, and time away from nest. This behavioral baseline will become the information used to measure eagle reactions to project related disturbances, if applicable. Pre-construction surveys for nesting bald eagles and northern goshawks will be conducted by a qualified biologist to ensure that no disturbance will occur during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. The biologist will conduct surveys for bald eagles and northern goshawk nests immediately adjacent to the project impact areas. If eagles or an active nest are found within 500 feet of the construction areas to be disturbed by these activities, the biologist, in consultation with the CDFW and consistent with National Bald Eagle Management Guidelines, will develop a recommended construction-free buffer zone. If vegetation is removed as part of the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the project will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts. Reclamation will adhere to directives under the Bald and Golden Eagle Management Protection Act.
EC-VW-8	Pre-construction surveys for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The surveys will be conducted by a qualified biologist. No activities that will result in disturbance to active roosts of special status bats or dens of ring-tailed cats will proceed prior to completion of the surveys. If no active roosts or dens are found, no further action is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified bat biologist will determine the extent of a construction-free zone to be implemented around the roost. If a bat maternity roost or hibernaculum is present, or a ring-tailed cat den is present, the following commitment will be implemented. CDFW will also be notified of any active bat nurseries within the disturbance zones. If an active maternity roost or hibernaculum is found, the projects will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the projects cannot be redesigned to avoid removal of the structure, demolition of that structure will commence before bat maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). The disturbance-free buffer zones described above will be observed during the bat maternity roost season (March 1–July 31). If a non-breeding bat hibernaculum is found in a tree or structure to be razed, the individuals will be safely evicted under the direction of a qualified bat biologist, by opening the roosting area to allow air to flow through the cavity. Demolition will then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for air flow and the demolition). This action will allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during darker hours. Ring-tailed cats are fully protected species under Fish and Game Code Section 4700. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research. If an active ring-tailed cat nest is found, the projects will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the projects cannot be redesigned to avoid removal of the occupied tree, the CDFW will be contacted for their input. If approved by CDFW, demolition of the tree will commence outside of the breeding season (February 1 to August 30). If a non-breeding den is found in a tree scheduled to be removed, prior to disturbance, the CDFW will be notified to review and approve proposed procedures to ensure that no take occurs as a result of the action. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.

Label	Commitment
EC-VW-9	In order to avoid and/or minimize the potential introduction and/or spread of noxious weeds, the following measures will be implemented: ▪ When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed. Preclude the use of rice straw in riparian areas. Limit any import or export of fill to materials to those that are known to be weed free. ▪ Ensure all construction equipment is thoroughly washed prior to entering and leaving the worksite. Equipment will be inspected to ensure that it is free of plant parts as well as soils, mud, or other debris that may carry weed seeds. ▪ Use a mix of native grasses and forbs for seeding disturbed areas that are subject to infestation by non-native and invasive plant species. Where appropriate, a heavy application of mulch will be used to discourage introduction of these species. Use of planting plugs of native grass species may also be used to accelerate occupation of disturbed sites and increase the likelihood of reestablishing a self-sustaining population of native plant species. ▪ Within the first 3 to 5 years post-project, if it is determined that the project has caused non-native invasive vegetation to out-compete desired planted or native colonizing riparian vegetation, opportunities to control these non-native species will be considered. When implementing weed control techniques, the approach will consider using all available control methods (except the use of herbicides in Trinity County) known for a weed species. Within the first 3 to 5 years post-project, if it is determined that on-site revegetation/post-project conditions do not meet landowner requirements, opportunities to revisit the site and remedy the concern will be considered.
EC-VW-10	Reclamation will develop and implement a plan to minimize impacts to freshwater mussels {e.g., western pearlshell mussel) and lamprey ammocetes that occupy habitat within the project area. This plan will include measures to collect, transport and relocate mussel populations to appropriate alluvial habitat within the project area
Recreation	
EC-RE-1	Reclamation will provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas located within the project area and managed by BLM. Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local Trinity Journal newspaper prior to the onset of project construction.
EC-RE-2	Reclamation will repair and/or replace any facilities associated with the project that are impacted by project activities. This feature includes installation of interpretive signage consistent with the requirements of the BLM. Preconstruction meetings between Reclamation and landowners/land managers will identify the amount of vegetative screening to be retained at each recreation site within the project area.
Cultural Resources	
EC-CU-1	Prior to initiation of construction or ground-disturbing activities, all construction workers will be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel will be instructed that upon discovery of buried cultural resources, work within 50 feet of the find will be halted and Reclamation's designated archaeologist will be consulted. Once the find has been identified, Reclamation will be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the Programmatic Agreement and in compliance with the National Historic Preservation Act.
EC-CU-2	If human remains are encountered during construction on non-federal lands, work in that area will be halted and the Trinity County Coroner's Office will be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 48 hours from the time that they gain access to the site. The NAHC will mediate any disputes regarding treatment of remains. If Native American human remains and associated items are discovered on federal lands, they will be treated according to provisions set forth

Label	Commitment
	in the Native American Protection and Repatriation Act (25 USC 3001) as well as Reclamation's Directives and Standards LND 02-01. If the find is determined to be a historical resource or a unique archaeological resource, as defined by California Environmental Quality Act, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation will be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.
Air Quality	
EC-AQ-1	Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: ▪ Inactive construction areas will be watered as needed to ensure dust control. ▪ Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1-2 feet vertical distance between top of load and the trailer). ▪ Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion. ▪ Watering (using equipment and/or manually) will be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. ▪ All paved access roads, parking areas, and staging areas will be swept (with water sweepers), as required by Reclamation. ▪ Paved roads will be swept (with water sweepers) if visible soil material is carried onto adjacent private and public roads, as required by Reclamation. ▪ All ground-disturbing activities with the potential to generate dust will be suspended when winds exceed 20 mph, as directed by the North Coast Air Quality Management District (NCUAQMD). Reclamation or its contractor will designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. This person will also respond to citizen complaints. Reclamation will comply with NCUAQMD Rule 104 (4.0) Particulate Matter. This compliance could occur by using portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).
EC-AQ-2	Vegetative piles to be burned will consist only of dried vegetative materials. Burn piles will be no larger than 10 feet in diameter. Field personnel will be on site during all hours of burning, and materials necessary to extinguish fires will be available at all times. In general, all requirements of a NCUAQMD "Non-Standard" burn permit will be met for burning. Burn management planning will include but not be limited to the following: ▪ Ensure that burning occurs only on approved burn days as defined by the NCUAQMD (determined by calling 1-866-BURN-DAY). ▪ Burning will only occur during suitable conditions to ensure control of ignited fires. For instance, water to wet the litter and duff layer and penetrate the mineral soil layer to 1/4 inch or more will be present, wind speeds will be low (<10 mph), and temperature will be low (<80 ºF). ▪ Piles will be covered with a 5-foot x 5-foot sheet of 4-mil polyethylene plastic to promote drying of the slash. At least 3/4 of each pile surface will be covered and the plastic anchored to preserve a dry ignition point. Dry fuel conditions will minimize smoke emissions. ▪ Slash piles will not be constructed on logs, stumps, or talus slopes within 25 feet of wildlife trees with nest structures, in roadways, or in drainage ditches. Piles will not be placed within 10 feet of trees intended to be saved (reserved trees) or within 25 feet of a unit boundary. ▪ Reclamation will notify the public each day that burning is to occur. Signs or personnel will notify residents and traffic on nearby access routes.
EC-AQ-3	Construction activity occurring within 300 feet of elementary schools will be limited to the period when school is not in session. Construction activity occurring within 300 feet of residences will be limited to Monday through Saturday, from the hours of 9 a.m. to 5 p.m. Reclamation will notify residences within

Label	Commitment
	300 feet of the site and project activity and elementary schools will be notified of construction activity located near the school prior to site construction activities.
EC-AQ-4	Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation site, which contains a phone number for the public to contact for concerns related to air quality.
Noise	
EC-NO-1	Construction activities near residential areas will be scheduled between 7:00 a.m. and 7:00 p.m., Monday through Saturday. No construction activities will be scheduled for Sundays or other hours and days established by the local jurisdiction (i.e., Trinity County). The contractor may submit a request for variances in construction activity hours, as needed.
EC-NO-2	Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices. Reclamation will require placement of all stationary noise-generating equipment as far away as feasibly possible from sensitive noise receptors or in an orientation minimizing noise impacts (e.g., behind existing barriers, storage piles, unused equipment).
Public Services	
EC-PS-1	Reclamation will require that staging and construction work, including temporary road or bridge closures occurs in a manner that allows for access by emergency service providers. Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures.
EC-PS-2	Reclamation will coordinate road closures occurring during the school year (mid-August through mid-June) with the appropriate school districts to avoid disruption of school attendance and student access to bus service.
Transportation/Traffic Circulation	
EC-TC-1	Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that gravel trucks maintain a speed limit of 15 mph on residential and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.
EC-TC-2	Reclamation will maintain access throughout the construction period for all private residences adjacent to the project boundary and access roads adjacent to the Trinity River. During the construction phase of the project, Reclamation will limit the amount of daily construction equipment traffic by staging construction equipment and vehicles within the project boundary throughout the work period. All large equipment "lowbed" movements will be performed as required by California Highway Patrol, Caltrans, etc., using pilot vehicles in the front and rear. A "scout vehicle" can be sent forward in the narrow areas to avoid/advise oncoming public traffic.
EC-TC-3	Reclamation will perform a pre-construction survey of local federal and state roads to determine the existing roadway conditions of the construction access routes and will consult with the relevant agencies/private parties about road conditions prior to construction activity and post construction activity. An agreement will be entered into prior to construction that will detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.
EC-TC-4	Reclamation will prepare and implement a traffic control plan that will include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities. During the times that truck traffic and movement of equipment may result in a traffic obstacle or safety hazard (as defined in the traffic control plan), construction flagging and/or pilot cars will be used to ensure safe traffic conditions on Sky Ranch Road and other public access routes. Reclamation will obtain encroachment permits from the appropriate entities to work within road easements. These permits will require traffic control and signage to meet California standards.

APPENDIX G

Mitigation Monitoring and Reporting Program and Project Design Elements

APPENDIX G

TRINITY RIVER CHANNEL REHABILITATION SITE: CHAPMAN RANCH PHASE A (RIVER MILE 82.8-83.5) MITIGATION MONITORING AND REPORTING PROGRAM AND PROJECT DESIGN ELEMENTS

Project Proponent and Federal Lead Agency for NEPA
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North Coast Regional Water Quality Control Board
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U.S. Department of Interior – Bureau of Land Management
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Applicant's Consultant
Stantec Consulting Services Inc.
5000 Bechelli Lane, Suite 203
Redding, California 96002

APPENDIX G

TRINITY RIVER CHANNEL REHABILITATION SITE: CHAPMAN RANCH PHASE A (RIVER MILE 82.8-83.5) MITIGATION MONITORING AND REPORTING PROGRAM AND PROJECT DESIGN ELEMENTS

INTRODUCTION

The first part of this document comprises the Mitigation Monitoring and Reporting Program (MMRP) for the Trinity River Channel Rehabilitation Site: Chapman Ranch Phase A (River Mile 82.8-83.5) Project (the Proposed Project). The purpose of providing the MMRP as an appendix is to facilitate its use as a stand-alone document, which clearly expresses to the reader the mitigation responsibilities of the Bureau of Reclamation (Reclamation), and Regional Water Quality Control Board – North Coast Region (Regional Water Board) in implementing the project. The mitigation measures listed herein, which are an updated version of those included in the Master Environmental Impact Report (EIR)/Programmatic Environmental Assessment (EA) (North Coast Regional Water Board and Reclamation 2009), are required by law or regulation and will be adopted by the Regional Water Board when it issues a Notice of Applicability for the project. The second part of this document is comprised of project design elements that shall be implemented as part of the Proposed Project. In general, Chapter 3 mitigation measures identified in the Environmental Assessment/Initial Study (EA/IS) correspond to Chapter 4 mitigation measures in the Master EIR. The mitigation measures in this appendix are meant to mitigate the same impacts as those identified in the Master EIR. Consequently, these mitigation measures are only different to the extent necessary to tailor the mitigation measures to the site specific conditions.

Mitigation is defined by the California Environmental Quality Act (CEQA) – Section 15370 as a measure which:

- Avoids the impact altogether by not taking a certain action or parts of an action;
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifies the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project; and
- Compensates for the impacts by replacing or providing substitute resources or environments.

The mitigation program identified in the MMRP to reduce potential project impacts consists of mitigation measures, project design elements, and construction criteria and methods. Mitigation measures provided in this MMRP have been identified in Chapter 3, Affected Environment and Environmental Consequences of the EA/IS, as feasible and effective in mitigating project-related environmental impacts. This MMRP includes discussion of the following: legal requirements, intent of the MMRP, development and approval process for the MMRP, the authorities and responsibilities associated with the

implementation of the MMRP, a description of the mitigation summary table, project design elements, construction criteria and methods, and resolution of noncompliance complaints.

LEGAL REQUIREMENTS

The legal basis for the development and implementation of the MMRP lies within CEQA (including the California Public Resources Code [PRC]). Sections 21002 and 21002.1 of the California PRC state:

- Public agencies are not to approve projects as proposed if there are feasible alternatives or feasible mitigation measures available that would substantially lessen the significant environmental effects of such projects.

- Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so.

- Section 21081.6 of the California PRC further requires that: the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.

- The monitoring program must be adopted when a public agency makes its findings under CEQA so that the program can be made a condition of project approval in order to mitigate significant effects on the environment. The program must be designed to ensure compliance with mitigation measures during project implementation to mitigate or avoid significant environmental effects.

INTENT OF THE MITIGATION MONITORING AND REPORTING PROGRAM

The MMRP is intended to satisfy the requirements of CEQA as they relate to the project. It is anticipated to be used by Reclamation and Regional Water Board staff, participating agencies, project contractors, and mitigation monitoring personnel during implementation of the project.

The primary objective of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMRP will provide for monitoring of construction activities as needed, on-site identification and resolution of environmental problems, and proper reporting to lead agency staff.

DEVELOPMENT AND APPROVAL PROCESS

The timing elements for implementing mitigation measures and the definition of the approval process have been provided in detail through this MMRP to assist staff from Reclamation and the Regional Water Board by providing the most usable monitoring document possible.

AUTHORITIES AND RESPONSIBILITIES

As the Project proponent, Reclamation, functioning as the Trinity River Restoration Program (TRRP), will have the primary responsibility for the execution and proper implementation of the MRRP. The

Regional Water Board may provide Reclamation with guidance, as warranted. Reclamation will be responsible for the following activities:

- Coordination of monitoring activities,
- Management of the preparation and filing of monitoring compliance reports, and
- Maintenance of records concerning the status of all approved mitigation measures.

SUMMARY OF MONITORING REQUIREMENTS

Table D-1, which follows, summarizes the mitigation measures and associated monitoring requirements for the Proposed Project. The mitigation measures are organized by environmental issue area (i.e., Soils, Water Quality, etc.). Table D-1 is composed of the following four columns:

- **Mitigation Measure:** Lists the mitigation measures identified for each significant impact discussed in the Draft EA/IS for the project. The mitigation numbering system used in the Draft Master EIR/Draft EIR is carried forward in this MMRP.

- **Timing/Implementation:** Indicates at what point in time or project phase the mitigation measure will need to be implemented.

- **Responsible Parties (tasks):** Documents which agency or entity is responsible for implementing a mitigation measures and what, if any, coordination is required (e.g., approval from Caltrans). If more than one party has responsibility under a given mitigation measure, the tasks of each individual party is identified parenthetically (e.g., “implementation” or “monitoring”).

- **Verification:** Provides spaces to be initialed and dated by the individual responsible for verifying compliance with each specific mitigation measure.

RESOLUTION OF NONCOMPLIANCE COMPLAINTS

Any person or agency may file a complaint that states noncompliance with the mitigation measures that were adopted as part of the approval process for the project. The complaint shall be directed to Reclamation at the TRRP office (P.O. Box 1300, 1313 South Main Street, Weaverville, California 96093) and to the Regional Water Board at 5550 Skylane Boulevard, Suite A, Santa Rosa, California, 95403, in written form, providing detailed information on the purported violation. Reclamation and the Regional Water Board shall investigate and determine the validity of the complaint. If noncompliance with a mitigation measure is verified, Reclamation shall take the necessary action(s) to remedy the violation. The complainant shall receive written confirmation indicating the results of the investigation or the final corrective action that was implemented in response to the specific noncompliance issue.

Table D-1. Summary of Mitigation Monitoring Requirements

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
3.3 GEOLOGY, FLUVIAL GEOMORPHOLOGY, AND SOILS			
Impact 3.3-2: Construction activities associated with the Proposed Project could result in increased erosion and short-term sedimentation of the Trinity River.			
4.3-2a Reclamation will implement the following measures during construction activities: • Areas where ground disturbance will occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation. • All vehicular construction traffic will be confined to the designated access routes and staging areas. • Disturbance will be limited to the minimum necessary to complete all rehabilitation activities. • All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.		Reclamation (implementation) Regional Water Board (Storm Water Pollution Prevention Plan [SWPPP] review and approval) Bureau of Land Management (BLM) (SWPPP review)	
4.3-2b Reclamation will prepare a SWPPP. Measures for erosion control will be prioritized based on proximity to the river. Reclamation will provide the SWPPP for review by associated agencies (e.g., BLM, the Regional Water Board, National Marine Fisheries Service [NMFS], and California Department of Fish and Wildlife [CDFW]) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction. The following measures will be used as a guide to develop this plan: • Restore disturbed areas to pre-construction contours to the fullest extent feasible. • Salvage, store, and use the highest quality soil for revegetation. • Discourage noxious weed competition and control noxious weeds. • Clear or remove roots from steep slopes immediately prior to scheduled construction. • Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. • To the fullest extent possible, cease excavation activities during significantly wet or windy weather. • Use bales, wattles, and/or silt fencing as appropriate. • Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic. • Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The furrowing of the river's edge will remove plant roots to allow mobilization of the bed, but will also intercept sediment before it reaches the waterway. • Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site will drain into a surface water feature, catch basins will be constructed to intercept sediment before it reaches the feature. Spoil sites will be graded and vegetated to reduce the potential		Reclamation (implementation) Regional Water Board (SWPPP review and approval) BLM (SWPPP review)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
for erosion. • Sediment control measures will be in place prior to the onset of the rainy season to ensure that surface water runoff does not occur. Project areas will be monitored and maintained in good working condition until disturbed areas have been seeded and mulched or revegetated in another fashion. If work activities take place during the rainy season, erosion control structures will be in place and operational at the end of each construction day.			
4.5 WATER QUALITY			
Impact 3.5-1: Construction of the proposed project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.			
4.5-1a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2011), is summarized below. • Turbidity levels will not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. • Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. • Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 nephelometric turbidity units (NTUs), turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.		Reclamation (implementation) Regional Water Board (review of monitoring data)	
4.5-1b To ensure that turbidity levels do not exceed the thresholds described above (4.4-1a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours		Reclamation (implementation) Regional Water Board (review of monitoring data)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. • If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.5-1c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.		Reclamation (implementation)	
4.5-1d Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in s upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.		Reclamation (implementation) Regional Water Board (SWPPP review and approval) BLM (SWPPP review)	
4.5-1e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: • Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed as needed to reduce short-term erosion prior to the start of the rainy season. • Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. • Disconnect and disperse flow paths, including roadside ditches, that might otherwise deliver fine sediment to stream channels or other water bodies. • Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.		Reclamation (implementation)	
Impact 3.5-2: Construction of the proposed project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction.			
4.5-2a Turbidity increases associated with project activities will not exceed the water quality objectives for turbidity in the Trinity River Basin (North Coast Regional Water Quality Control Board 2011).		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.5-2b To ensure that turbidity levels do not exceed the threshold following construction, Reclamation will monitor turbidity and total suspended solids during and after representative rainfall events to determine the effect of the project on Trinity River water quality. At a minimum, field turbidity measurements will be collected whenever a visible increase in turbidity is observed. • If increases in turbidity and total suspended solids are observed as a result of erosion from constructed features, field turbidity measurements will be collected 50 feet upstream of a point adjacent to the end of the feature and 500 feet downstream of the feature. • If the grab sample indicates that turbidity levels exceed the established thresholds identified in the Basin Plan, the Regional Water Board will be notified. The need to implement erosion control measures for turbidity that is expected to result from overland river flows (versus surface run-off) will be evaluated with Regional Water Board staff to determine if remediation measures are needed.		Reclamation (implementation)	
4.5-2c To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas consistent with the requirements outlined in at the end of this appendix (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.		Reclamation (implementation)	
Impact 3.5-3: Construction of the proposed project could cause contamination of the Trinity River from hazardous materials spills.			
4.5-3a Reclamation will prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements.		Reclamation (implementation)	
4.5-3b Reclamation will ensure that any construction equipment that will come in contact with the Trinity River be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water will be adequately treated prior to discharge if that is the desired disposal option.			
4.5-3c Reclamation will ensure that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling, and servicing will be located at least 150 feet from the active river channel or within an adequate secondary fueling containment area. Gas pumps and engines will be stored and maintained on impermeable barriers so that any leaking petroleum products are isolated from the ground. In addition, the construction contractor will be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 3.5-5: Construction and maintenance of the proposed project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.			
Water Quality Mitigation Measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, 4.5-1e, 4.5-2a, 4.5-2b, 4.5-2c, 4.5-3a, 4.5-3b, and 4.5-3c described above shall be implemented to protect the beneficial uses of the Trinity River.		Reclamation (implementation) Regional Water Board (SWPPP review and approval) BLM (SWPPP review)	
3.6 FISHERY RESOURCES			
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.			
4.6-1a The proposed construction schedule avoids in-channel work during the period in which it could affect spawning spring- and fall-run Chinook salmon, coho salmon, and steelhead or their embryos once in the gravel. As directed by the 2000 Biological Opinion (National Marine Fisheries Service 2000), Reclamation will ensure that all in-channel construction activities are conducted during late-summer, low-flow conditions (e.g., July 15-September 15).		Reclamation (implementation)	
4.6-1b Alluvial material used for coarse sediment additions will be composed of washed, spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter; will be free of contaminants, such as petroleum products; and will pass Caltrans cleanliness test #227 with a value of 85 or greater.		Reclamation (implementation)	
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.			
4.6-2a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2011), is summarized below. • Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. • Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. • Project activities that occur in areas outside of the active river channel will not increase turbidity levels		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.			
4.6-2b To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.		Reclamation (implementation)	
4.6-2c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.		Reclamation (implementation)	
4.6-2d Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.		Reclamation (implementation) Regional Water Board (SWPPP review and approval) BLM (SWPPP review)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.6-2e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: • Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. • Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. • Disconnect and disperse flow paths, including roadside ditches, that might otherwise deliver fine sediment to stream channels. • Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.		Reclamation (implementation)	
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.			
4.6-3a Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary: • Equipment and materials will be stored away from wetland and surface water features. • Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. Gasoline engines and pumps operated on the floodplain will be isolated from the ground by an impermeable barrier. • The contractor will develop and implement site-specific BMPs, a water pollution control plan, and emergency spill control plan. The contractor will be responsible for immediate containment and removal of any toxins released.		Reclamation (implementation)	
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.			
4.6-4a To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15.		Reclamation (implementation)	
4.6-4b To avoid or minimize potential injury and mortality of fish during riverine activities (e.g., addition and grading of coarse sediment), equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area.		Reclamation (implementation)	
4.6-4c Reclamation will minimize potential injury and mortality of fish during the use of low-flow channel crossings. This will be accomplished by minimizing vehicle traffic and by operating equipment and		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
vehicles slowly and deliberately to alert and scare adult and juvenile salmonids away from the crossing area, or by having a person wade ahead of equipment to scare fish away from the crossing area.			
4.6-4d To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials in the active low-flow channel, equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. Reclamation will ensure that before submerging an excavator bucket or laying gravel below the water surface, the excavator bucket will be operated to "tap" the surface of the water, or a person will wade ahead of fill placement equipment to scare fish away from the work area. To avoid impacts to mobile life stages of salmonids that may be present in the water column, the first layers of clean gravel that are being placed into the wetted channel will be added slowly and deliberately to allow fish to move from the work area.		Reclamation (implementation)	
4.6-4f Monitoring of the constructed inundation surfaces for salmon fry stranding will be performed by a qualified fishery biologist immediately after recession of flood flow events designated as a 1.5- year or less frequent event (i.e., $Q \geq$6,000 cfs) for a period of 3 years following construction. These flows, and associated fry stranding surveys, will typically occur between January and May. If substantial stranding is observed, Reclamation will take appropriate measures to return stranded fishes to river habitats and to subsequently modify the constructed surfaces prior to the next managed flow release to reduce the likelihood of future occurrences of fry stranding.		Reclamation (implementation)	
Impact 3.6-5: Implementation of the Proposed Project would result in the permanent and temporary loss of shaded riverine aquatic habitat for anadromous salmonids.			
4.6-5a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the projects to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats and wetland waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain flagged areas on a regular basis throughout the construction phase.		Reclamation (implementation)	
4.6-5b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the Trinity River Division (TRD).		Reclamation (implementation)	
4.6-5c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the U. S. Army Corps of Engineers (USACE), Regional Water Board, and CDFW, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
within the project boundary so that there will be no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be redelineated 5 years post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after project implementation and wetland delineation 5 years after implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian and jurisdictional wetland habitat within rehabilitation site boundaries after 10 years.			
Impact 3.6-6: Implementation of the Proposed Project would result in fish passage being temporarily impaired during the in-stream construction phase.			
4.6-6a Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites.		Reclamation (implementation)	
4.6-6b Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and water depths will not be less than 12 inches in two-thirds of the river channel to provide adequate depth for adult salmon and steelhead passage.		Reclamation (implementation)	
4.6-6c The number of vehicle and equipment crossings of the Trinity River will be minimized.		Reclamation (implementation)	
4.6-6d Reclamation will not impede the physical features or hydraulic process of the Trinity River in a fashion that would be inconsistent with the 2000 Biological Opinion (National Marine Fisheries Service 2000), or result in a temporary impairment to fish passage related to a bridge.		Reclamation (implementation)	
3.7 VEGETATION, WILDLIFE, AND WETLANDS			
Impact 3.7-1: Construction activities associated with the Proposed Project could result in the loss of jurisdictional waters including wetlands.			
4.7-1a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.			
4.7-1b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.		Reclamation (implementation)	
4.7-1c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. Monitoring and maintenance of planted vegetation will take place in the first several years after planting. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFW, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of wetlands at the end of a 5 year period and no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be re-delineated 5 years after project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after planting and wetland delineation 5 years after project implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian habitat and jurisdictional wetlands within boundaries established for TRRP rehabilitation sites after 10 years.		Reclamation (implementation)	
Impact 3.7-4: Construction activities associated with the Proposed Project could result in impacts to the state-listed little willow flycatcher (*Empidonax traillii*).			
4.7-4a Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, Mitigation Measure 4.7-4b will be implemented.		Reclamation (implementation)	
4.7-4b Grading and other construction activities will be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 1 through July 31. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, Mitigation Measures 4.7-4c and 4.7-4d will be implemented.		Reclamation (implementation)	
4.7-4c A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey(s) will be used to ensure that no nests of this species within or immediately adjacent to the rehabilitation site will be disturbed during project implementation. To the extent possible given timing for construction and with the contract award, pre-construction surveys will conform to methodologies identified in a Willow Fly Catcher Survey Protocol for California available online at		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
<https://www.wildlife.ca.gov/Conservation/Survey-Protocols>. If an active nest is found, CDFW will be contacted prior to the start of construction to determine the appropriate mitigation measures.			
4.7-4d If vegetation is to be removed by the projects and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.		Reclamation (implementation)	
Impact 3.7-5: Construction activities associated with the Proposed Project could result in impacts to the foothill yellow-legged frog (*Rana boylii*).			
4.7-5a If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for the foothill yellow-legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey will be conducted within the construction boundary no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist will relocate them to a suitable location outside of the construction boundary.		Reclamation (implementation)	
4.7-5b In the event that a foothill yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until qualified personnel have moved the frog(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.		Reclamation (implementation)	
4.7-5c Mitigation measures identified in Section 3.5 (Water Quality) of this EA/IS for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the foothill yellow-legged frog due to sedimentation and accidental spills.		Reclamation (implementation)	
4.7-5d Mitigation measures associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a, 4.7-1b, and 4.7-1c) will be fully implemented.		Reclamation (implementation)	
Impact 3.7-6: Construction activities associated with the Proposed Project could result in impacts to the western pond turtle (*Actinemys marmorata pallida*).			
4.7-6a A minimum of one survey for western pond turtle nests will be conducted during the nesting season (generally late June-July) prior to construction. A qualified biologist will be retained by Reclamation to conduct the survey. If a western pond turtle nest is found, the biologist will flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, the nest will be excavated by the biologist and reburied at a suitable location outside of the construction limits.		Reclamation (implementation)	
4.7-6b Prior to construction in open water habitat, a qualified biologist will trap and move western pond turtles out of the construction area to nearby suitable habitats.		Reclamation (implementation)	
4.7-6c During construction, in the event that a western pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until qualified personnel have moved the		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
turtle(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.			
4.7-6d Mitigation measures presented in Section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills.		Reclamation (implementation)	
4.7-6e The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a, 4.7-1b, and 4.7-1c) will be fully implemented.			
Impact 3.7-7: Construction activities associated with the Proposed Project could result in impacts to nesting Vaux's swift (C*haetura vauxi*), California yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*).			
4.7-7a Prior to the start of construction, a qualified biologist will conduct surveys of the rehabilitation sites to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-7b will be implemented.		Reclamation (implementation)	
4.7-7b Grading and other construction activities will be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through July 31. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, Mitigation Measures 4.7-7c and 4.7-7d will be implemented.		Reclamation (implementation)	
4.7-7c A qualified biologist will conduct a minimum of one preconstruction survey for these species within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction surveys will be used to ensure that no nests of these species within or immediately adjacent to the rehabilitation sites will be disturbed during project implementation. If an active nest is found, a qualified biologist will determine the extent of a construction-free buffer zone to be established around the nest.		Reclamation (implementation)	
4.7-7d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.		Reclamation (implementation)	
Impact 3.7-8: Construction activities associated with the Proposed Project could result in impacts to bald eagle (*Haliaeetus leucocephalus*) and northern goshawk (*Accipiter gentilis*).			
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 US Fish and Wildlife Service to protect the bald eagle, additional measures are outlined below. These measures are now stricter than those outlined in			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
the 2009 Master EIR/Programmatic 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):			
4.7-8a Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-8b will be implemented.		Reclamation (implementation)	
4.7-8b Construction will be scheduled to avoid the nesting season for bald eagles and northern goshawks to the extent feasible. The nesting season for most raptors in Trinity County extends from February 15 through July 31. Thus, if construction can be scheduled to occur between August 1 and February 14, the nesting season will be avoided and no impacts to nesting bald eagles and northern goshawks will be expected. If it is not possible to schedule construction during this time, mitigation measures 4.7-8c and 4.7-8d will be implemented.		Reclamation (implementation)	
4.7-8c Pre-construction surveys for bald eagles and nesting northern goshawks will be conducted by a qualified biologist to ensure that no disturbance will occur during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. The biologist will conduct surveys immediately adjacent to the impact areas for bald eagles and northern goshawk nests. If eagles or an active nest are found within 500 feet of the construction areas to be disturbed by these activities, the biologist, in consultation with the CDFW and the National Bald Eagle Management Guidelines, will determine the extent of a construction-free buffer zone to be established.		Reclamation (implementation)	
4.7-8d If vegetation is to be removed as part of the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the projects will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts. Directives under the Bald and Golden Eagle Management Protection Act will be adhered to.		Reclamation (implementation)	
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*).			
4.7-9a Pre-construction surveys for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The surveys will be conducted by a qualified biologist. No activities that will result in disturbance to active roosts of special status bats or dens of ring-tailed cats will proceed prior to completion of the surveys. If no active roosts or dens are found, no further action is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified bat biologist will determine the extent of a construction-free zone to be implemented around the roost. If a bat maternity roost or hibernaculum is present, or a ring-tailed cat den is present, Mitigation Measures 4.7-9b and/or 4.7-9c will be implemented. CDFW will also be notified of any active bat nurseries within the disturbance zones.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-9b If an active maternity roost or hibernaculum is found, the projects will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the projects cannot be redesigned to avoid removal of the structure, demolition of that structure will commence before bat maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). The disturbance-free buffer zones described above will be observed during the bat maternity roost season (March 1–July 31). If a non-breeding bat hibernaculum is found in a tree or structure to be razed, the individuals will be safely evicted under the direction of a qualified bat biologist, by opening the roosting area to allow air to flow through the cavity. Demolition will then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for air flow and the demolition). This action will allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during darker hours.		Reclamation (implementation)	
4.7-9c Ring-tailed cats are fully protected species under Fish and Game Code Section 4700. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research. If an active ring-tailed cat nest is found, the projects will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the projects cannot be redesigned to avoid removal of the occupied tree, the CDFW will be contacted for their input. If approved by CDFW, demolition of the tree will commence outside of the breeding season (February 1 to August 30). If a non-breeding den is found in a tree scheduled to be removed, prior to disturbance, the CDFW will be notified to review and approve proposed procedures to ensure that no take occurs as a result of the action. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.		Reclamation (implementation)	
Impact 3.7-11: Construction activities associated with the proposed project could result in impacts to BLM and U. S. Forest Service (USFS) sensitive species.			
Mitigations measures identified previously would reduce impacts to BLM and USFS sensitive species to less than significant. 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. Mitigation measures 4.7-9a and 4.7-9b would reduce impacts to special status bats and the ring-tailed cat to less than significant.		Reclamation (implementation)	
Impact 3.7-13: Implementation of the proposed project could result in the spread of non-native and invasive plant species.			
4.7-13a When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-13b Preclude the use of rice straw in riparian areas.		Reclamation (implementation)	
4.7-13c Limit any import or export of fill to materials to those that are known to be weed free.		Reclamation (implementation)	
4.7-13d Ensure all construction equipment is thoroughly washed prior to entering and leaving the worksite. Equipment will be inspected to ensure that it is free of plant parts as well as soils, mud, or other debris that may carry weed seeds.		Reclamation (implementation)	
4.7-13e Use a mix of native grasses, forbs, and non-persistent non-native species for seeding disturbed areas that are subject to infestation by non-native and invasive plant species. Where appropriate, a heavy application of mulch will be used to discourage introduction of these species. Use of planting plugs of native grass species may also be used to accelerate occupation of disturbed sites and increase the likelihood of reestablishing a self-sustaining population of native plant species.		Reclamation (implementation)	
4.7-13f Within the first 3 to 5 years post-project, if it is determined that the project has caused non-native invasive vegetation to out-compete desired planted or native colonizing riparian vegetation, opportunities to control these non-native species will be considered. When implementing weed control techniques, the approach will consider using all available control methods known for a weed species.		Reclamation (implementation)	
4.7-13g Within the first 3 to 5 years post-project, if it is determined that on-site revegetation/post-project conditions do not meet landowner requirements, opportunities to revisit the site and remedy the concern will be considered.		Reclamation (implementation)	
3.8 RECREATION			
Impact 3.8-1: Construction associated with the proposed project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River.			
4.8-1a Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas located within the project area and managed by BLM. Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local *Trinity Journal* newspaper prior to the onset of project construction.		Reclamation (implementation)	
4.8-1b Reclamation will repair and/or replace any facilities associated with the Proposed Project that are impacted by project activities. This measure includes installation of interpretive signage consistent with the requirements of the BLM. Preconstruction meetings between Reclamation and landowners/land managers will identify the amount of vegetative screening to be retained at each recreation site within the project area.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
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.			
Implementation of Mitigation Measures 4.8-1a and 4.8-1b described above would make this impact less than significant.		Reclamation (implementation)	
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.			
Mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e described above for impact 3.5-1 would reduce impacts to less than significant.		Reclamation (implementation)	
3.10 CULTURAL RESOURCES			
Impact 3.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.			
4.10-2a Prior to initiation of construction or ground-disturbing activities, all construction workers will be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel will be instructed that upon discovery of buried cultural resources, work within 50 feet of the find will be halted and Reclamation's designated archaeologist will be consulted. Once the find has been identified, Reclamation will be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the Programmatic Agreement and in compliance with the National Historic Preservation Act.		Reclamation (implementation)	
Impact 3.10-3: Implementation of the proposed project could potentially result in disturbance of undiscovered human remains.			
4.10-3a If human remains are encountered during construction on non-federal lands, work in that area will be halted and the Trinity County Coroner's Office will be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by PRC, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within **48 hours from the time that they gain access to the site** .The NAHC will mediate any disputes regarding treatment of remains. If Native American human remains and associated items are discovered on federal lands, they will be treated according to provisions set forth in the Native American Protection and Repatriation Act (25 USC 3001) as well as Reclamation's Directives and Standards LND 02-01. If the find is determined to be a historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation will be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
3.11 AIR QUALITY			
Impact 3.11-1: Construction activities associated with the proposed project could result in an increase in fugitive dust and associated particulate matter (PM_{10} and $PM_{2.5}$) levels.			
4.11-1a Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: • Inactive construction areas will be watered as needed to ensure dust control. • Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1-2 feet vertical distance between top of load and the trailer). • Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion, as described in Section 3.3, Geology, Fluvial Geomorphology, and Soils, and Section 3.5, Water Quality. • Watering (using equipment and/or manually) will be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. • All paved access roads, parking areas, and staging areas will be swept (with water sweepers), as required by Reclamation. • Paved roads will be swept (with water sweepers) if visible soil material is carried onto adjacent private and public roads, as required by Reclamation. • All ground-disturbing activities with the potential to generate dust will be suspended when winds exceed 20 mph, as directed by the North Coast Air Quality Management District (NCUAQMD). • Reclamation or its contractor will designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. This person will also respond to citizen complaints.		Reclamation (implementation)	
Impact 3.11-2: Construction activities associated with the proposed project could result in an increase in construction vehicle exhaust emissions.			
4.11-2a Reclamation will comply with NCUAQMD Rule 104 (4.0) Particulate Matter. This compliance could occur by using portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).		Reclamation (implementation)	
Impact 3.11-4: Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools.			
4.11-5a Construction activity occurring within 300 feet of elementary schools will be limited to the period when school is not in session.		Reclamation (implementation)	
4.11-5b Construction activity occurring within 300 feet of residences will be limited to Monday through Saturday, from the hours of 9 a.m. to 5 p.m.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.11-5c Reclamation will notify residences within 300 feet of the site and project activity and elementary schools will be notified of construction activity located near the school prior to site construction activities.		Reclamation (implementation)	
4.11-5d Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation site, which contains a phone number for the public to contact for concerns related to air quality.		Reclamation (implementation)	
3.12 VISUAL RESOURCES			
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.			
Implementation of mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c described above for Impact 3.7-1 and mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e described above for Impact 3.5-1 would reduce impacts to less than significant.		Reclamation (implementation)	
3.14 NOISE			
Impact 3.14-1: Construction activities associated with the proposed project would result in noise impacts to nearby sensitive receptors.			
4.14-1a Construction activities near residential areas will be scheduled between 7:00 a.m. and 7:00 p.m., Monday through Saturday. No construction activities will be scheduled for Sundays or other hours and days established by the local jurisdiction (i.e., Trinity County). The contractor may submit a request for variances in construction activity hours, as needed.		Reclamation (implementation)	
4.14-1b Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices.		Reclamation (implementation)	
4.14-1c Reclamation will require placement of all stationary noise-generating equipment as far away as feasibly possible from sensitive noise receptors or in an orientation minimizing noise impacts (e.g., behind existing barriers, storage piles, unused equipment).		Reclamation (implementation)	
3.15 PUBLIC SERVICES AND UTILITIES/ENERGY			
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.			
4.15-3a Reclamation will require that staging and construction work, including temporary road or bridge closures occurs in a manner that allows for access by emergency service providers.		Reclamation (implementation)	
4.15-3b Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures.		Reclamation (implementation)	
4.15-3c Reclamation will coordinate road closures occurring during the school year (mid-August through mid-June) with the appropriate school districts to avoid disruption of school attendance and student access to bus service.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
3.16 TRANSPORTATION/TRAFFIC CIRCULATION			
Impact 3.16-2: Construction activities would generate short-term increases in vehicle trips.			
4.16-2a Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that gravel trucks maintain a speed limit of 15 mph on residential and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.		Reclamation (implementation)	
Impact 3.16-4: Construction activities would increase wear and tear on local roadways.			
4.16-4a Reclamation will perform a pre-construction survey of local federal and state roads to determine the existing roadway conditions of the construction access routes, and will consult with the relevant agencies/private parties about road conditions prior to construction activity and post construction activity. An agreement will be entered into prior to construction that will detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.		Reclamation (implementation)	
Impact 3.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.			
4.16-5a Reclamation will prepare and implement a traffic control plan that will include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities. Reclamation will obtain encroachment permits from the appropriate entities to work within road easements. These permits will require traffic control and signage to meet California standards.		Reclamation (implementation)	

PROJECT DESIGN ELEMENTS

Project design elements are specific design features proposed by the project applicant and incorporated into the project to prevent the occurrence of, or reduce the significance of potential environmental effects. Because project design elements have been incorporated into the project, they do not constitute mitigation measures as defined by CEQA. However, project design elements are identified to ensure that they are included in the MMRP to be developed and implemented as part of the Proposed Project. The design elements discussed below are common to the Proposed Project. These elements are excerpted from Chapter 2 of the Draft Master EIR.

DESCRIPTION OF COMMON ACTIVITIES AND CONSTRUCTION CRITERIA AND METHODS

Common Activities

Vegetation Removal

Vegetation removal would involve the following:

- Remove vegetation to provide access to activity areas using a combination of manual labor and heavy equipment (i.e., chainsaw, excavator, and vegetation masticator).

- Remove stumps, roots, and vegetative matter to allow river scour on excavated floodplain surfaces. Some large woody debris would be retained for use in the floodplain to enhance fish habitat.

- Dispose of removed vegetation by chipping, hauling offsite, burying within spoil areas, and other appropriate methods. Reclamation would continue to work with local agencies to encourage the efficient use of chipping as a priority method of disposing of vegetative waste.

- Tree removal to enhance vegetative conditions, provide access, or enhance site safety in activity areas would be agreed upon with landowners and public land managers at site-specific locations prior to removal.

- Protect vegetation designated for preservation within clearing limits. Vegetation outside the clearing limits would be preserved and protected.

- Mechanically remove submerged roots from river fringe areas with ripping bars or excavator buckets. Equipment chassis (i.e., tires, tracks) would remain outside of the wetted portion of the river channel when removing submerged roots.

Water Use

Water would be used at all sites, in accordance with the following:

- Riparian water rights held by public and private landowners on the Trinity River would be used to obtain Trinity River water to support restoration. Dust abatement water would be obtained from on-site seep wells or the Trinity River. When drafting from the Trinity River, pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

In the event irrigation is necessary for revegetation efforts, the primary water source would be the Trinity River. Any surface water sources used for irrigation would be developed in order to comply with the water rights of land management agencies and landowners. Pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

Monitoring

The Record of Decision (ROD) provided a restoration strategy for the TRRP but did not identify methods for assessing the effectiveness of the management actions in achieving TRRP goals or management targets. Instead, it directed the TRRP to organize assessments around the principles of Adaptive Environmental Assessment and Management (AEAM) program and to use this to rigorously assess the river's response to management actions. The Integrated Assessment Plan (IAP) provides the basis for applying the AEAM principles outlined in the ROD.

These principles would be applied to quantitatively determine the overall status and trend of river system attributes relative to TRRP objectives, using appropriate data to describe each attribute, with data collected based upon scientifically defensible monitoring designs. The causal relationship between rehabilitation of the fluvial nature of the river and increasing salmonid production would be the major focal point for monitoring and modeling. The focus of the IAP is to identify key assessments that:

- Evaluate long-term progress toward achieving program goals and objectives; and
- Provide short-term feedback to improve program management actions by testing key hypotheses and reducing management uncertainties.

The IAP provides a general framework for integrating and linking assessments across monitoring domains. Integration of assessments would be essential for evaluating the TRRP's overall restoration strategy, involving coordinated actions to support multiple ecosystem processes and components. This integration allows development of coordinated sampling designs and assessments that serve multiple or complementary objectives, and is intended to improve the understanding of qualitative and quantitative functional relationships associated with the mainstem Trinity River.

The IAP framework focuses on six key elements; each of these would be integrated into the MMRP to ensure that authorized activities are consistent with the AEAM. Key elements of the IAP include:

1. Create and maintain spatially complex channel morphology.

2. Increase/improve habitats for freshwater life stages of anadromous fish to the extent necessary to meet or exceed production goals.

3. Restore and maintain natural production of anadromous fish populations.

4. Restore and sustain the natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels to facilitate dependent tribal, commercial, and sport fisheries' full participation in the benefits of restoration via enhanced harvest opportunities.

5. Establish and maintain riparian vegetation that supports fish and wildlife.

6. Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation.

Additional information on the IAP is available on the TRRP website: <http://www.trrp.net/library/document/?id=400>

Design Elements

Attachment 1 following the appendices in Volume IV of the Master EIR/Programmatic EA is a glossary of design and construction terms for use by the design team.

Hydraulics

The Proposed Project would occur in areas that the Federal Emergency Management Agency (FEMA) has designated as Special Hazard Zones AE and X, as described in Section 3.2 of this document. In the Zone AE areas, Reclamation has established a design criterion stating that not only would the County's floodplain ordinance be followed, but implementation of the Proposed Project would not increase the flood risk for the community. This criterion resulted in a stipulation that coarse sediment and excavated material would be strategically placed to ensure that 100-year flood elevations would not increase over current conditions. As previously described, the site boundaries generally conform to the river corridor, bounded by prominent geographic features such as roads and fences.

The design of the activity areas was based on an understanding of the relationships between the flow regime and the hydrologic/hydraulic characteristics of the action. A fundamental constraint was to *do nothing to increase the flood risk in the general vicinity, and to not raise the water surface elevation above the current FEMA estimated 100-year base flood elevation.* Evaluation of the Proposed Project requires comparing estimated seasonal base flows and estimated return-period flows. USACE's HEC-RAS hydraulic model would be used by the design team during final design activities to predict changes in flood elevations at various points along the project reach. Table D-2 lists the components of the flow regime, the seasonal or other periodic return intervals, and the flow rates that would be used during final design to ensure that the action meets the flood constraints described above.

Table D-2. Estimated Mainstem Trinity River Flow Conditions Used for Design

Flow Description	Flow Event	Flow Rate (cfs)
Summer base flow[a] (July 22 to October 15 of each year)	Q_s	450
1.5-year return interval design flow	$Q_{1.5}$	6,000
Estimated FEMA 100-year flow below Rush Creek	Q_{100}	19,300
Estimated FEMA 100-year flow below Grass Valley Creek	Q_{100}	23,600

a Base flow defined as cfs from TRD release and accretion flow
Q = flow rate; Q1.5 = 1.5 year return interval design flow; Q100 = 100-year flood flow; Qs = summer base flow

A HEC-RAS model for the Trinity River from Lewiston Dam to the North Fork Trinity River was developed by California Department of Water Resources (DWR) and provided to the TRRP as part of the administrative record. This model was calibrated to match measured water surface elevations (WSEs) in the Trinity River within and adjacent to the site boundaries for the design flow. Since WSEs have not been measured (validated) for the 100-year flow, the predicted WSEs are based on the output of the model using carefully selected Manning's "n" values that reflect the overbank conditions at each site. The

model incorporates empirical data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of the rehabilitation sites. To obtain WSEs for design flows, the model was calibrated using surveyed WSEs and known flows (from gage data). The model was determined to be accurate for the level of evaluation and design required.

There are several significant flow conditions that are important to the design of the Proposed Project. Two of the most important flow conditions are summertime low flows of about 450 cfs, which is the release from Lewiston Dam, and the 1.5-year-event (ordinary high water) flow of 6,000 cfs, as measured below Rush Creek. The design team regards the design flows portrayed in Table D-1 as the "best available information" per FEMA requirements. The FEMA Q_{100} "near Douglas City" (38,500 cfs) was established in the 1976 USACE report (USACE 1976) used by FEMA to develop the current FIRMs for the Trinity River. The 6,000 cfs 1.5-year event is based on the ROD flow release. This flow information provides the basis for the designs incorporated into the Proposed Project.

The HEC-RAS hydraulic model was developed and calibrated for the existing conditions to calculate the WSE at various flow releases. The calibration was based on water-surface profiles surveyed at low flow and water profiles and points surveyed at different flows, ranging from 4,500 cfs to 10,000 cfs releases from Lewiston Dam. After the model was properly calibrated, various WSEs were determined for the activity areas and used to develop the design topography. The illustrations at the end of this chapter portray the design topography concepts. The final designs would ensure that constructed surfaces are self-draining in order to minimize potential fish stranding.

Roadway Approaches

As an alternative to disposing of excavated materials onsite, materials may be hauled to commercially approved off-site locations. This option would reduce the impact of spoiling excavated materials in upland habitats. Hauling a portion of excavated materials generated under the Proposed Project could require substantial truck traffic to off-site locations. The traffic would be staged over the project duration, generally between August 1 and November 15. Traffic control measures would be applied in accordance with BLM, Trinity County, and Caltrans requirements.

Recreation Facilities

As appropriate, recreation facilities (e.g., parking areas, access trails, picnic areas) affected by project activities would be returned to the same level of service as those offered prior to project implementation. Reclamation, in consultation with the BLM, DWR, and CDFW, could enhance one or more of these facilities consistent with project objectives. Examples of enhancement could be updated signage, surfacing of trails or parking areas with permeable materials, improvements to fishing access locations or establishment of interpretive features intended to increase public awareness of the ongoing efforts to restore the Trinity River.

Drainage

As appropriate, culverts or other drainage structures would be constructed at temporary stream crossings or cross-drainage channels to allow for unimpeded surface drainage.

Rights-of-Way/Easements

Prior to construction, formal realty agreements would be made between Reclamation; land managers for BLM, DWR, and CDFW; and private landowners whose property would be affected. These agreements would clarify the terms and conditions under which Reclamation would work on private property. In addition, these agreements would compensate landowners, based on fair market value of identified construction easements, and would hold property owners harmless during construction activities.

Utilities

There are a number of utility features located within and/or adjacent to the site boundaries. Water intakes, power and telephone poles, and water supply lines parallel or cross the Trinity River in a number of locations. These utilities are considered in the project design to ensure that service would not be disrupted.

Construction Criteria and Methods

Construction Process Overview

- Vegetation removal would occur as necessary and in compliance with all regulatory requirements. An expected August 1 start date for clearing and grubbing of vegetation would allow completion of nesting by avian species. Alternatively, vegetation may be removed prior to the start of the nesting season, which is early March for this area.

- Where available, existing roads (activity L) would be used to access the activity areas. New access roads and haul routes (activity M) would be constructed when necessary and restored to a stable condition in accordance with landowner requirements at the completion of the project.

- Excavation would begin on the floodplain to bring it down to grade.

- When specified, finer grained materials (e.g., sand) excavated from riverine activity areas may be stockpiled for use at upland or other riverine activity areas.

- Any riverine treatment areas (e.g., constructed inundation surfaces) that have been compacted from construction activities would be ripped to a depth of approximately 18 inches. The furrows developed by this ripping would ensure that most storm water runoff is retained and filtered on-site so that there is little or no construction-related turbidity. This action would effectively control the release of storm water runoff and turbidity from the site and eliminate the need for use of post-construction sediment-control measures (e.g., silt fences, berms).

- The timing for work adjacent to the river may be affected by river flows. If for some reason the flow is low when construction starts, but it is anticipated that flows would increase before the floodplain can be excavated, excavation would occur at the lower elevations (adjacent to river) first and at the higher floodplain elevations last.

- In-channel activities would generally take place during low flows (July 15 to September 15 as allowed by the coho salmon in-river work window in NMFS' 2000 Trinity River biological opinion) to create immediate point bars and allow mobilization of in-channel materials at high flows.

- Alcoves and side channels would be constructed from the existing grade down slope. Measures would be taken (e.g., sediment plug, sandbags) to isolate the work area from flowing water. If necessary, pumps would be used to dewater the excavation to inhibit any sediment from entering the river. Typically, reconnecting these features to the river relies on high-flow events. If necessary, the TRRP would remove materials used to isolate these side channels after they have been constructed.

- Final grading would occur as necessary for all activity areas.

- Demobilization of construction equipment and site clean-up would be accomplished consistent with Reclamation requirements.

- Revegetation would take place during wet conditions (fall/winter) and would generally occur in riparian areas to maximize use by fish and wildlife species. Projects would be designed and implemented to achieve no net loss in riparian vegetation (within the project site boundaries) from planting and natural revegetation consistent with the Draft Riparian Revegetation Plan.

In-River Construction

- Where necessary, heavy equipment would be used to grub tree and shrub roots from the edge of the river. Vegetation would often be maintained along the river's active channel to maintain the currently available low-water fish habitat. During root removal, equipment chassis would generally not enter the low-water river channel.

- In-river excavation would generally begin at the far edge of the activity area and work back toward the riverbank so that heavy equipment is on dry land or in shallow water.

- In-river materials or coffer dams may be used to temporarily redirect flow around work areas and to create platforms from which to work. In addition to providing the means for volitional fish passage (upstream and downstream), at least one navigable (by raft/boat) passage through the activity area would remain open at all times.

Traffic Control/Detour

Short-term traffic control is expected and would be in conformance with the following requirements established by the appropriate jurisdictional authority for mobilization and demobilization of heavy equipment or wide-load vehicles:

- Reclamation would coordinate with jurisdictional agencies to identify specific requirements that shall be included for use of existing roadways and haul routes. Requirements may include seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.

- Temporary construction access may be required; access routes shall be of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

Staging Areas

Staging areas and storage facilities for the Proposed Project are shown on Figure 3. These areas would be used throughout the duration of the project activities. Some short-term staging and equipment storage and parking would be needed in the activity areas as the project is implemented.

Air Pollution and Dust Control

Efforts would be made to minimize air pollution and reduce greenhouse gas emissions related to construction operations. Reclamation specifications require that the contractor comply with all applicable air pollution control rules, regulations, ordinances, and statutes. In addition, project contractors would be given educational material about fuel efficiency and the benefits of using vehicles powered by alternative energy sources to enhance awareness of global warming issues. Contractors would also be required to provide recycling bins for on-site waste materials.

Contract documents would also specify that the contractor would be responsible for limiting dust by watering construction site areas used by trucks and vehicles. If water is taken from the river, pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

Fire Protection and Prevention

Due to the high fire hazard and history of equipment-caused fires in Trinity County, construction contractors would be required to follow applicable regulations of Public Resource Code 4428-4442 during dry periods to minimize the potential for the initiation and spread of fires from the work site.

Water Pollution Prevention

Reclamation would implement water pollution control measures that conform to applicable and appropriate permits. Reclamation would require the contractor to use extreme care to prevent construction dirt, debris, storm water run-off, and miscellaneous byproducts from entering the stream. Some key water pollution control measures that would be implemented by Reclamation are listed below:

- Every reasonable precaution would be exercised and BMPs would be implemented to protect the Trinity River from being polluted by fuels, oils, petroleum byproducts, and other harmful materials and shall conduct and schedule operations to avoid or minimize muddying and silting of the river. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.

- Construction equipment would be cleaned of dirt and grease prior to any in-channel activities. All construction equipment would be inspected daily and maintained to ensure that fuel or lubricants do not contaminate the Trinity River. Spill containment kits would be onsite at all times and, where feasible, berms or other containment methods would be kept in place around the work areas when performing in-channel work.

- Water pollution control work is intended to provide prevention, control, and abatement of water pollution in the Trinity River, and would consist of constructing those facilities that may be

shown on the plans, specified herein or in the special provisions, or directed by the Contracting Officer.

- Furrowing of riparian areas that have been compacted during construction activity is expected to minimize or stop delivery of storm water runoff to the river. As necessary, Reclamation would provide temporary water pollution control measures, including, but not limited to, dikes, basins, ditches, and straw and seed application, that may become necessary as a result of the contractor's operations.

- Before starting any work on the project, Reclamation would develop an agency-approved SWPPP to effectively control water pollution during construction of the project. The SWPPP would show the schedule for the erosion control work included in the contract and for all water pollution control measures Reclamation proposes to take in connection with construction of the project to minimize the effects of the operations on adjacent streams and other bodies of water. Reclamation would not perform any clearing and grubbing or earthwork on the project until the SWPPP has been accepted by responsible agencies.

- Oily or greasy substances originating from Reclamation's operations would not be allowed to enter, or be placed where they would later enter, a live stream, soil, or groundwater.

APPENDIX H

Wild and Scenic River, Section 7 Analysis and Determination

APPENDIX H

CHAPMAN RANCH PHASE A (RIVER MILE 82.8-83.5) WILD AND SCENIC RIVER, SECTION 7 ANALYSIS AND DETERMINATION

INTRODUCTION

The Trinity River was designated as a National Wild and Scenic River (WSR) in 1981 under the Federal Wild and Scenic Rivers Act (WSRA). In addition to the mainstem Trinity River from the confluence with the Klamath River to 100 yards below Lewiston Dam, three other sections of the river were designated: the North Fork from the Trinity River confluence to the southern boundary of the Trinity Alps Wilderness Area, the South Fork from the Trinity River confluence to the California State Highway 36 bridge crossing, and the New River from the Trinity River confluence to the Trinity Alps Wilderness Area.

These sections of the Trinity River were designated as Wild and Scenic under the WSRA. The federal WSRA requires preservation of the river's free-flowing condition; anadromous and resident fisheries; and outstanding geologic, wildlife, flora and fauna, historic and cultural, visual, recreational, and water quality values. The Trinity River is designated specifically for the outstandingly remarkable value (ORV) of its anadromous fishery. The section of the Trinity River identified for the Chapman Ranch Phase A Rehabilitation Project was found to have ORVs due to its anadromous fishery. Under an interagency agreement between the National Park Service, the Bureau of Land Management (BLM), and the U.S. Forest Service, BLM generally has the responsibility for conducting WSRA Section 7 determinations for the mainstem Trinity River from Lewiston Dam to the confluence with the North Fork Trinity River. After the designation, BLM classified the mainstem Trinity River as a Recreational River from 100 yards below Lewiston Dam downstream to Cedar Flat.

The proponent for the proposed action (Chapman Ranch Phase A Rehabilitation Site: River Mile 82.8–83.5) is the Bureau of Reclamation, Trinity River Restoration Program (TRRP). Because a portion of the proposed activity would occur on lands it manages, BLM serves as a co-lead federal agency along with the TRRP for the environmental assessment (EA) portion of the integrated National Environmental Policy Act/ California Environmental Quality Act document (EA/IS) prepared for this project. This analysis and the subsequent determination evaluate the effects of the proposed action on the Trinity River's free-flowing condition, water quality, and the ORVs and ensures their protection as required under Section 7 of the WSRA. Because of the length and level of detail provided in the EA/IS, this WSR analysis is presented in summary form and refers the reader to the specific sections of Chapter 3 of the EA/IS for additional information on water quality, fisheries, wildlife, flora and fauna, recreational, and aesthetic values.

Existing conditions at the Chapman Ranch Phase A site have been influenced by historic mining and subsequent reductions in flood flows on the Trinity River. The large volume of dredge tailing deposits

essentially channelized this reach of the Trinity River and simplified the habitat available for aquatic, riparian, and upland species.

The channelization of the Trinity River associated with historic dredge activities was exacerbated by the modifications to the flow regime of the Trinity River downstream of Lewiston Dam beginning in 1964, when the Trinity River Division (TRD) of the Central Valley Project became fully operational. At the date of designation, the riparian berms that were essentially channelizing the river at a number of locations had been developing for more than 15 years, and scientists recognized that the alluvial nature of the river had been modified extensively due to changes in the flow regime and sediment flux. Although changes in the flow regime since 2005 have provided some opportunity to modify the form and function of the river, the Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Environmental Impact Report (Department of Interior, 2000) required establishment of the TRRP and stipulated that mechanical channel rehabilitation, including management of sediment input (reduction in fine sediments (sand) and augmentation of coarse sediment (gravel), would be required to reconfigure sections of the river and provide opportunities for alluvial processes to become reestablished, albeit at a smaller scale than had occurred prior to the construction and operation of TRD facilities (e.g., Lewiston Dam) in 1964.

SECTION 7 ANALYSIS

Section 7(a) of the WSRA provides that water resource projects upstream or downstream of a WSR may occur as long as the project "will not invade the area, unreasonably diminish or have a direct adverse effect on the scenic, recreational, fish and wildlife values present in the area as of the date of designation." This section also requires the river-administering agency—in this case, the BLM—to determine whether the proposed water resource project is consistent with its river-resource protection requirements. The determination evaluates the effects of proposed activities that involve construction below the ordinary high-water mark within the WSR corridor on the river's free-flowing condition, water quality, and scenic, recreational, fish and wildlife values. This analysis and determination follow the Evaluation Procedure provided to Reclamation by BLM's Redding Field Office for the Klamath Facilities Removal Project prepared by the BLM, Forest Service, and National Park Service in 2012.

The conditions that were present on the Trinity River when it was designated and included in the National System constitute the basis for evaluating the proposed action as described in the EA/IS. Therefore, the baseline conditions for the Trinity WSR are those present in 1981.

The initial question to be addressed in this WSR Section 7(a) determination is whether the proposed action described in the EA/IS invades or directly adversely affects the designated reach of the Trinity River, defined as encroachment or intrusion on the river.

The next question to be answered, relative to the standard set forth in WSRA Sections 7 and 7(a) is whether the proposed action will "unreasonably diminish or directly adversely affect" the scenic, recreational, fish, or wildlife values of the designated river. This standard implies that it is acceptable to diminish or affect one or more of these values to some degree. Two additional questions must, therefore, be considered:

1. Does the proposed action evaluated in the EA/IS cause the scenic, recreational, fish or wildlife values to be diminished or directly adversely affected relative to the date of designation?

2. If one or more value is diminished or directly adversely affected, is it unreasonable?

Definition of the Proposed Action

The overarching purpose of the TRRP is to restore fish populations to pre-dam levels and restore dependent fisheries, including those held in trust by the federal government for the Hoopa Valley Tribe (HVT) and the Yurok Tribe (YT). The fundamental purpose of the proposed action is to enhance the fishery and other values provided by the Trinity River in the general vicinity of the project area site by implementing the rehabilitation activities illustrated on Figure 2-1. Specifically, the proposed action would reestablish complex functional habitat for salmonids and other aquatic organisms (e.g., Pacific lamprey), enhance natural river processes for the benefit of wildlife, and provide conditions suitable for reestablishing native riparian vegetation. The proposed action was one of the original 43 projects listed in the 2000 ROD to restore the fish resources of the Trinity River. It is intended to enhance channel complexity and refugia habitat (e.g., large wood) that have emerged as important rehabilitation components as a result of the TRRP's ongoing monitoring efforts.

As part of the TRRP's Phase 2 channel rehabilitation efforts, the proposed action is one of about 10 channel rehabilitation projects that the TRRP expects to implement in the next 10 years. These Phase 2 projects are in addition to the ongoing flow/sediment management and watershed restoration elements of the TRRP.

Implementation of the proposed action will incorporate environmental commitments and project design features to ensure that it is consistent with the management goals and objectives established by BLM for the Trinity River under its Redding Resource Management Plan, specifically to support management actions intended to enhance the fishery and recreational ORVs of the Trinity River.

The proposed action was developed through a cooperative effort by the TRRP, BLM, and Yurok and Hoopa Valley tribes. It is intended to improve the conveyance of flows by reestablishing the alluvial attributes of the Trinity River, namely floodplains and side channels, while decreasing the potential for channel constriction by modifying floodplain widths and elevations.

The project proponents, the purpose and need for the project, and the geographic location of the proposed activity are described in Chapter 1 of the EA/IS. Specific information on the duration of the proposed activities and their magnitude and extent is provided in Chapter 2 of the EA/IS, as well as in Appendix B. Chapter 4 describes the relationship to past and future management activities with an emphasis on cumulative effects.

Does the Proposed Action Diminish or Directly Adversely Affect WSR Values?

The following criteria were applied to evaluate the potential for diminishment of or direct adverse effects on the Trinity WSR. This determination evaluates potential project effects on four WSR values: scenery, recreation, fish, and wildlife. The criteria presented below were also applied to evaluate effects on these values in the Trinity WSR.

Scenery Value Evaluation Criteria

Scenery was evaluated using the following criteria:

- Water flow character (river flows and accompanying geomorphic character)
- Water appearance (clarity, turbidity, color)
- Fish and wildlife viewing
- Riparian vegetation
- Natural appearing landscape character (visual effects of facilities and structures as viewed from the designated WSR corridor)

Recreation Value Evaluation Criteria

Recreation was evaluated using the following criteria:

- Whitewater boating
- Recreational fishing
- Other recreational activities (birding, swimming, camping)
- Recreational setting (water quality-related aesthetics and public health and safety aspects)

Fisheries Value Evaluation Criteria

The fishery was evaluated using the following criteria:

- Stream flow regime
- Water temperature
- Water quality (physical, biological, and chemical)
- Aquatic habitat (geomorphic condition, sediment transport regime, and substrate quality)
- Fish species population conditions, specifically:
  - Anadromous salmonid fish species
  - Resident fish species
  - Species traditionally used by and culturally important to Native Americans

Wildlife Value Evaluation Criteria

Wildlife was evaluated using the following criteria:

- Changes in habitat of affected species

Trinity Wild and Scenic River Evaluation

Scenery Value

Scenery was not identified as an ORV; however, it is included in this evaluation consistent with the requirements of Section 7 of the WSRA. This evaluation focuses on river's unique landform, diverse vegetation, water, and lack of negative cultural modification.

- Water Flow Character: Implementation of the proposed action (channel rehabilitation activities) is intended to restore the form and function of the treated reach to provide the ability to convey flow, sediment, and large wood in a manner similar to how the river functioned prior to construction of the TRD. The result would be to restore more historic and natural appearing flows, increase the amount and diversity of riparian vegetation, and thereby improve scenic quality.

- Water Appearance: Implementation of the proposed action (e.g., channel rehabilitation activities) is anticipated to result in short-term effects associated with the removal of riparian and upland vegetation and excavation and placement of alluvial materials within and adjacent to the active channel/floodplain; grading activities within and adjacent to the wetted channel; placement of coarse sediment to enhance spawning habitat; construction of side-channel habitat; construction of off-channel wetlands complexes; and placement of large wood and/or boulder clusters to increase habitat complexity. In-channel construction actions would result in short-term increases in turbidity as well as a potential for short-term decreases in juvenile salmonid rearing habitat as a result of excavation and placement of alluvial materials. Consistent with the conditions of the General Permit issued to the TRRP by the North Coast Regional Water Quality Control Board (Water Board), mitigation and turbidity monitoring measures will be implemented to ensure that the overall appearance of the Trinity River will not be affected.

- Fish Viewing: Short-term impairment to fish viewing in, and to varying degrees downstream of, the project area, would result from localized increases in turbidity during the in-channel work window (July 15–September 15). However, in the long-term, the proposed action would increase the overall population of native fish and other aquatic organisms in the WSR. This would increase the overall number of salmonids and other native fish species that may be viewed.

- Wildlife Viewing: Improvements in riparian and upland habitat are a fundamental element of the purpose and need for the proposed action. Expansion of floodplain habitat and extensive revegetation efforts are key activities at a number of locations throughout the project area. Rehabilitation of large, barren dredge tailings would include both grading and revegetation intended to reestablish and enhance upland habitat for a wide array of species that use riparian and upland habitat throughout the project area. Increases in populations of fish and other aquatic organisms (e.g., mussels, turtles, frogs) would provide increased forage for riparian and riverine wildlife species that depend on these organisms as a prey base. Therefore, wildlife viewing opportunities would increase.

- Riparian Vegetation: The proposed action would change the gradient of the river, expand the floodplain, increase off-channel riparian and wetland habitat and remove the monoculture of willows that became established as a result of long-term flow reductions after Lewiston Dam became operational. The proposed action would result in a more natural looking channel and facilitate establishment of a complex and diverse assemblage of riparian vegetation typical of free-flowing alluvial rivers.

- Natural Appearing Landscape Character: Implementation of the proposed action (e.g., channel rehabilitation activities) would result in reshaping the bed and banks of the WSR within the project area and to varying degrees in the downstream reach in a manner that reestablishes the alluvial process that occurred prior to historic large-scale dredging activities and that were subsequently impeded by modification of the flow and sediment regimes in the years following completion of the TRD. This project would result in a more natural setting and character within and adjacent to the project area.

Conclusion

There would be short-term negative impacts to scenery due to project activities (e.g., clearing, grading, in-channel construction) and water appearance (localized turbidity increases). However, the long-term beneficial effects of the proposed action would enhance the scenery of the Trinity WSR.

Recreation Value Evaluation

Recreation was not identified as an ORV; however, it is included in this evaluation consistent with the requirements of Section 7 of the WSRA. This evaluation focuses on boating opportunities, fishing for anadromous salmonids, and other recreational uses.

- Boating: Since the 2005 ROD flows were implemented during the period from April to August, whitewater boating on the Trinity River has increased substantially, particularly during wetter water years. The reach of the river associated with the proposed action is primarily alluvial in nature, and there are limited opportunities for whitewater boating within or in close proximity to the project area except during high flow periods resulting from TRD releases and/or large runoff events. One undeveloped public access point is available near the upstream end of the site; an access route that was developed on BLM land as part of the 2016 Deep Gulch project enables vehicles to drive within several hundred yards of the river. Due to the large amount of dredge tailings, there are no areas along the river within the project area that are available for launching boats or rafts. Within the project area, the primary boating activity is related to recreational fishing. Drift boats, prams, and float tubes are used for fishing throughout the year, other than during large flow events that may last for several days or as long as several months. Alternative locations for public access are available upstream at Lorenz Gulch and Dutton Creek and downstream at the Oregon Gulch and Junction City boat launch sites.

- Recreational Fishing: The fundamental objective of the proposed action is to restore the form and function of the Trinity River to enhance the fishery, specifically for anadromous salmonids. There would be short-term impacts on recreational fishing in the project area during construction of in-channel and riverine features (riffles, structured log jams) between July and September; boaters may not be able to stop at locations in close proximity to in-river construction activities intended to improve the flow and sediment regimes conducive to increasing fish populations. Therefore, recreational fishing would improve.

- Other Recreational Uses: During implementation of the proposed action, and for a period of time after grading is completed and revegetation activities are being implemented, short-term erosional processes could result in an increase in turbidity within and immediately downstream of the project area. The banks of the river are not visible from vantage points on public or private land within or adjacent to the project area; impacts associated with changes in water quality on other recreational uses (e.g., wildlife viewing, hiking) in the immediate vicinity of the Chapman Ranch Phase A site would therefore not occur.

Conclusion

There would be short-term, negative impacts on water quality that could impair recreational beneficial uses. The short-term access restrictions to some BLM parcels, limitations on fishing access, and changes in the appearance of the Trinity River at this location will not substantially limit recreational uses.

Fishery Value Evaluation

Fish in the Trinity River are an ORV. The river supports a number of native and non-native fish and other aquatic organisms. Prior to the installation of the TRD, the river provided habitat for numerous anadromous fish species, including Chinook salmon, Coho salmon, steelhead trout, and Pacific lamprey. A fundamental objective of the TRRP is restoration and enhancement of the Trinity River fishery.

Although it is generally recognized that the alluvial features existed on the date of designation, the transitory nature of riverine environments precludes the ability to fully quantify these features. The extensive body of scientific evidence available for the Trinity River suggests that the riparian berms and floodplain features had extensive riparian communities that were well established on the date of designation.

- Stream Flow Regime: The modification of the flow regime beginning in 1964 has provided the conditions for establishing a monoculture of riparian vegetation on the riparian berms on either side of the Trinity River, essentially channeling flows and inhibiting floodplain function during higher flows. The interaction between vegetation and fine sediment continued to expand this condition throughout the project area, although large floods (e.g., 1997) modified this riparian community to some degree. In addition to the extensive channelization resulting from the large dredge tailing deposits, the expansion of the riparian berms inhibited access of flows to remnant floodplain features (1.5-year return interval) and subsequently affected the amount and types of vegetation on these features. Since 2005, the flow regime of the Trinity River has been managed in accordance with the 2000 ROD to improve riparian and floodplain conditions in conjunction with channel rehabilitation projects like those proposed at the Chapman Ranch Phase A site. Since 2005, the TRRP has made substantial changes to the flow regime of the Trinity River consistent with the requirement of the 2000 ROD to manage flows in a manner that rehabilitates and enhances the Trinity River fishery.

- Water Temperature: Prior to full implementation of the ROD in 2005, up to 90 percent of the natural Trinity River flow was diverted to the Sacramento River basin through facilities associated with the TRD. Beginning in 1964, water quality in the Trinity River, particularly its temperature and sediment regimes, were substantially altered. The influence of Trinity Lake and Lewiston Reservoir on downstream conditions diminishes with distance. In general, the greater the release volumes from Lewiston Dam, the less susceptible the river's temperature is to other factors. Releases from the TRD are generally cold (42 to 47 degrees Fahrenheit [°F]). These temperatures are transmitted through Lewiston Reservoir to the Trinity River below Lewiston Dam. Although the proposed action would remove riparian vegetation, this action is not expected to have a negative impact on water temperatures in the river.

- Water Quality: In 1992, the Environmental Protection Agency (EPA) added the Trinity River to its list of impaired rivers under the provisions of Section 303(d) of the Clean Water Act in response to a determination by the State of California that the water quality standards for the river were not being met due to excessive sediment. In 2001, the EPA established a Total Maximum Daily Load for sediment in the river. The North Coast Regional Water Quality Control Board has continued to identify the Trinity River as impaired in subsequent listing cycles. The primary adverse impacts associated with excessive sediment in the Trinity River pertain to degradation of habitat for anadromous salmonids. The restriction of streamflows downstream of the TRD has

greatly contributed to the impairment of the Trinity River below Lewiston Dam (EPA 2001). With implementation of ROD flows and the placement of coarse sediment in the Lewiston area, local reductions in fine sediment in the river bed have been observed and fish spawning has increased. Recent TRRP monitoring efforts provide data to compare in-channel fine sediment concentrations pre- and post-ROD flows. These data indicate that gravel quality and river bed oxygen permeability have increased through the 40-mile reach below Lewiston Dam.

- Aquatic Habitat: The Trinity River Flow Evaluation Final Report (U.S. Fish and Wildlife Service and HVT 1999) determined that lack of spawning and rearing habitat for juvenile salmonids is likely a primary factor limiting the recovery of salmonid populations in the Trinity River. Activities associated with the proposed action within the project area are specifically designed to increase the abundance of habitat for Trinity River salmonids by reconnecting the river with its floodplain, increasing channel sinuosity, creating complex off-channel aquatic and riparian habitat, and providing shallow low-velocity habitats in close proximity to the river's edge. The proposed action is designed to restore the alluvial processes of the Trinity River within the 1-mile reach associated with the Chapman Ranch Phase A site. As described in Chapter 3 of the EA/IS, increases in salmonid rearing habitat range from 1.1 acres (40 percent increase) under low-flow conditions (300 cubic feet per second (cfs)) to more than more than 5.4 acres (300 percent increase) under high flows (6,000 cfs). As described in Chapter 2, about 6.4 acres of meander complex (pool-riffle sequences) would be constructed and 10.6 acres of floodplain would be enhanced and/or improved as a result of the proposed action.

- Fish Species Population Conditions: Flows in the Trinity River downstream from Trinity and Lewiston Dams have been regulated since Trinity Dam closed in 1960. Diversion of up to 90 percent of the Trinity streamflow to the Sacramento River basin in the 1960s and 1970s led to substantial geomorphic changes in many locations along the river, with the predominant responses being channel narrowing and vegetative encroachment along the channel margins. Concurrently, reductions in salmonid populations in the Trinity River resulted in congressional action to restore the Trinity River and its fishery. Activities included under the proposed action are intended to have beneficial effects on fisheries within the project area, and these benefits are expected to increase over time. While protecting high-quality holding and spawning habitat, as illustrated on Figure 2-1 of the EA/IS, in-channel activities would:

  - increase channel complexity and shallow low-velocity refugia at a variety of flows and would provide more than a 300 percent increase in fry and juvenile rearing habitat that meets criteria for depth, velocity, and cover.;

  - construct riffles that would provide adult salmonid spawning areas and increase food resources (benthic macroinvertebrates) for fry and juvenile salmonids during critical winter and spring rearing periods;

  - develop pools that would provide holding habitat for adult salmonids, as well as slow water refugia to provide fry and juvenile habitat at flows ranging between 300 cfs and 4,500 cfs; and

  - increase channel sinuosity and channel complexity, providing fry and juvenile rearing opportunities at a wide range of flows over existing conditions.

Conclusion

Although there would be short-term effects on riparian and floodplain habitat as a result of construction-related actions (e.g., clearing, grading, in-river excavation), the long-term effects on the fishery values of the Trinity River are expected to be substantial and positive.

Wildlife Value Evaluation

Wildlife habitat within the project area includes riparian and upland habitat. Habitat that typically occurs below the ordinary high-water mark (6,000 cfs) of the Trinity River is characterized as riparian. Habitat that occurs above this elevation is considered upland habitat. The riparian corridor adjacent to the Trinity River provides habitat for a wide array of special-status plants and wildlife species. A full discussion of riparian-dependent species is provided in Chapter 3 of the EA/IS.

- Riparian Habitat: The proposed action would convert almost 5 acres of non-riparian areas (e.g., tailings, terrace deposits) to floodplain and riverine riparian habitat within a 3- to 5-year post-project timeframe. A revegetation program has been incorporated into the proposed action, which will emphasize reestablishing native species and increasing the diversity of vegetation throughout the project area. As described in Chapter 2 and Appendix C of the EA/IS, there are a number of environmental commitments to address a diverse array of riparian-dependent species. These include pre-construction surveys and avoidance measures to protect nesting birds; relocation of amphibian species if encountered; and use of construction monitors to identify and avoid impacts to fully protected species (e.g., ringtailed cats).

- Upland Habitat: Most of the upland habitat in the project area has been subject to wide array of modification as a result various types of human disturbances. In addition to large-scale bucket-line dredge activity that occurred in and adjacent to the Trinity River between 1930 and 1950, more recent mining for sand and gravel has severely altered the landscape within and adjacent to the project area. To a lesser degree, residential development and recreational uses have also had effects on upland habitat. The proposed action would involve excavating more than 120,000 cubic yards of material (primarily dredge tailing deposits) in order to construct pools, riffles and floodplains. Excess material excavated from activity areas would be used to recontour upland areas to develop functional upland habitat upslope of the 100-year floodplain, essentially converting about 12 acres of tailing piles into functional upland habitat. These tailing deposits are remnants of the bucket-line dredge activity that occurred at many locations along the Trinity River. These features are long, linear piles of sand, gravel, cobbles, and boulders that are piled on the floodplains and terrace features adjacent to the present channel of the river and are essentially devoid of vegetation. Placement of excavated material on the dredge tailings would provide an opportunity to enhance about 12 acres of upland habitat by reestablishing native upland plant communities while reducing the area occupied by non-native vegetation, thereby making the tailings more productive in terms of vegetation and wildlife species. A revegetation program is a critical element of the proposed action, which emphasizes reestablishing native species and increasing the diversity of vegetation throughout the project area.

Conclusion

Short-term and localized negative effects to wildlife species and their respective habitats due to the proposed action are expected. However, long-term improvements to riparian and upland habitat and

increased wildlife forage opportunities resulting from the proposed action in conjunction with other TRRP actions would have long-term beneficial effects.

SECTION 7 DETERMINATION

The evaluations presented in the previous section provide the basis for the determination to be made in this document. This determination will be made by the Redding Field Manager, Jennifer Mata. The next question relative to the standard in Section 7(a) of the WSRA is whether the proposed action will "unreasonably diminish or directly adversely affect" the scenic, recreational, fish, or wildlife values of the designated river. Given that the standard implies some diminishment or direct adverse effects on values may be acceptable, there are two questions to consider.

1. Does the proposed action evaluated in the EA/IS prepared for the Chapman Ranch Phase A project cause diminution of or adverse effects on the scenic, recreational, fish, or wildlife values of the Trinity River as present at the date of designation?

2. If there is diminution or adverse effects, are they unreasonable? This would suggest an evaluation of the magnitude of the loss. Factors to be considered include (1) whether the values that contributed to the designation of the river (i.e., outstandingly remarkable values) and (2) the current conditions and trends of the resource. If diminution is determined unreasonable, measures may be recommended to reduce adverse effects to acceptable levels.

The information provided in the EA/IS in conjunction with the project record has been fully considered in arriving at the following conclusions. A tabular summary of these conclusions is provided in Table G-1.

The effects of the proposed action, with the inclusion of environmental commitments and project design features, would be short-term in nature (1 to 2 years as areas subject to clearing and grading within and adjacent to the Trinity River stabilize and become revegetated). The referenced commitments include a number of specific measures to protect native salmonids and other aquatic and riparian-dependent species. Measures to protect upland wildlife species are also included as part of the proposed action.

Table G-1. Invade and Unreasonably Diminish Conclusions – Proposed Action at the Chapman Ranch Phase A Site

WSR Segment Designation	Invade the WSR	Unreasonable Diminishment of WSR Values: Scenery Value	Unreasonable Diminishment of WSR Values: Recreation Value	Unreasonable Diminishment of WSR Values: Fishery Value	Unreasonable Diminishment of WSR Values: Wildlife Value
Trinity River Recreational	Yes	Enhanced (rehabilitates river reach to a condition that is improved from the date of designation)	Boating (no change); fishing and other recreation enhanced	Enhanced	Enhanced

In the long-term, the proposed action, in conjunction with other actions undertaken by the TRRP to rehabilitate and enhance habitat for anadromous salmonids and other aquatic and upland species, will result in overall improvement to the scenic, recreation, fish, and wildlife values in the Trinity WSR.

I have carefully considered the relocation of public access to BLM parcels via Sky Ranch Road to protect the viewshed of the Chapman Ranch dredge tailing interpretation site and maintain access to an existing mining claim within the project area. While public access to BLM lands throughout the project area is extremely by the existing dredge tailings and adjoining private lands, access via the river corridor will not be restricted during construction activities. The overarching purpose and need for the proposed action is to improve the Trinity River fishery, thereby meeting the goals of the TRRP with respect to tribal trust resources and recreational fishing opportunities. Fishing opportunities for tribal members and recreational users would increase due to an increase in the spawning and rearing habitat for anadromous salmonids and other aquatic and riparian-dependent species.

The proposed action would result in long-term benefits to the scenic, recreation, fish, and wildlife values present when the Trinity WSR was designated as a National WSR in 1981. Since there would be no "direct adverse effects" on the Trinity WSR or "unreasonable diminishment" of its values, I find the proposed action as described in Chapter 2 of the EA/IS to be fully consistent with the protections afforded by the WSRA.

Jennifer Mata — Date
Redding Field Manager
Bureau of Land Management

APPENDIX I

Summary of Cumulative Impacts

APPENDIX I

CHAPMAN RANCH PHASE A (RIVER MILE 82.8–83.5) SUMMARY OF CUMULATIVE IMPACTS

Table I-1. Summary of Cumulative Impacts Considering Past, Present, and Reasonably Foreseeable Actions in the Trinity River Basin

Resource Area	Cumulative Impacts
Land Use	Implementation of the proposed action, 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.
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 action in combination with other related projects and landscape-level changes in the watershed. Previous Trinity River Restoration Program (TRRP) projects (e.g., Lorenz Gulch) and periodic increases in flow regimes continue to increase channel complexity throughout the 40-mile reach. Large fires throughout the Trinity River basin continue to influence flow and sediment regimes within the watershed. Appropriate implementation of environmental commitments, project design features, and California Environmental Quality Act (CEQA)-specific mitigation measures would reduce potential impacts to a less-than-significant level.
Hydrology and Flooding	Implementation of the proposed action 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 or that would cause flooding.
Water Quality	No significant cumulative impacts to water quality are anticipated to occur as a result of implementation of the proposed action in combination with other related projects and recent landscape-level changes as result of recent fires in Trinity County. The TRRP implementation schedule acknowledges the need to stagger implementation of channel rehabilitation projects along the 40-mile reach of the river to ensure that project sites have the opportunity to stabilize and revegetate. Individually, these activities would result in short-term, temporary effects on water quality. Appropriate implementation of environmental commitments, project design features, and CEQA-specific 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 action. The effect of the proposed action, in conjunction with other projects and programs such as the Five Counties Salmonid Restoration effort, is expected to be beneficial in terms of the rehabilitation of habitat and fisheries resources. Implementation of the proposed action as designed, in conjunction with CEQA-specific mitigation measures, would benefit rather than adversely affect the 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 action in combination with other related projects. The proposed action as designed, in conjunction with CEQA-specific mitigation measures, would benefit rather than adversely affect vegetation, wildlife, and wetlands in the long term, as would most of the other related projects and programs (e.g., Five Counties Salmonid Restoration). Implementation of the proposed action would contribute to long-term ecological benefits in terms of vegetation, wildlife, and wetlands.

Resource Area	Cumulative Impacts
Recreation	No significant cumulative impacts to recreational resources are anticipated to occur as a result of implementation of the proposed action in combination with other related projects. Benefits to recreational values may be achieved through implementation of the TRRP over time.
Wild and Scenic Rivers	No significant, adverse cumulative impacts to the outstandingly remarkable values (ORVs) of the Recreational section of the Trinity River designated by Bureau of Land Management are anticipated to occur as a result of implementation of the proposed action. The effect of the proposed action, in conjunction with other projects and programs such as the Five Counties Salmonid Restoration effort, is expected to be beneficial to the ORVs that existed on the date of designation (e.g., fisheries resources). Implementation of the proposed action as designed, in conjunction with CEQA-specific mitigation measures, would benefit rather than adversely affect the ORVs in this section of the Trinity River protected under both the federal and state Wild and Scenic Rivers Acts in the long term.
Cultural Resources	No significant cumulative impacts to cultural resources are anticipated to occur as a result of implementation of the proposed action. The environmental commitments, project design features, and implementation of prescribed CEQA-specific mitigation measures (e.g., surveys of potential impact areas by a professional archaeologist prior to construction, protection of potentially significant cultural sites, placement of an interpretative sign, and coordination with local tribes) consistent with the Programmatic Agreement between the Bureau of Reclamation and the California State Historic Preservation Officer would adequately address 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 action. North Coast Unified Air Quality Management District requirements would be addressed by implementation of environmental commitments, project design features, and prescribed CEQA-specific mitigation measures. The proposed action, in conjunction with the other projects and programs occurring within the Trinity River Basin, would contribute cumulatively to global climate change. Thus, the proposed action would contribute to an adverse cumulative contribution to global climate change. Implementation of the proposed action in conjunction with mitigation measures would reduce the cumulative contribution to global climate change to a less than significant level.
Aesthetics	No significant cumulative impacts to visual resources are anticipated to occur as a result of implementation of the proposed action. Implementation of the proposed action 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 Environmental Impact Report.
Noise	No significant cumulative impacts related to noise are anticipated through implementation of the proposed action in combination with other projects. Reclamation would coordinate the implementation of other restoration projects to ensure that construction noise is minimized through project scheduling.
Transportation/ Traffic Circulation	No significant cumulative impacts related to transportation/traffic circulation are anticipated through the implementation of the proposed action in combination with other related projects. Traffic increases would be localized and temporary.