

Appendix B – Environmental Commitments

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1 Introduction

The Proposed Action is described in Chapter 4 of the Trinity River Watershed Restoration Project (Project) Environmental Assessment (EA). This appendix provides the environmental commitments for the suite of restoration activities included in the Project sorted into three different categories: general protection measures (GPMs); design guidelines by activity type; and conservation measures (CMs) by environmental resource. The environmental commitments were developed for the Project to avoid significant environmental effects. These environmental commitment categories are described below:

1. The GPMs address general construction best management practices (BMPs) that would be recommended for most site-specific restoration activities undertaken by project proponents.
2. The design guidelines were developed by information provided primarily by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) to ensure site-specific project designs minimize adverse effects and maximize beneficial effects to ESA-listed fish and wildlife species and their associated habitats.
3. CMs were developed to avoid and minimize adverse effects to geology and soils, water quality and hydrology, vegetation resources, non-native invasive species, fishery resources, wildlife, cultural resources, land use, visual resources, recreation, and noise.

These environmental commitments were primarily developed based on measures required by the NMFS' 2020 Biological Opinion (BiOp) for the Trinity River Restoration Program's Mechanical Channel Rehabilitation, Sediment Management, Watershed Restoration, and Monitoring Actions in Trinity County, California (2020 TRRP BiOp, WCRO-2019-03827) and USFWS' 2025 Programmatic BiOp for the California Statewide Programmatic Restoration Effort (USFWS Statewide Restoration BiOp, FWS Reference: 2022-0005149-S7). In addition to the measures required by these BiOps, the environmental commitments were also developed based on recommendations from Project resource specialists and guidance/regulations, including, but not limited to, the following:

BLM's Integrated Vegetation Management Handbook (H1740-2)
 Clean Water Act of 1972
 California's Porter-Cologne Act
 CEQA Program EIR for the State Water Resources Control Board Statewide Restoration General Order (SRGO PEIR)
 Executive Order 14072
 Executive Order 13112
 Forest Service Manual (FSM)
 NOAA Restoration Center's (RC's) 2021 Biological Assessment (BA) for Restoration Projects in Northern California
 Noxious Weed Control and Eradication Act of 2004
 Plant Protection Act of 2000

TRRP's 2019 Biological Assessment and Essential Fish Habitat Assessment
 TRRP's 2009 Master Environmental Impact Review (Master EIR)
 2018 Water Quality Control Plan for the North Coast Region (aka Basin Plan)
 36 Code of Federal Regulations Subpart A, Section 222.8
 Native American Graves Protection and Repatriation Act
 Cultural resource regulations: National Historic Preservation Act (NHPA) of 1966; Archaeological Resources Protection Act; Historic Sites Act of 1935; Antiquities Act; American Indian Religious Freedom Act; EO 13007; EO 13175; EO 13287

1 General Protection Measures (GPMs)

GPM-1, Receipt and Copies of All Permits and Authorizations. Work will not begin until all necessary permits and authorizations have been issued (e.g., USACE, USFWS, NMFS, State and/or Regional Boards, or CDFW). The site-specific project proponent will ensure that a readily available copy of the applicable agency permits and authorizations (e.g., USFWS PBO, NMFS PBO, or Section 404 permit) is maintained by the construction foreperson/manager on the project site for the duration of project activities.

GPM-2, Construction Work Windows. Construction work windows may be required, depending on whether the project involves in-water construction and/or whether ESA-listed species have the potential to occur in the project area. Wildlife species-specific seasonal restrictions are provided in Table 3-5. Restoration, construction, fish relocation, and dewatering activities proposed within any wetted or flowing channel of tributaries to the Trinity River shall be restricted to the dry season (June 15 to October 15 for tributaries and July 15 to October 15 for the mainstem), before listed coho salmon begin spawning in tributaries. Work in intermittent streams may continue beyond November 1, as long as weather conditions permit, the stream channel remains dry, and with permitting agency approval. Construction and restoration work within intermittent stream channels must be completed in the dry.

GPM-3, Construction Hours. Construction activities will generally be limited to daylight hours, to the extent practicable. If nighttime construction is necessary, all project lighting (e.g., staging areas, equipment storage sites, roadway, and construction footprint) will be selectively placed and directed onto the roadway or construction site and away from sensitive habitats. Light glare shields will be used to reduce the extent of illumination into sensitive habitats. If the work area is near surface waters, the lighting will be shielded so that it does not shine directly into the water.

GPM-4, Environmental Awareness Training. For projects occurring where ESA-listed species are likely to be present, prior to engaging existing or new personnel in construction activities, new construction personnel will participate in environmental awareness training conducted by a Qualified Biologist. Construction personnel will be informed regarding the identification, potential presence, habitat requirements, legal protections, avoidance and minimization measures, and applicable protection measures for ESA-listed species with the potential to occur in or immediately adjacent to the project site. Construction personnel will be informed of the procedures to follow should a ESA-listed species be encountered during construction activities. For projects where the Qualified Biologist is not regularly on the project site, training may be provided in an online/virtual meeting. For projects that may continue over an extended duration and require excessive training events, a training video developed under the supervision of the Qualified Biologist may be used to train new personnel, as long as a Qualified Biologist is available by phone to answer questions about the training or to answer questions that may arise during construction.

GPM-5, Erosion and Sediment Control. In areas expected or forecasted to get rainfall during the construction season, effective erosion control measures shall be in place at all times during construction activities. Construction within the 5-year floodplain may not begin until all temporary erosion controls (e.g., straw bales, silt fences that are effectively keyed in) are in place, downslope of project activities within the riparian area. Erosion control structures shall be maintained throughout, and possibly after, construction activities. Sediment

shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground 12 centimeters (cm). Catch basins shall be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps.

GPM-6, Erosion and Sediment Control Monitoring. The contractor/applicant to the Program shall inspect, maintain and repair all erosion control materials and devices prior to and after any storm event, at 24-hour intervals during extended storm events, and a minimum of every two weeks until all erosion control measures are no longer needed or as required by the SWPPP.

GPM-7, Wet Weather Work Limitations. No work would be conducted during wet weather or where saturated ground conditions exist; if a 60% chance of a one half inch of rain or more within a 24-hour period is forecasted, then the site shall be treated with erosion control measures and construction operations will cease until 24 hours after rain has ceased. Petroleum products, chemicals, fresh cement, or water contaminated by the aforementioned shall not be allowed to enter flowing waters.

GPM-8, Sediment Laden Water. Water containing mud or silt from construction activities shall be treated by filtration or retention in a settling pond to avoid draining sediment-laden water back to the stream channel. Alternatively, an infiltration area may be created and used within the regular project footprint or in upland areas, if the soil composition of the area adequately supports infiltration back into the system.

GPM-9, Pump Screens. Screens shall be installed on all water pump intakes and other water diversions in compliance with the latest NMFS salmonid screening specifications.

GPM-10, Limitations on Sediment-Inducing Activities. To minimize the potential for additive sediment impacts in downstream habitat, projects constructed during the same field season must be separated longitudinally (i.e., upstream and downstream) by at least 350 meters.

GPM-11, Environmental Monitoring. Where appropriate and based on project-specific requirements, a Qualified Biologist(s) will perform site clearance at the beginning of each day and will monitor construction activities throughout the day in, or immediately adjacent to, sensitive resources and/or ESA-listed species habitat (including critical habitat as applicable), as necessary. The Qualified Biologist will confirm that all applicable protection measures are implemented during project construction. The Qualified Biologist will have the authority to stop any work if they determine that any permit requirement is not fully implemented or if it is necessary to protect ESA-listed species, consistent with the information provided in a signed ESA Section 7(a)(2) Review Form by the USFWS Field Office to cover the proposed project by the USFWS Programmatic BiOp. The Qualified Biologist will prepare and maintain a biological monitoring log of construction site conditions and observations, which will be kept on file.

GPM-12, Work Area and Speed Limits. Construction work and materials staging will be restricted to the smallest area practicable in designated work areas, routes, staging areas, temporary interior roads, or the limits of existing roadways. Prior to initiating construction or grading activities, brightly colored fencing or flagging or other practical means will be erected to demarcate the limits of the project activities, including the boundaries of designated staging areas; ingress and egress corridors; stockpile areas for spoils disposal, soil, and materials; and equipment exclusion zones. Flagging or fencing will be maintained in good repair for the duration of project activities. Posted speed limits on public roadways will be adhered to and speeds will be limited to 20 miles per hour (mph) in the project area on unpaved surfaces and unpaved roads (to reduce dust and soil erosion), or in

areas where ESA-listed species have the potential to occur. Speeds greater than 20 mph may be permitted in the project area where ESA-listed species are not expected to occur (e.g., in areas where ESA-listed species have been excluded) and there is no risk of generating excessive dust (e.g., surfaces are paved, saturated, or have been treated with other measures to prevent dust).

GPM-12, Access Route Development. Limit number of new access routes requiring tree removal and grading to no more than two. Access routes should not be along the top of the stream bank but relatively perpendicular (45 to 90 degrees is acceptable) to bank.

GPM-13, Instream Work Access. Where available, use existing ingress or egress points, or perform work from the top of the streambanks.

GPM-14, Environmentally Sensitive Areas and/or Wildlife Exclusion. Where appropriate, fencing, flagging, or biological monitoring will be used to minimize disturbance to environmentally sensitive areas and ESA-listed species habitat. If the project site is suitable for fencing, prior to the start of construction, environmentally sensitive area fencing (ESAF) and/or Wildlife Exclusion Fencing (WEF) will be installed between the active work area(s) and any suitable terrestrial habitat where ESA-listed species could enter the site. When fencing is not practicable due to project size, topography, soils, or other factors, monitoring by a Qualified Biologist during construction activities can be used to minimize impacts (see GPM-11, Environmental Monitoring).

- The Qualified Biologist will determine the location of the ESAF and/or WEF prior to the start of construction.
- WEF specifications (e.g., height, installation requirement, or materials) will be determined based on the species the fencing is intended to exclude. ESAF does not require such specifications and may include flagging or monitoring (see GPM-5, Environmental Monitoring).
- The ESAF and/or WEF will remain in place throughout the duration of the construction activities and will be inspected and maintained regularly by the Qualified Biologist until completion of the project. Repairs to the ESAF and/or WEF will be made within 24 hours of discovery. The fencing will be removed only when all construction equipment is removed from the site, the area is cleared of debris and trash, and the area is returned to natural conditions.

GPM-15, Prevent Spread of Invasive Species. The spread or introduction of nonnative, invasive plant and animal species will be avoided. When practicable, nonnative invasive plants in the project areas will be removed and properly disposed of in a manner that will not promote their spread. Equipment will be cleaned of any sediment or vegetation at designated wash stations before entering or leaving the project area, to avoid spreading pathogens or nonnative invasive species. Activities that create new habitat for nonnative invasive species will be avoided to the extent possible. Isolated infestations of nonnative invasive species identified in the project area will be treated with weed management methods at an appropriate time, to prevent further formation of seed and destroy viable plant parts and seed. Wash sites must be in confined areas that limit runoff to any surrounding habitat, and on a flat grade. Upland areas will use invasive species-free local wood straw or slash/mulch for erosion control; the remainder of the project area will use certified, weed free erosion control materials. Mulch must be certified weed-free. The Project Proponent will follow the guidelines in the CDFW's California Aquatic Invasive Species Management Plan (CDFW 2008) and Aquatic Invasive Species Disinfection/Decontamination Protocols (CDFW 2016). Construction supervisors and managers will be educated on weed identification and the importance of controlling and preventing the spread of invasive weeds.

GPM-16, Practices to Prevent Pathogen Contamination. The site-specific project proponent will review and implement restoration design considerations and best management practices (BMPs) to help prevent pathogen contamination, as published by the “Working Group for Phytophthoras in Native Habitats” (www.calphytos.org), when there is a risk of introduction and spread of plant pathogens in site plantings. The Project Proponent will review and implement decontamination protocols to prevent the spread of pathogens among amphibians or other aquatic animals when working in aquatic habitats that may support native amphibians. Gear and equipment that may contact water will be cleaned and decontaminated to prevent the spread of chytrid fungus, following protocols in Aquatic Invasive Species Disinfection/Decontamination Protocols (CDFW 2016, or latest version). For additional guidance related to amphibians and chytrid fungus, see AMP-4 and AMP-10 in “Wildlife Resources” below.

GPM-17, Equipment Maintenance and Materials Storage. Vehicle traffic will be confined to existing roads and the proposed access route(s). All machinery must be in good working condition, showing no signs of fuel or oil leaks. Oil, grease, or other fluids will be washed off at designated wash stations prior to entering the construction site. Inspection and evaluation for the potential for fluid leakage will be performed daily during construction. All fuel and chemical storage, servicing, and refueling will be done in an upland staging area or other suitable location (e.g., barges) with secondary containment to prevent spills from traveling to surface water or drains. Site-specific project proponents will establish staging areas for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants in previously disturbed upland areas whenever possible, away from areas suitable for ESA-listed species, and in coordination with resource agencies. Staging areas will have a stabilized entrance and exit and will be at least 100 feet from waterbodies, unless site-specific circumstances do not provide such a setback; in such cases, the maximum setback possible will be used. Fluids will be stored in appropriate containers with covers and will be properly recycled or disposed of off-site. Machinery stored on site will have pans or absorbent mats placed underneath potential leak areas. Adequate erosion control supplies (gravel, straw bales, shovels, etc.) shall be stored on site.

GPM-18, Instream Materials. All materials placed in or over streams, rivers or other waters shall be nontoxic. Any combination of wood, plastic, cured concrete, steel pilings, or other materials used for in-channel structures shall not contain coatings or treatments or consist of substances toxic (e.g., copper, other metals, or pesticides, petroleum-based products, etc.) to aquatic organisms that may leach into the surrounding environment in amounts harmful to aquatic organisms.

GPM-19, Concrete Containment. Where possible, poured concrete should be excluded from contact with surface or groundwater during initial curing, ideally for a period of 30 days after it is poured. During that time, runoff from the concrete will not be allowed to enter the surface or groundwater. If this is not feasible due to expected flows and site conditions, commercial sealants that are appropriate for use near water may be applied to the poured concrete surface to prevent exposure of uncured concrete to streamflow and subsequent risk to water quality and aquatic life before the sealant comes into contact with flowing water. If sealant is used, water will be excluded from the site until the sealant is dry and fully cured according to the manufacturer’s specifications. Concrete is considered to be cured when water poured over the surface of concrete consistently has a pH of less than 8.5.

GPM-20, Material Disposal. All refuse, debris, unused materials, and supplies that cannot reasonably be secured will be removed daily from the site-specific project work area and deposited at an appropriate disposal or storage site. All construction debris will be removed from the work area immediately on project completion.

GPM-21, Fugitive Dust Reduction. To reduce dust, construction vehicles will be speed restricted as described in GPM-12, Work Area and Speed Limits, when traveling on nonpaved surfaces. Stockpiled materials susceptible to wind-blown dispersal will be covered with plastic sheeting or other suitable material to prevent movement of the material. During construction, water (e.g., trucks, and portable pumps with hoses) or other approved methods will be used to control fugitive dust. Dust suppression activities must not result in a discharge to waterbodies.

GPM-22, Trash Removed Daily. During project activities all trash, especially food-related refuse that may attract potential predators or scavengers, will be properly contained in sealed containers, removed from the site-specific work area, and disposed of daily.

GPM-23, Project Cleanup and Site Stabilization. Work pads, temporary falsework, and other construction items will be removed from the 100-year floodplain by the end of the construction window. Removal of materials must not result in discharge to waterbodies. Within seven days of project completion and before the close of the seasonal work window, all exposed soil shall be stabilized with erosion control measures such as mulch, seeding, planting, and/or placement of erosion control blankets. Where straw, mulch, or slash is used on bare mineral soil, the minimum coverage shall be 95 percent with two-inch minimum depth. Operations will use all feasible techniques to prevent any sediment from entering a drainage system.

GPM-24, Streambank Recontouring. Based on a field geomorphic assessment, the channel bed and banks shall be re-contoured after construction to achieve the anticipated natural self-sustaining pool-riffle morphology to the extent feasible.

GPM-25, Revegetate Disturbed Areas. All temporarily disturbed areas will be decompacted and seeded/planted with an assemblage of native riparian, wetland, and/or upland plant species suitable for the area. The site-specific project proponent will develop a revegetation plan. Plants for revegetation will come primarily from active seeding and planting, or from natural recruitment where applicable. Plants imported to the restoration areas will come from local stock. Only native plants (genera) will be used for restoration efforts. Certified weed-free native mixes and mulch will be used for any restoration planting or seeding. Revegetation activities in and adjacent to waterbodies and other aquatic habitat suitable for ESA-listed species will commence after construction activities at a site are complete.

GPM-26, Tree Removal. No large wood (LW) or trees will be removed in active (wetted) channels. Trees outside the wetted channel may be removed for access routes for construction equipment or in the context of watershed restoration (e.g., conifer encroachment on meadows). If trees need to be removed from other portions of the project site, do not remove native riparian trees or shrubs over 3 inches in diameter at breast height or reduce canopy cover provided by hardwoods or conifers. Replant any trees removed to achieve 1:1 successful revegetation by one of the following methods: a) trees removed can be replanted at 3:1, or b) site can be monitored for 2 years and replanted until 1:1 successful revegetation is achieved.

GPM-27, Wildfire Prevention. With the exception of vegetation-clearing equipment, no vehicles or construction equipment will be operated in areas of tall, dry vegetation. A fire prevention and suppression plan will be developed and implemented for all maintenance and repair activities that require welding or otherwise have a risk of starting a wildfire.

2 Design Guidelines

Instream Habitat Restoration Activities

- Only one floodplain reconnection project over 100 acres and one small dam removal project may occur in each HUC-12 watershed per year.
- Channel rehabilitation activities along the Trinity River Mainstem will be completed to coincide with scheduled flow releases from Lewiston Dam. Some restoration activities may require temporary low flow channel crossings, which will consist of unimproved fords, improved fords, vented fords, culverts, low water bridges, or variations of these, tailored to individual site requirements and locally available materials. The crossings will be constructed to maintain adequate water depths (≥ 1 foot deep) and water velocities (≤ 2 feet per second) over as much of the length of the crossing as possible to provide suitable conditions for adult and juvenile salmonid upstream and downstream passage (Bell 1990). A clean cobble/gravel mixture, with a high ratio of cobbles, will be used to create any in-channel crossing surface. Larger particle size will prevent attraction of spawning salmon to the crossing area. Upon completion of work these crossings will be dismantled and materials contoured to the original or restoration-design river bottom during in-water work period (June 15 to October 15 for Trinity River tributaries and July 15 to October 15 for the Trinity River mainstem).
- For low-tech processed based restoration techniques, the Low-Tech Process-Based Restoration of Riverscapes Design Manual¹ should be consulted during the planning and design process.
- For large wood and SLJ placement:
 - For the purposes of large wood placement, trees may be felled or pulled/pushed over, if tree felling does not significantly degrade the habitat of certain wildlife species (i.e., an active nest site), create excessive stream bank erosion or temperature increases in waterbodies, destabilize stream banks, or concentrate surface runoff.
 - Trees should be retained if they are killed through fire, insects, disease, blow-down, and other means rather than felling live trees for the project. Snags and trees should be retained if they have broad, deep crowns (“wolf” trees), damaged tops, or other abnormalities that may provide a valuable wildlife habitat component.
 - Stabilizing or key pieces of large wood should be intact, hard, with little decay; and, if possible, have root wads (untrimmed) to provide functional refugia habitat for fish.
 - Key pieces should be oriented so that the hydraulic forces on the large wood increase stability. Wood members that are oriented parallel to flow are typically more stable than members oriented at 45 or 90 degrees to the flow. Large wood and boulders should be placed in areas where they would naturally occur and in a manner that closely mimics natural accumulations for that stream type. For example, boulder placement may not be appropriate in low-gradient meadow streams. SLJs should be patterned (to the greatest degree practicable) after stable natural log jams in the project area, either present or historical.
 - Project design should simulate log jams, debris flows, wind throw, tree breakage, and other disturbance events.

¹ Wheaton J.M., Bennett S.N., Bouwes, N., Maestas J.D. and Shahverdian S.M. (Editors). 2019. Low-Tech Process-Based Restoration of Riverscapes: Design Manual. Version 1.0. Utah State University Restoration Consortium. Logan, UT. Available at: <http://lowtechpbr.restoration.usu.edu/manual>

- For SLJs that occupy greater than 25% of the cross-sectional bankfull area, fish passage should be maintained consistent with NMFS and CDFW guidelines.
- Operating tractors, vehicles, or equipment on soils with a high or extreme erosion hazard rating, known slides, or unstable areas (including slopes greater than 50% grade) should be avoided. On these high-erosion soils with grades greater than 60%, aerial or cable operations may be necessary to retain bank stability.
- If large wood anchoring is required, a variety of methods could be used. These include buttressing the wood between riparian trees or using manila, sisal, or other biodegradable ropes for lashing connections. If hydraulic conditions warrant the use of structural connections, rebar pinning or bolted connections could be used. Clean rock could be used for ballast but is limited to that needed to anchor the large wood.
- Design guidelines for small wood placement:
 - Small wood placements shall be conducted by hand or small machinery typically.
 - Small wood placements shall be constructed for floodplain reconnection in stream systems less than 4% stream gradient.
 - Structures must be porous with water surface differential of no more than one-foot at low flows, or otherwise provide a clear path for fish passage over, through, or around the structure during low flows.
 - Structures shall have crest elevations that extend no more than 3 feet above the streambed. Vertical posts (if utilized) shall be cut flush and not extend above the proposed crest elevation.
 - Vertical posts (if utilized) must be driven to a depth at least 1.5 times the expected scour depth of the waterway or a ratio of 2:1 for exposed – embedded length, whichever is more conservative. A minimum 1.5-foot clear space is recommended between posts.
 - All primary materials used in small wood placements must consist of non-treated wood (e.g., fence posts) and must be constructed from a materials source collected outside the riparian area.
 - Placement of inorganic material is limited to the minimum quantity necessary to prevent under-scour of structure and manage pore flow sufficient to ensure adequate over-topping flow and side flow to facilitate fish passage.
 - No cabling, wire, mortar or other materials that serve to affix the structure to the bed, banks, or upland is allowed.
 - Structures cannot unreasonably interfere with use of the waterway for navigation, fishing, or recreation.
- Design guidelines for porous boulder structures and vanes:
 - Boulder step structures should be designed and constructed to facilitate upstream and downstream passage of fish species and all life stages that occur in the stream.
 - Rocks for boulder step structures should be sized and selected to ensure they are durable and of suitable quality for long-term stability in the climate where they are to be used. Rock sizing depends on the size of the stream, maximum depth of flow, planform, entrenchment, and ice and debris loading.
 - Full-spanning boulder step structure placement should be coupled with measures to improve habitat complexity and protection of riparian areas, to provide long-term inputs of large wood. Full-channel-spanning boulder structures should be installed only where appropriate, such as:
 - in highly uniform, incised, bedrock-dominated channels to enhance or provide fish habitat

- in stream reaches where log placement is not practicable due to channel conditions (e.g., inadequate space to place logs of sufficient length, bedrock dominated channels, deeply incised channels, or artificially constrained reaches)
 - where damage to infrastructure on public or private lands is of concern
 - where private landowners will not allow log placement due to concerns about damage to their streambanks or property
 - in parts of the state where boulders rather than large wood may typically be the predominant instream habitat feature
- The use of gabions, cables, or other means of artificial structure should be avoided to prevent the movement of individual boulders in a boulder step structure.
- Boulder step structures should be placed diagonally across the channel or in more traditional upstream-pointing “V” or “U” configurations, with the apex oriented upstream.
- Boulder structures should be installed low relative to channel dimensions, so that they would be completely overtopped during a channel-forming flow event (approximately a 1.5-year flow event).
- Design guidelines for the restoration and enhancement of in-channel habitat would include:
 - In-channel habitat restoration site selection and design should be based, in part, on the review of evidence of historical channel location, such as land use surveys, historical photographs, topographic maps, remote sensing information, or personal observation.
 - Excavated material removed from off- or side-channels should be hauled to an upland site or spread across the adjacent floodplain, as long as the soil is considered suitable for application (e.g., free of contaminants and/or pathogens) in a manner that does not restrict floodplain capacity or otherwise degrade floodplain function.
 - Where ESA-listed and sensitive aquatic species that require access to stream habitat are present, off-channel features should be designed to slope toward and drain to the primary stream habitat as streamflow subsides. Isolated pools or ponds that do not incorporate return channels to the stream should be situated at an appropriate distance from the edge of the active channel to avoid temporary connectivity and subsequent fish stranding following flood events. Proposed restoration projects should identify any risk of stranding of fish in isolated waterbodies as a result of implementation.
 - To avoid pile driving impacts, wooden piles only will be used for SLJ placement below the OHWM. Wooden piles may be driven by an excavator, or when needed, a vibratory pile driver would be used in preference over an impact pile driver.
 - For site-specific projects that include blasting, the following avoidance and minimization measures would be incorporated into project designs:
 - TRRP personnel and implementors would coordinate with NMFS/USFWS when blasting is determined to be unavoidable.
 - Blasting would be performed during recommended in-water work windows.
 - Accomplish blasting in dry conditions utilizing dewatering techniques as necessary and without impeding fish passage to the extent possible.
 - Incorporate attenuation methods into blasting activities as directed by NMFS (e.g., bubble curtain, isolation casing, and dewatered cofferdam).

- Design guidelines for floodplain restoration projects would include:
 - As applicable, fish passage or screening needs should be addressed with the installation of new structures.
 - Actions should be designed to restore floodplain characteristics—elevation, soil stratigraphy, width, sinuosity gradient, length, and roughness—in a manner that closely mimics or resets those that would naturally occur at that stream and valley type.
 - Nonnative fill material should be removed from the channel and floodplain to an approved upland offsite disposal location, potentially including a landfill (for anthropogenic debris).
 - Where practicable, geomorphically appropriate stream channels and floodplains (e.g., enable natural transport processes, including the creation of depositional and scour features) should be constructed in a watershed and reach context, to connect channels to floodplains at baseflow.
 - When necessary, soils should be decompacted once overburden material is removed. Overburden or fill, consisting of pathogen-free and native materials that originated in the project area, may be used in the floodplain to support the project goals and objectives.
 - Structural elements should reflect the geomorphic context of the stream system and valley type. For example, constructed riffles may be preferentially used in pool-riffle stream types, and roughened channels and boulder step structures in step-pool and cascade stream types. However, it is important to recognize that the fundamental physics-based stream classification methods/types may not recognize advancements in alternative models that characterize streams in terms of patterns and trends of adjustment.
 - Weed-free and—if possible—locally occurring material (large wood, rock, sand, or gravel) should be selected and mimic natural stream system materials.
 - Existing native materials (e.g., rock, gravel, large wood, sod, willows, topsoil) should be salvaged and used.
- Design guidelines for projects that involve removal or retrofitting of fish passage barriers, small dams, flood gates, pilings and other in-water structures would include:
 - Actions should be designed to restore floodplain characteristics—elevation, width, gradient, length, and roughness—in a manner that closely mimics those that would naturally occur in that area.
 - Drain pipes, fences, concrete, and other structural improvements should be removed.
 - Nonnative fill, including unnaturally-deposited material, should be removed from the floodplain and, if pathogen-free, reused or disposed of it at an upland site. Trash and debris should be disposed of at an appropriate offsite location, potentially including a landfill (for anthropogenic debris).
 - Where it is not possible to remove or set back all portions of dikes and berms, or in areas where existing berms, dikes, and levees support abundant riparian vegetation and their removal or setback is not part of the project design, openings may be created with carefully planned and approved breaches. Timing and spacing of breaches should be planned for maximum positive environmental outcomes.
 - When necessary for plant establishment, compacted soils should be loosened once overburden material is removed. Overburden or fill consisting of native materials that originated from the project area may be used in the floodplain (if pathogen-free) to create setback dikes and fill anthropogenic holes, provided that floodplain function is not impeded.
 - In some cases bank stabilization would be necessary following removal of instream structures. See "Bioengineered Bank Stabilization" for applicable design criteria.

- During dewatering activities and when reconnecting the work area back to the stream, invasive fish would be removed and euthanized to the extent possible.
- If the structure being removed contains material (e.g., large wood, boulders, concrete) not typically found in the stream or floodplain at that site, consider disposing of removed material at an approved landfill or disposal site.
- If the structure being removed contains material that is typically found in the stream or floodplain at that site (e.g., large wood or boulders), the material could be reused to implement habitat improvements described under other proposed activity categories.
- If the structure being removed is keyed into the bank, consider filling in the holes with native materials to restore contours of stream bank and floodplain. Fill material should be adequately compacted to prevent washing out of the soil during over-bank flooding. Material from the stream channel should not be mined to fill in the holes.
- When removal of buried logs associated with existing structures may result in significant disruption to riparian vegetation or the floodplain, consider using a chainsaw to extract the portion of log in the channel and leaving the buried sections in the streambank.
- If the legacy structures (log, rock, or gabion weirs) were placed to provide grade control, the site should be evaluated for potential headcutting and incision due to structure removal. If headcutting and channel incision are likely to occur due to structure removal and are not desired to achieve proper functioning habitat conditions, additional measures should be taken to minimize these impacts.
- For site-specific projects that include blasting, the following avoidance and minimization measures would be incorporated into project designs:
 - TRRP personnel and implementors would coordinate with NMFS/USFWS when blasting is determined to be unavoidable.
 - Blasting would be performed during recommended in-water work windows.
 - Accomplish blasting in dry conditions utilizing dewatering techniques as necessary and without impeding fish passage to the extent possible.
 - Incorporate attenuation methods into blasting activities as directed by NMFS (e.g., bubble curtain, isolation casing, and dewatered cofferdam).
- Design guidelines for water conservation projects would include:
 - Tanks should include water diverters with sufficient storage capacity to cover any domestic, irrigation, or livestock needs during the no-pump time periods, (e.g., dry season). The no-pump time period should be based on the season, local conditions, forbearance agreement, and existing studies, if available.
 - Water conservation projects that include water storage tanks and a forbearance agreement for the purpose of storing winter and early spring water for summer and fall use should be registered. Registration should be done pursuant to California Water Code Section 1228.3 and with the State Water Board, as applicable.
 - Where anadromous fish are present, fish screens (including screens installed on temporary and permanent pump intakes) and fish bypass systems will be designed, constructed, installed, operated, and maintained according to NMFS fish screen criteria, detailed in Anadromous Salmonid Passage Design Manual (NMFS 2023 or most recent version).
 - Projects will obtain required federal, state, and local permits such as: 1600 Lake and Streambed Alteration (LSA) authorization with CDFW; 1707 water transactions with CDFW; and Small Domestic Use (SDU) storage permitting with local Water Boards.

- Design guidelines for salmon carcass placement projects would include:
 - Carcasses would only include salmonid species native to the watershed (coho, Chinook, and steelhead).
 - Each waterway will be individually assessed for available light, water quality, stream gradient, and life history of the fish present. Adaptive management will be used to derive the maximum benefits of nutrient enhancement.
 - Refer to guidance documents such as WDFW's technical guidance document "Protocols and Guidelines for Distributing Salmonid Carcasses, Salmon Carcass Analogs, and Delayed Release Fertilizers to Enhance Stream Productivity in Washington State" (Saldi-Caromile et al. 2004).
 - Follow any guidance or regulations provided by CDFW or NMFS in regard to avoiding adverse effects as a result of fish pathogens.
- Design guidelines for RSI system supplementation projects would include:
 - Supplementation would only include salmonid species native to the watershed (coho, Chinook, and steelhead).
 - The RSI systems would be installed at least two weeks prior to the delivery of eggs from TRH to ensure the system is in proper working condition (i.e., establish gravity flow of water to the system and monitor flow for consistency).
 - TRH coho salmon eggs would not be transported until they enter the eyed-egg stage and are therefore, less affected by handling.
 - The following is the procedure for transporting TRH salmonid eggs:
 - Prior to arrival at TRH, ensure all equipment is in proper working order;
 - Upon arrival at TRH, prepare shipping container system;
 - Place eggs in cheesecloth/burlap, tie shut, put in container and shut lid;
 - Record number of eggs and time received;
 - Secure container system in transport vehicle;
 - Upon arrival at release site, record time and temperature within RSI system;
 - Disinfect eggs with a ten minute bath treatment using 100 parts per million of iodine;
 - Ensure RSI system is in proper working order; and
 - Place eggs in incubation chamber of RSI system at appropriate density.
 - No eggs would be transported from TRH facilities unless determined to be pathogen-free by the CDFW fish health team's pathogen analysis.
 - Eggs would be wrapped in non-chlorinated water-soaked cheesecloth or burlap to keep moist and placed in a perforated plastic shipping container inserted into a five gallon plastic bucket with lid. Non-chlorinated water would be placed in the bottom of the bucket, beneath the plastic container to keep eggs cooled and the lid would provide the eggs a dark environment during transport.
 - Once the eggs are delivered to the RSI system, daily checks would occur during the hatching window and weekly checks (at a minimum) would occur outside of the hatching window. During these checks, all RSI system components would be examined for any damaged parts, flow through the system would be measured in each compartment, and dead eggs would be removed and enumerated. Post-release reporting would include the percentage of eyed eggs to hatch, with a minimum goal of having a similar hatch rates to that of TRH.
 - Within two weeks following the end of the volitional release period, a report would be provided to NMFS (as applicable) and the Trinity River Hatchery Technical Team that summarizes the

- performance of transport, incubation, and release. Specific details regarding hatching and mortality rates would be provided, as well as any other observations made during the effort.
- Flows within streams where RSI systems are placed would not be obstructed by supplementation activities.
 - Following supplementation activities, any areas disturbed would be restored as necessary.

Upslope Habitat Restoration

- Design guidelines for bioengineered bank stabilization projects would include:
 - Damaged streambanks should be restored to a natural slope and profile suitable for establishment of riparian vegetation in accordance with applicable land management plans (e.g., The South Fork Trinity River Wild and Scenic Management Plan).
 - When necessary, the use of soil layers or lifts strengthened with biodegradable fabrics that are penetrable by plant roots should be considered.
 - To the extent it would naturally occur, large wood should be included. Wood should have untrimmed root wads to provide functional refugia habitat for fish. Wood that is already in the stream or suspended over the stream may be repositioned to enable greater interaction with the stream.
 - A diverse assemblage of vegetation species that is appropriate for the project area, including trees, shrubs, and herbaceous species, should be used. Vegetation, such as willow, sedge, cottonwoods, and rush mats, may be gathered in approved areas where the soil is not contaminated with pathogens.
 - Fencing and signage should be installed as necessary to prevent access to revegetated sites by livestock or unauthorized people. Coordination with local public agencies (e.g., police and social work groups) should be considered for site protection.
 - The extent and quantity of rocks or boulders should be limited to the minimum necessary to prevent scour from expected moderate to high stream flows and velocities. Boulder structures must be part of a larger restoration design and must include a riparian revegetation element. Bridge abutments and other infrastructure improvements to the restoration design of fish passage projects may require additional boulder and rock bank stabilization.
 - All project designs must be consistent with industry-accepted bioengineering design guidance, such as that found in the CDFW Salmonid Stream Habitat Restoration Manual (fourth edition) (CDFG 2010) or Washington State Aquatic Habitat Guidelines Program: Integrated Streambank Protection Guidelines (Cramer et al. 2003).
 - The maximum linear length of streambank stabilized per individual project shall not exceed three-times the active channel width at the project site. To the extent feasible, use site design to retain natural vegetation, large wood, and permeable soils, limit compaction, and otherwise minimize the extent and duration of earthwork (e.g., compacting, dredging, drilling, excavation).

- Design guidelines for aquatic, wetland, meadow, riparian, and upslope habitat enhancement projects would include:
 - The species palette for revegetation should be designed based on the species that naturally or historically occur in the project area, have the best chance of survival considering current site conditions, and can provide required habitat elements.
 - Nearby vegetation that will compete with plantings, especially weed species listed as invasive in the Cal-IPC Inventory will be controlled. This could include clearing and maintaining a 24" diameter buffer around plantings.
 - The soil should be tested and prepared prior to planting. The soil in planting and seeding areas should be finish-graded, pathogen-free, weed-free, not compacted to the extent possible, roughened (i.e., track-walked), and amended as appropriate, given the habitat and site conditions. All seeds used will not be treated with neonicotinoids.
 - Revegetation that is not dependent on irrigation systems is generally preferred; however, there can be instances where irrigation is desirable. If using an irrigation system is necessary for plant establishment, the system should be installed and operational prior to installation of planting, or prior to any periods where the weather forecast may jeopardize successful establishment of plants.
 - Native seed or plant sources should be acquired as close to the project site as possible. Seeds should be kept in a cool, dry place during delivery and when temporarily stored onsite. Seeds should be protected from moisture, wind, heat, vandalism, rodents, insects, weather, and other conditions that would damage or impair their viability.
 - Prefabricated vegetated mats (i.e., sedge and rush mats) should be appropriately sized in the riparian zone, channels, floodplains, and areas with high runoff, to prevent their movement during high-flow events.
 - For installation of pole cuttings, cuttings should be sourced from healthy plants, limiting collection to no more than 30% of individual plants or populations. Pole cuttings should be taken from live wood at least 1 year old or older. Cuttings should be kept moist until planted and should be installed at a depth sufficient to allow root growth into the groundwater table, or as necessary to provide long-term survival of the planting.
 - Cuttings should be planted when dormant and within 48 hours of collection. Cuttings should not be dried and the end to be planted should be continuously soaked between cutting and planting.
 - Plantings should be enclosed with fencing, cages, tubex, or other protection measures, as appropriate, in areas where plantings are subject to forage by animals (e.g., deer, elk, beavers, livestock, gophers, or moles). Any nonbiodegradable fencing material should be removed after plantings are adequately established.
 - Work above OHWM can occur at any time of the year but would adhere to conservation measures such as the use of erosion and sediment control BMPs.
 - Post-project revegetation will take place during wet conditions (fall/winter) and will generally occur in riparian areas to maximize use by wildlife species.
 - Tree removal, clearing, and grubbing during the bird nesting season (January 1 through August 31 for raptors; March 15 through August 15 for non-raptors) would be avoided to the extent possible. When tree removal, clearing, and grubbing activities cannot avoid the bird nesting

season, nest clearance surveys per the California Fish and Game Code guidance would be required.

- Specific to livestock fencing to protect, restore, or establish aquatic or riparian habitat:
 - Fence placement should be designed to allow for lateral movement of a stream, migration or dispersal of wildlife through the area, and establishment of riparian plant species. Fences should be placed outside the channel migration zone. Cross-stream fencing should be installed at fords, with breakaway wire, swinging floodgates, hanging electrified chain, or other devices to allow the passage of floodwater and large woody material during high flows.
 - Fence posts or bracing (e.g., dead men) should not be set with wet concrete in waters of the United States or any other aquatic habitat suitable for Covered Species.
 - Fences should be constructed at water gaps in a manner that allows passage of large wood and other debris.
 - Use of riparian fencing to create livestock containment or handling facilities should be avoided.
 - To protect the habitat from livestock damage, wildlife-friendly fences should be constructed around springs.
 - If pressure-treated lumber is used for fence posts, all cutting and drilling should be completed outside the area of expected inundation so that treated wood chips and debris do not enter the channel.
 - Vegetation removal should be avoided and minimized when constructing fence lines. Large, established vegetation should not be removed.

Road Decommissioning, Maintenance, and Rehabilitation Activities

- Road-related work would occur in dry conditions or in isolated waters.
- Effective erosion control measures shall be in place at all times during construction. These devices shall be in place during and after construction activities to minimize fine sediment input to flowing water and to detain sediment-laden water on site. If continued delivery of sediment to the waterway is likely to occur after construction is complete, appropriate erosion prevention measures shall be implemented and maintained until risk of erosion has subsided.
- Existing roads would be used to access the activity areas, where available. New access roads and haul routes would be constructed, when necessary, and restored to a stable condition in accordance with appropriate landowner/manager requirements at the completion of the project.
- Ground-disturbance areas associated with these activities will be seeded and mulched after final grading. Encourage vegetative growth to improve long-term stability of cuts, fills, and ditches. Consider planting shrubs and trees, use of erosion-control mats and straw wattles, in addition to seeding.
- When adjacent to or upstream of known or potential salmonid spawning and rearing areas, implement erosion and sediment control BMPs and avoid conducting sediment-producing activities from June 15 to October 15 for tributaries and July 15 to October 15 for the mainstem.
- Place large wood or rock, which must be removed from the road prism, into a nearby stream channel only under the direction of a fish biologist.
- Culvert or bridge cleaning may occur anytime, when delaying maintenance would result in impacts to salmonid habitat or fish passage.

- When removing culverts, stabilize side slopes by landscaping them to mimic terraces upstream and downstream of the site.
- Design guidelines for culvert or bridge replacement projects included in road rehabilitation activities:
 - All new or replacements for stream crossings would provide fish passage unless a biological rationale dictates that the barrier remains (for example, too steep for fish migration). Implementors would work with local fish biologists to determine fish passage needs at a specific project site.
 - Existing bridge abutments would be removed if adversely affecting the channel, floodplain function, or instream fish habitat. Abutments may be left in place if the hydrologic function and instream fish habitat is not adversely affected.
 - Any new or replacement crossing, culvert, or bridge that intersects potential habitat for listed salmonid species would meet CDFW and/or NMFS fish passage criteria.
 - All stream crossing projects should consider storm-proofing guidelines presented in Weaver et al. (2015). Culverts would also conform to design guidelines for conveyance of the 100-year peak flow and associated sediment and wood loads, as specified in Cafferata et al. (2017).
 - Projects in channels that provide potential spawning and/or rearing habitat for anadromous salmonids should follow NOAA Fisheries Guidelines for Salmonid Passage at Stream Crossings in California (NMFS 2023).
 - Bridges and culverts should be designed to adequately convey flow and materials (e.g., the 100-year flood) in addition to allowing fish passage. If a bridge or culvert is designed to convey less than the 100-year design flow, the Project Proponent should demonstrate how the smaller culvert avoids excessive erosion/sedimentation, headcutting, or habitat impacts.
 - Stream simulation design (NMFS 2023) should be used to inform project design.
 - Structures should be designed to provide passage for all life stages of native fish species.
 - Bridges (including concrete box culverts, which are constructed as bridges in accordance with current NMFS and CDFW guidelines) should be designed with vertical abutments. Treated wood should not be used for bridge construction or replacement.
 - Placement of rock slope protection (RSP) within the bankfull width of the stream should be avoided except for the minimum necessary for protection of bridge abutments and pilings, culverts, and other stream-crossing infrastructure. The amount and placement of any RSP should not constrict the bankfull flow. RSP should not create barriers to fish or wildlife, and therefore should typically be buried with natural stream material or planted organic material. The toe of RSP used for streambank stabilization should be placed sufficiently below the streambed scour depth to ensure stability. Where RSP is deemed necessary, the use of bioengineered techniques provided in Chapter 3 of the PEA under “Bioengineered Bank Stabilization,” should be incorporated.
 - Drivable low water crossings (i.e., ford) should be appropriately armored on the downstream side to reduce the potential for scouring.
 - For bridge replacement projects requiring impact pile driving, hydroacoustic effects would need to stay below the 207 dB L_{PEAK} and 203 dB $SEL_{CUMULATIVE}$ thresholds (or the most current thresholds accepted by NMFS). The following avoidance and minimization measures would be prioritized as shown below:

1. Design channel spanning bridge structures so that in-channel pile driving would not be required.
2. Avoid installing 24-inch and larger piles when possible
3. Pile driving would be performed during recommended in-water work window.
4. Accomplish pile driving in the dry utilizing dewatering techniques as necessary without impeding fish passage to the extent possible.
5. Utilize vibratory hammers when considered an appropriate installation method according to site conditions.
6. Incorporate attenuation methods into pile driving activities (e.g., bubble curtain, isolation casing, and dewatered cofferdam).

3 Conservation Measures by Resource

Table 3-1. Geology, Water Quality, and Hydrology

Geology, Water Quality, and Hydrology (GWH) Conservation Measures	Procedures	Applicable regulation/guidance
<p>GWH-1 Measures will be taken to limit the disturbance area for each site-specific project.</p>	<p>These measures include:</p> <ul style="list-style-type: none"> • Areas that will be disturbed will be identified prior to construction activities, will be the minimum area necessary, and will be limited to those areas already approved. • All project vehicles will be confined to the designated activity areas, access routes, and staging areas. • All work zones will be clearly delineated. • All supervisory personnel will be informed of environmental concerns, permit conditions, and final project specifications. • When possible, pre-project contours will be restored. Areas of disturbance will be clearly marked on plans or staked in the field. Access routes will be clearly communicated, and work zones will be marked on plans or staked in the field. Supervisory personnel will have the authority to stop construction if activities are being conducted outside of the specified work zones and disturbance areas. 	<p>PEA</p>
<p>GWH-2 A site-specific stormwater pollution prevention plan (SWPPP) will be prepared for all projects that are required to obtain coverage under the NPDES General Order for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Order).</p>	<p>The SWPPP will describe 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 tributaries until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the project 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.</p>	<p>Clean Water Act California’s Porter-Cologne Act USFWS Statewide Restoration BiOp</p>

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Geology, Water Quality, and Hydrology (GWH) Conservation Measures	Procedures	Applicable regulation/guidance
<p>GWH-3 An Erosion Control Plan will be prepared and implemented for projects that do not require coverage under an NPDES permit per GWH-2, the site-specific project proponent will include appropriate BMPs, and a rain event action plan if seasonal rain during the construction period might occur, to reduce the potential release of water quality pollutants to receiving waters.</p>	<p>BMPs may include the following measures:</p> <ul style="list-style-type: none"> • Install erosion control measures, such as invasives-free straw bales, silt fences, fiber rolls, or equally effective measures, at riparian areas adjacent to stream channels, drainage canals, and wetlands, as needed. Erosion control measures will be monitored during and after each storm event for effectiveness. Modifications, repairs, and improvements to erosion control measures will be made as needed to protect water quality. • Erosion control measures may also include grading, seeding, mulching, and soil bioengineering (brush layers, stakes, etc.). • Erosion control products that include synthetic or plastic monofilament or cross-joints in the netting that are bound/stitched (e.g., straw wattles, fiber rolls, or erosion control blankets) and could trap snakes, amphibians, and other wildlife will not be used. <p>Over time, erosion control materials associated with temporary disturbance would either decompose or be manually removed.</p>	<p>USFWS Statewide Restoration BiOp</p>
<p>GWH-4 As part of the SWPPP or Erosion Control Plan (see GWH-2 and GWH-3), the Project Proponent will prepare and implement a hazardous materials management and spill response plan.</p>	<p>The site-specific project proponent will ensure that any hazardous materials are stored at the staging area(s) with an impermeable membrane between the ground and hazardous material, and that the staging area is designed to prevent the discharge of pollutants to groundwater and runoff water. The Project Proponent will use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas away from stream channels and wetlands, unless otherwise approved in the ESA Section 7(a)(2) Review Form, according to local, state, and federal regulations. The site-specific project proponent will notify regulatory agencies within 24 hours of any leaks or spills and will properly contain and dispose of any unused or leftover hazardous products off site. Also see GPM-17 for more detail on spill prevention.</p>	<p>USFWS Statewide Restoration BiOp</p>
<p>GWH-5 Turbidity and suspended sediments entering waterbodies as a result of access routes will be minimized.</p>	<ul style="list-style-type: none"> • Bare soil will be kept 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. • Runoff from bare soil areas will be kept well dispersed. Dispersing runoff keeps sediment onsite and prevents sediment delivery to streams. • Any concentrated runoff from bare soil areas will be directed into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. • Flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels or other water bodies, will be disconnected and dispersed. • Floodplain areas will be decompacted (i.e., deep ripping-up to 18”) so that surfaces are permeable, and no surface water runoff occurs. • To reduce sedimentation entering waterbodies, temporary access routes will be stabilized or decommissioned and revegetated 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. 	<p>Clean Water Act</p> <p>California’s Porter-Cologne Act</p> <p>TRRP BMPs</p> <p>Water Quality Control Plan for the North Coast Region (aka Basin Plan)</p>

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Geology, Water Quality, and Hydrology (GWH) Conservation Measures	Procedures	Applicable regulation/guidance
<p>GWH-6 Turbidity monitoring is required for all in-water work.</p>	<p>Turbidity monitoring will be conducted to ensure projects meet turbidity thresholds during project construction (i.e., ≤ 20 Nephelometric Turbidity Units (NTUs) at 500 feet downstream of in-river construction when background turbidity is ≤ 20 NTU; and ≤ 20 percent increase in turbidity above background at 500 feet downstream when background is > 20 NTU). If standards are not met, construction activities will cease until operations or alternatives can be completed within compliance standards.</p>	<p>CWA Section 401 TRRP BiOp Water Quality Control Plan for the North Coast Region (aka Basin Plan)</p>
<p>GWH-7 Potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary will be minimized and avoided.</p>	<ul style="list-style-type: none"> • 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 100 feet of an active channel, or within 0.25 mi of the centerline of a Wild and Scenic River or within riparian reserves. Areas for fuel storage, refueling, and servicing of equipment must be located in an upland location at least 100 feet from the active river channel or within an adequate secondary fueling containment area. • Vegetable oil or other biodegradable hydraulic oil for heavy equipment hydraulics should be used whenever practicable when operating in or near water. • All equipment operated in or adjacent to the waterbody should be clean of aquatic invasive species as well as oil and grease and should be well maintained. • Equipment that will come in contact with the Trinity River or tributaries will be inspected daily. Vehicles will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. • External oil, grease, and mud will be removed from equipment using steam cleaning. Wash sites must be located in upland locations so that dirty wash water does not flow into stream channels or wetlands. Untreated wash and rinse water will be adequately treated prior to discharge if that is the desired disposal option. • 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 project activities 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. 	<p>TRRP BMP -Fac 7 and BMP AqEco-2 Clean Water Act California's Porter-Cologne Act</p>

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Geology, Water Quality, and Hydrology (GWH) Conservation Measures	Procedures	Applicable regulation/guidance
<p>GWH-8 If a construction phase extends into the following year’s construction season, the site will be secured and “winterized” before the start of the flood season (typically November 15) to avoid sediment entering the stream.</p>	<p>Erosion and sediment control BMPs will be implemented to winterize the site.</p>	<p>Clean Water Act California’s Porter-Cologne Act</p>
<p>GWH-9 Stockpiling of materials will be done in such a way to prevent discharges to Project waterbodies.</p>	<p>During the wet season, no stockpiled soils will remain exposed, unless properly installed and maintained erosion controls are in place on and around the stockpile. Temporary stockpiling of material onsite will be minimized. Stockpiled material will be placed in upland areas far enough away from ESA-listed species habitat that these materials cannot discharge to waters of the United States</p>	<p>USFWS Statewide Restoration BiOp</p>
<p>GWH-10 Disturbed streambanks should be restored to a natural slope and profile suitable for establishment of riparian vegetation.</p>	<p>Site-specific project design will mimic the natural slope and profile of the bank to support riparian vegetation. The funding and/or land management agency will review all restoration plans to ensure that site-specific designs follow this guidance.</p>	<p>2020 TRRP BiOp</p>
<p>GWH-11 Nonnative fill material, if pathogen free, should be removed from the channel and floodplain to an upland site or appropriate offsite disposal location, potentially including a landfill. Trash and debris should be disposed of at an appropriate offsite location, potentially including a landfill (for anthropogenic debris). If a removed structure contains material (e.g., large wood, boulders, concrete) not typically found in the stream or floodplain at that site, the removed material should be disposed of at an approved landfill or upland disposal site.</p>	<p>Site-specific project design will include plans for disposal of nonnative materials from any project excavation activity that are not appropriate for site-specific reuse. Materials will be hauled to an upland site or off-site and disposed of at a landfill or disposal site. Excavated material removed from off- or side-channels should be hauled to an upland site or spread across the adjacent floodplain, as long as the soil is considered suitable for application (e.g., free of contaminants and/or pathogens) in a manner that does not restrict floodplain capacity or otherwise degrade floodplain function.</p>	<p>Clean Water Act California’s Porter-Cologne Act 2020 TRRP BiOp</p>
<p>GWH-12 Effective erosion control measures shall be in place at all times during construction.</p>	<p>These devices shall be in place during and after construction activities to minimize fine sediment input to flowing water and to detain sediment-laden water on site. If continued delivery of sediment to the waterway is likely to occur after construction is complete, appropriate erosion and sediment control measures shall be implemented and maintained until risk of erosion/sedimentation has subsided.</p>	<p>2020 TRRP BiOp</p>

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Geology, Water Quality, and Hydrology (GWH) Conservation Measures	Procedures	Applicable regulation/guidance
<p>GWH-13 Sediment-laden water created by construction activity in upslope areas, floodplain terraces, and dewatered work areas shall be directed to temporary storage and treatment sites (e.g., settling pond or Baker tank) or into upland areas to allow water to filter through vegetation prior to reentering stream network or other aquatic areas.</p>	<p>The funding and/or land management agency will review all restoration plans to ensure that site-specific conditions and designs to ensure that all sediment laden water is directed to temporary storage and treatment sites or upland areas.</p>	<p>2020 TRRP BiOp Clean Water Act California’s Porter-Cologne Act</p>
<p>GWH-14 Where slope protection is needed along rocky banks, streambank stabilization measures, such as toe-of-rock slope protections, shall be placed below the bed scour depth to ensure stability</p>	<p>The funding and/or land management agency will review all restoration plans to ensure that site-specific conditions and designs to ensure that all slope protection activities are below bed scour depth.</p>	<p>2020 TRRP BiOp</p>
<p>GWH-15 Heavy equipment would be operated in a manner that minimizes adverse effects to the environment.</p>	<p>The following would be implemented during construction: minimally sized, low-pressure tires, minimal sharp turn paths for tracked vehicles, temporary mats or plates within wet areas or sensitive soils.</p>	<p>PEA, resource specialist recommendations</p>
<p>GWH-16 During site preparation, native soil and materials would be preserved to the extent possible.</p>	<p>The following would be implemented during construction:</p> <ul style="list-style-type: none"> • Native topsoil (typically 2-4 inches) would be protected and/or salvaged (in disturbance areas). • Native plants and materials would be preserved (e.g., large wood, duff, willow clumps, etc.). • Areas with soil hydrology such as wetlands and wet meadows would be flagged and protected during construction activities. 	<p>PEA, resource specialist recommendations</p>
<p>GWH-17 When construction activities are complete, any material stripped from the soil surface during site preparation would be placed on any temporarily disturbed areas where topsoil was removed.</p>	<p>Temporarily disturbed areas and temporary roads (as appropriate, particularly Aquolls and Copsey soils susceptible to compaction) would be decompacted and then stabilized through revegetation with native seed and plantings, as appropriate to the site and restoration goals.</p>	<p>PEA, resource specialist recommendations</p>

Table 3-2. Vegetation Resources

Vegetation Resources Conservation Measures	Procedures	Applicable regulation/guidance
<p>V-1 Botanical surveys for special status species (BLM Redding Field Office (RFO), USFS Region 5 Sensitive and Forest Watch, California and federally listed plant species) in areas of known occurrence or suitable habitats will be conducted.</p>	<p>A qualified botanist will conduct a minimum of two pre-project surveys to determine if special-status plant species occur within the project site. The agencies will develop a tracking system to document the status of surveys, known occurrences and suitable habitats in activity areas. Botanical surveys will be conducted during time periods most appropriate for detection and identification of target BLM Redding Field Office (RFO), Region 5 Sensitive and Forest Watch, California and federally listed plant species. The project botanist will communicate whether surveys were conducted in a sufficient manner and whether known occurrences or suitable habitats are present. BLM Redding Field Office (RFO), Region 5 Sensitive and Forest Watch, California and federally listed plant species are found during botanical surveys, proceed with developing mitigation/conservation measures. If Region 5 Sensitive and Forest Watch plant species are not observed during appropriately timed botanical surveys, the project botanist will communicate botanical clearance results to the implementation team.</p> <p>Preliminary desktop preparation will scope CNDDDB, CalFlora, IPaC, and any other relevant sources to identify special status populations occurring at or near the project area. 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.</p>	<p>National Forest Management Act 16 U.S. Code 1604 (g)(3)(B)</p> <p>Endangered Species Act 16 U.S. Code 1531 Sec. 5 (a)</p> <p>Departmental Regulation 9500.4</p> <p>Forest Service Manual (FSM) 2670.22</p> <p>FSM 2670.32 (3, 4)</p> <p>FSM 2672.1</p> <p>BLM Integrated Vegetation Management Handbook</p> <p>TRRP BMP AqEco-2</p>

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Vegetation Resources Conservation Measures	Procedures	Applicable regulation/guidance
<p>V-2 Known special status species plant populations will be protected during project implementation. Known Forest Watch plant populations will be conserved to the extent practicable during project implementation.</p> <p>Biologically sensitive areas (e.g., wetlands and other jurisdictional waters, special-status plant species habitat, riparian vegetation) should be clearly identified and marked to be protected.</p>	<p>The agencies will maintain a tracking system to document the status of surveys, known occurrences and suitable habitats in activity areas.</p> <p>The implementation team and project botanist will develop site- and activity-specific mitigation measures for Region 5 Sensitive plants to be included in contract specifications or as standard operating procedures for agency personnel.</p> <p>The implementation team and project botanist will develop site-specific conservation measures when practicable for Forest Watch plant species to be included in contract specifications or as standard operating procedures for agency personnel.</p> <p>If a special-status plants species is found within 250 feet of any proposed disturbance, the following measures will be implemented:</p> <ul style="list-style-type: none"> • Prior to the start of disturbance, exclusionary fencing will be erected around the known occurrences and any other appropriate avoidance measures will be taken. 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 project 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 the landowner and CDFW staff. Populations on BLM-managed lands will be fully avoided. • Project botanist or other staff will inspect and maintain marked areas regularly throughout construction periods. 	<p>National Forest Management Act 16 U.S. Code 1604 (g)(3)(B)</p> <p>Endangered Species Act 16 U.S. Code 1531 Sec. 5 (a) Departmental Regulation 9500.4</p> <p>FSM 2670.22</p> <p>FSM 2670.32 (3, 4)</p> <p>FSM 2672.1</p> <p>BLM Integrated Vegetation Management Handbook</p> <p>TRRP BMP AqEco-2</p> <p>2020 TRRP BiOp</p>

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Vegetation Resources Conservation Measures	Procedures	Applicable regulation/guidance
<p>V-3 Whitebark pine will be protected</p>	<p>Pre-implementation field surveys will be conducted where a high potential for occupied whitebark pine habitat is identified. The project botanist will maintain a tracking system to document the status of surveys, known occurrences and suitable habitats in activity areas.</p> <p>Site-specific protection measures will be developed by the project botanist in coordination with implementation personnel for documented occurrences of whitebark pine. Protection measures may include avoidance zones, relocation of project activities, seasonal restrictions, or other measures.</p> <p>To the maximum extent practicable, damage to live whitebark pine trees during implementation will be avoided. Ground disturbing activities within 33-feet of known whitebark pine individuals (seeds, seedlings, saplings, trees) and stands will be avoided. If damage to whitebark pine cannot be entirely avoided, the project proponent and lead federal agency would need to consult with USFWS.</p> <p>Dead whitebark greater than 5” dbh or any live whitebark pine trees will not be cut or damaged unless they pose an imminent hazard to safety.</p>	<p>National Forest Management Act 16 U.S. Code 1604 (g)(3)(B)</p> <p>Endangered Species Act 16 U.S. Code 1531 Sec. 5 (a) Departmental Regulation 9500.4</p> <p>FSM 2670.22</p> <p>FSM 2670.31</p> <p>FSM 2670.32 (3, 4)</p> <p>FSM 2672.1</p>
<p>V-4 A species palette for revegetation will be based on species that naturally or historically occur in the project area, have the best chance of survival considering current site conditions, and can provide required habitat elements.</p>	<p>The project botanist will develop site-specific seed mixes and planting plans.</p> <p>Project botanists will develop a seed collection protocol. Native seed or plant sources should be acquired as close to the project site as possible. Seeds should be protected from moisture, wind, heat, vandalism, rodents, insects, weather, and other conditions that would damage or impair their viability.</p>	<p>BLM Integrated Vegetation Management Handbook</p> <p>FSM 2070.2 (3, 4, and 5)</p>
<p>V-5 Pole cuttings will be installed in riparian areas that require an increase in woody riparian vegetation.</p>	<p>Pole cuttings will be sourced from healthy plants, limiting collection to no more than 30 % of individual plants or populations. Pole cuttings should be taken from live wood at least 1 year old or older. Cuttings should be kept moist until planted and should be installed at a depth sufficient to allow root growth into the groundwater table, or as necessary to provide long-term survival of the planting. Cuttings should be planted when dormant and within 48 hours of collection.</p>	<p>BLM Integrated Vegetation Management Handbook</p> <p>FSM 2070.3</p>
<p>V-6 Nearby vegetation that could compete with plantings, especially weed species listed as invasive in the Cal-IPC Inventory will be controlled.</p>	<p>The project botanist will determine a weed management protocol. This could include clearing and maintaining a 24” diameter buffer around plantings.</p>	<p>The Plant Protection Act of 2000 (7 U.S.C. 7701 et seq)</p> <p>FSM 2902</p>
<p>V-7 The soil will be prepared prior to planting or seeding.</p>	<p>Prior to planting or seeding, the site will be finish-graded, free of weeds, decompacted and amended as appropriate based on habitat and site conditions. Project botanist will review site to insure it is ready for seed or plantings. Soils will be decompacted to a minimum depth of 6 inches.</p>	<p>BLM Integrated Vegetation Management Handbook</p> <p>FSM 2070.2</p>

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Vegetation Resources Conservation Measures	Procedures	Applicable regulation/guidance
<p>V-8 If determined necessary for plant establishment, irrigation systems will be installed prior to planting or seeding, or prior to any periods where the weather forecast may jeopardize successful establishment of plants.</p>	<p>Project botanist will determine areas that require irrigation and the duration that irrigation is needed.</p>	<p>BLM Integrated Vegetation Management Handbook FSM 2070.2</p>
<p>V-9 Prefabricated vegetated mats (sedges and rushes) for wetland restoration will be used as appropriate.</p>	<p>Prefabricated vegetated mats (i.e., sedge and rush mats) should be appropriately sized and staked in place in the riparian zone, channels, floodplains, and areas with high runoff to prevent their movement during high-flow events. Project botanist will select the species pallet for the vegetated mats.</p>	<p>BLM Integrated Vegetation Management Handbook FSM 2070.2</p>
<p>V-10 Plantings should be enclosed with fencing, cages, tubex, or other protection measures, as appropriate, in areas where plantings are subject to forage by animals (e.g., deer, elk, beavers, livestock, gophers, or moles).</p>	<p>Appropriate material will be used to protect each planting. Any nonbiodegradable fencing material will be removed after plantings are adequately established.</p>	<p>BLM Integrated Vegetation Management Handbook FSM 2070.3</p>
<p>V-11 Native riparian vegetation that must be removed to achieve aquatic and riparian restoration objectives should be salvaged and used. Living trees that must be removed should be replanted if possible or used for large wood placement.</p>	<p>Project botanist will determine what vegetation should be salvaged and where it will be relocated. For living trees, the project botanists will determine the new location for planting or where it should be used for large wood placement.</p>	<p>2020 TRRP BiOp</p>
<p>V-12 Success of revegetation should be monitored.</p>	<p>Monitoring will include periodic assessments of riparian vegetation establishment and mortality, riparian vegetation mapping, avian studies and assessing the performance of planted vegetation. All revegetated areas will be maintained and monitored for a minimum of 2 years after replanting is complete and until success criteria are met, to ensure the revegetation effort is successful. The standard for success is at least 60% absolute cover compared to pre-project conditions at the project site or at least 60% cover compared to an intact, local reference site. If an appropriate reference site or pre-project conditions cannot be identified, success criteria will be developed for review and approval by the appropriate Water Board on a project-by-project basis based on the specific habitat impacted and known recovery times for that habitat and geography. The project proponent will prepare a summary report of the monitoring results and recommendations at the conclusion of each monitoring year.</p>	<p>2020 TRRP BiOp</p>
<p>V-13 Access routes and staging areas that minimize disturbance to riparian and wetland areas should be identified and used.</p>	<p>Prior to construction, equipment access routes that minimize riparian disturbance and avoid unstable areas shall be clearly marked. Vegetation will not be removed from unstable areas that would increase the risk of channel instability.</p>	<p>2020 TRRP BiOp</p>

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Vegetation Resources Conservation Measures	Procedures	Applicable regulation/guidance
<p>V-14 Hazard trees that pose a safety risk in riparian areas should be specified for removal.</p>	<p>When possible, trees should be felled toward the stream channel. Felled trees, with root-wads maintained as possible, will be kept on site when needed to meet large wood placement objectives.</p>	<p>2020 TRRP BiOp</p>
<p>V-15 Equipment with the greatest practicable reach to minimize disturbing riparian vegetation and to minimize adverse impacts on soils should be used</p>	<p>Use hand tools, minimally sized, low-pressure tires, minimal hard turn paths for tracked vehicles, and/or temporary mats or plates within wet or sensitive soils</p>	<p>2020 TRRP BiOp</p>
<p>V-16 Vegetation required to be removed should be used for wood structures, to the extent possible, or disposed of by using as mulch, chipping, hauling offsite, burning, ripping into soil surfaces, burying within spoils areas, or other appropriate methods.</p>	<p>Vegetation that needs to be removed will be marked. The team will determine the use of each removed individual or groups of individuals.</p>	<p>2020 TRRP BiOp</p>
<p>V-17 Old growth tree and forest stand protection.</p>	<p>Avoid and minimize adverse effects to old growth trees and forest stands. Old growth trees may not be removed from federal land without further coordination with land-managing agencies (USFS and BLM). Clearing associated with site-specific restoration activities shall not make old growth more susceptible to hazards such as fire or wind.</p>	<p>Executive Order 14072</p>
<p>V-18 Vegetation disturbance avoidance</p>	<p>The project proponent will minimize, to the greatest extent feasible, the amount of soil, terrestrial vegetation, emergent native vegetation, and submerged vegetation (e.g., submerged aquatic vegetation in freshwater areas) disturbed during project construction and completion and using methods creating the least disturbance to vegetation. Disturbance to existing grades and native vegetation, the number of access routes, the size of staging areas, and the total area disturbed by the project will be limited to the extent of all temporary and permanent impacts as defined by the final project design. All roads, staging areas, and other facilities will be placed to avoid and limit disturbance to waters of the state and other aquatic habitats (e.g., streambank or stream channel, riparian habitat) as much as possible. When possible, existing ingress or egress points will be used and/or work will be performed from the top of the creek banks or from barges on the waterside of the stream or levee bank, or dry gravel beds. Existing native vegetation will be retained as practicable, emphasizing the retention of shade-producing and bank stabilizing trees and brush with greater than 6-inch diameter branches or trunks. Where possible, vegetation disturbance and soil compaction will be minimized by using low ground-pressure (typically less than 13 to 20 pounds psi) equipment that exerts less pressure per square inch on the ground than other equipment. To minimize impacts to vegetation, select equipment with a greater reach.</p>	

Table 3-3. Non-Native Invasive Plant Species

Non-Native Invasive Species (NNIS) Conservation Measures	Procedures	Applicable regulation/guidance
<p>NNIS-1 Weed Management Specialist will provide information to the implementation team about documented noxious weed infestations and how to identify and report undocumented noxious weeds.</p>	<p>The implementation team and contract administrators will coordinate with the assigned Weed Management Specialist for documented noxious weed locations to avoid and information needed to identify undocumented noxious weeds. Technical guidance may include, but not be limited to, guidelines documented in the USDA Forest Service Guide to Noxious Weed Prevention Practices (2001).</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>
<p>NNIS-2 Weed infestations will be inventoried and prioritized for treatment within the project site and along access routes before ground disturbing activities begin.</p>	<p>Prior to project implementation, weeds will be identified and mapped. Assigned Weed Management Specialist will prioritize areas for treatment and determine an appropriate treatment plan. Both the project site and access routes will be inventoried and treated as necessary.</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>

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Non-Native Invasive Species (NNIS) Conservation Measures	Procedures	Applicable regulation/guidance
<p>NNIS-3 Known and newly reported noxious weed infestations will be pre-treated prior to the onset of ground disturbing activities, when deemed appropriate.</p>	<p>The implementation team and contract administrators will coordinate with the assigned Weed Management Specialist on anticipated locations of ground disturbing activities for pre-treatment needs. Continue monitoring and treating infestations throughout the life of the activity.</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>
<p>NNIS-4 All off-road and earth-disturbing equipment will be cleaned to remove all plant parts, dirt, and material that may carry noxious weed seeds prior to entry onto the STNF, or movement from one national forest project area to another.</p>	<p>The implementation team and contract administrators will coordinate with the assigned Weed Management Specialist for technical guidance, contract specifications, and appropriateness of wash site locations. Technical guidance may include, but not be limited to, guidelines documented in the USDA Forest Service Guide to Noxious Weed Prevention Practices (2001). In areas of extensive noxious weed infestations, designated wash sites may be established as part of project implementation.</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>

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Non-Native Invasive Species (NNIS) Conservation Measures	Procedures	Applicable regulation/guidance
<p>NNIS-5 Equipment loading and unloading, materials storage, parking areas, and helispots would be located outside of known noxious weed infestation sites to the extent practicable.</p>	<p>The implementation team and contract administrators will coordinate with the assigned Weed Management Specialist for documented noxious weed locations to avoid, information needed to identify undocumented noxious weeds, and to select lower-risk sites for staging, equipment loading and unloading, materials storage, and parking areas.</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>
<p>NNIS-6 Areas where the soil has been exposed by ground-disturbing activities will be revegetated to prevent the invasion or expansion of noxious weed infestations.</p>	<p>The implementation team and contract administrators will coordinate with the assigned Weed Management Specialist for technical guidance and contract specifications prior to contract award or submittal of purchase order. Complete inspections to ensure all markings meet the State and County standards for certification as weed free. All seed used on National Forest System lands will be certified to be free of seeds from noxious weeds listed on the current All States Noxious Weeds test and will consist of native or desirable non-native seed mixes and/or native cultivars.</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>

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Non-Native Invasive Species (NNIS) Conservation Measures	Procedures	Applicable regulation/guidance
<p>NNIS-7 Plant-based erosion- and sediment-control materials, including but not limited to hay, straw or mulch, will be free of noxious weed seed.</p>	<p>The implementation team and contract administrators will coordinate with the assigned Weed Management Specialist for technical guidance on plant-based materials prior to awarding of contract or submittal of purchase order. Materials for which weed-seed-free certification is unavailable will be inspected and determined to be free of weed seed prior to purchase and use.</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>
<p>NNIS-8 Source sites for gravel, aggregate and borrow materials will be inspected for noxious weeds before materials are processed, used, or transported from the source site into the project area or onto the STNF.</p>	<p>The implementation team and contract administrators will coordinate with the assigned Weed Management Specialist or Project botanist for technical guidance on inspecting for and mitigating noxious weed infestations at source sites. Clean borrow and gravel sources on Forest would be maintained as noxious weed free through an inspection and treatment program. Off-forest inspections and treatments would be coordinated with county weed agents. Gravel or borrow material source sites with noxious weed infestations will not be used, unless effective treatment or other mitigation measures are implemented.</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>

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Non-Native Invasive Species (NNIS) Conservation Measures	Procedures	Applicable regulation/guidance
<p>NNIS-9 Native plant materials will be free of seeds and propagules of noxious weeds listed on the current All States Noxious Weeds Test.</p>	<p>The implementation team and contract administrators will coordinate with the assigned Weed Management Specialist or Project botanist for technical guidance on weed free plant materials prior to awarding of contract or submittal of purchase order.</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>
<p>NNIS-10 Possessing, storing or transporting non-pelletized hay, straw or mulch will meet the State and/or County standards for certification as weed free.</p>	<p>The implementation team and contract administrators will coordinate with the assigned Weed Management Specialist for technical guidance and contract specifications. Complete inspections to ensure all markings meet the State and/or County standards for certification as weed free.</p>	<p>Plant Protection Act (PL 106-224)</p> <p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>
<p>NNIS-11 Measures will be taken to reduce and prevent the spread of Didymo (<i>Didymosphenia geminata</i>).</p>	<p>To prevent the spread of Didymo (<i>Didymosphenia geminata</i>) all contractors will check for clumps of algae and sediment to ensure they will not leave the site.</p> <p>All gear will be soaked and scrubbed for at least one minute in a 2% (by volume) solution of household bleach, or a 5% (by volume) solution of salt or dishwashing detergent. All surfaces must be contacted by the cleaning solution. Water-absorbent equipment (lifejackets, waders) should be soaked to insure they do not remain a risk.</p> <p>If cleaning is not practical, allow all equipment to dry for at least 48 hours before using in another freshwater system.</p>	<p>Noxious Weed Control and Eradication Act of 2004</p> <p>36 Code of Federal Regulations Subpart A, Section 222.8</p> <p>Executive Order 13112, amended by EO 13751</p> <p>FSM 2900</p>

Table 3-4. Fishery Resources

Fishery Resources (FR) Conservation Measures	Procedures	Applicable regulation/guidance
<p>FR-1 In-stream activities within any wetted or flowing channel should be restricted to the dry season (June 15th to October 15th for tributaries and July 15 to October 15 for the mainstem) before coho salmon begin spawning. Work in intermittent streams may continue beyond November 1 as long as weather conditions permit, the stream channel remains dry, and with approval from the permitting agencies.</p>	<p>The funding and/or land management agency will review all restoration plans to ensure that site-specific conditions and designs that involve in-stream work comply with dry season work windows for stream type.</p>	<p>2020 TRRP BiOp</p>
<p>FR-2 Passage will be provided for any adult and juvenile fish likely to be present in the project area during construction, unless passage did not exist before construction or where the stream reach is naturally impassable at the time of construction. After construction, and where appropriate, adult and juvenile fish passage that meets NMFS's fish passage criteria² shall be provided at the site-specific project location.</p>	<p>A fish biologist will be consulted and the funding and/or land management agency will review all restoration plans to ensure that site-specific conditions and designs provide adequate fish passage during and after construction.</p>	<p>2020 TRRP BiOp</p>
<p>FR-4 In those specific cases where it is deemed necessary to work in flowing water, the work area shall be isolated and all flowing water shall be temporarily diverted around the work site to maintain downstream flows during construction.</p>	<p>The contiguous length of the dewatered stream channel, and the duration of any single dewatering event, shall be minimized to the greatest extent practicable.</p> <p>Before beginning project work, a dewatering and fish capture and relocation plan will be submitted to NMFS, so that any activities involving the handling of protected fishes may be reviewed and modified if necessary.</p>	<p>PEA, NOAA RC BiOp</p>

² NMFS (National Marine Fisheries Service). 2022. NOAA Fisheries West Coast Region, Anadromous Salmonid Passage Design Manual, NMFS, WCR, Portland, Oregon. Available at: <https://www.fisheries.noaa.gov/s3/2023-02/anadromous-salmonid-passage-design.pdf>. Accessed November 2024.

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Fishery Resources (FR) Conservation Measures	Procedures	Applicable regulation/guidance
<p>FR-5 When diverting flow around a work site is necessary (e.g., via pump, bypass culvert, or waterproof lined ditch) pumps shall be screened to prevent fish entrainment, and culvert outfalls shall be fitted with energy dissipation devices to prevent damage to riparian areas and streambeds.</p>	<p>Suction pump intakes shall be fitted with fish screens that meet NMFS criteria² to prevent entrainment or impingement of small fish. If diversion allows for upstream and downstream fish passage, place diversion entrances in locations to promote safe entry and reentry of fish to stream channels, preferably in pool habitat with cover. When necessary, pump turbid seepage water from dewatered work sites for disposal into upland locations, where it will not drain directly into any stream channel or where suspended materials will be filtered before flowing back into the stream.</p>	<p>2020 TRRP BiOp</p>
<p>FR-6 Bypass pipes will be sized to accommodate, at a minimum, twice the expected baseflow. The work area may need to be periodically pumped dry of seepage.</p>	<p>Pumps will be placed in flat areas, well away from the stream channel, and secured by tying off to a tree or stake in place to prevent movement by vibration. Pumps shall be refueled in an area well away from the stream channel and fuel absorbent mats will be placed under the pumps while refueling. Pump intakes shall be covered with mesh per the requirements of NMFS Fish Screening Criteria to prevent potential entrainment of fish or amphibians that could not be removed from the area to be dewatered. The pump intake shall be checked periodically for impingement of fish or amphibians. If pumping is necessary to dewater the work site, procedures for pumped water shall include requiring a temporary siltation basin for treatment of all water prior to entering any waterway and not allowing oil or other greasy substances originating from operations to enter or be placed where they could enter a wetted channel. Screen openings shall not exceed 1/4 inch (6.35 mm) in the diagonal direction and approach velocities should not exceed 1ft/second. Velocities should be minimized by placing screens in slow water conditions either in a pool or in a constructed backwater area.</p>	<p>PEA, NOAA RC BiOp</p>
<p>FR-7 Prior to dewatering, the best means to bypass flow through the work area shall be determined to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic vertebrates.</p>	<p>Project site dewatering shall be coordinated with a qualified biologist, who will perform fish and amphibian relocation activities. The qualified biologist(s) must be familiar with the life history and identification of listed salmonids and listed amphibians within the action area. The qualified biologist shall submit a CV to NMFS for approval prior to fish relocation activities. Prior to dewatering a construction site, the qualified biologist shall capture and relocate fish and amphibians to avoid direct mortality and minimize adverse effects. Plastic/rubber material shall be placed over sandbags used for construction of cofferdams to minimize water seepage into the work area. Cofferdams and stream diversion systems shall remain in place and fully functional throughout the construction period. When coffer dams with bypass pipes are installed, debris racks will be placed at the bypass pipe inlet. Bypass pipes will be monitored a minimum of two times per day, seven days a week. All accumulated debris shall be removed.</p>	<p>PEA, NOAA RC BiOp</p>
<p>FR-8 When construction is complete, construction will be removed as quickly as possible to avoid impeding natural processes.</p>	<p>The flow diversion structure shall be removed as soon as possible in a manner that will allow flow to resume with the least disturbance to the substrate. Cofferdams will be removed so surface elevations of water impounded above the cofferdam will be reduced at a rate that will minimize the probability of fish stranding as the area upstream becomes dewatered.</p>	<p>PEA, NOAA RC BiOp</p>

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Fishery Resources (FR) Conservation Measures	Procedures	Applicable regulation/guidance
<p>FR-9 Fish shall be excluded from the work area by blocking the stream channel above and below the work area with fine-meshed block nets or screens.</p>	<p>Mesh openings will be no greater than 1/8 inch. The bottom of a seine must be completely secured to the channel bed. Screens must be checked twice daily, or more frequently as needed, and cleaned of debris to permit free flow of water. Block nets shall be placed and maintained throughout the dewatering period at the upper and lower extent of the areas where fish will be removed. Block net mesh shall be sized to ensure salmonids upstream or downstream do not enter the areas proposed for dewatering. Net placement is temporary and will be removed once dewatering has been accomplished or construction work is complete for the day.</p>	<p>PEA, NOAA RC BiOp</p>
<p>FR-10 All seining, electrofishing, and relocation activities shall be performed by a qualified biologist.</p>	<ul style="list-style-type: none"> • All qualified biologists need to be experienced in fish identification, have experience with fish removals and relocations and have an understanding of the water quality needs of fish. The qualified biologist will need to submit a CV to NMFS for approval prior to fish relocation activities. The qualified biologist shall capture and relocate listed species prior to construction of the water diversion structures (e.g., cofferdams). The qualified biologist shall note the number of listed species observed in the affected area, the number and species of fish relocated, where they were relocated to, and the date and time of collection and relocation. • The qualified biologist will determine the most efficient means for capturing fish (e.g., seining, dip netting, trapping, and electrofishing). Complex stream habitat generally requires the use of electrofishing equipment, whereas in outlet pools, fish may be concentrated by pumping-down the pool and then seining or dip-netting fish. • At some sites with low habitat complexity, herding fish with a single seine pass before the block net is installed can help reduce the number of fish that must be handled. • NMFS shall be notified one week prior to capture and relocation of listed fish to provide NMFS an opportunity to monitor the operation. • In streams with high water temperature, perform relocation activities during morning periods, when water is coolest. • Prior to capturing fish, determine the most appropriate release location(s). Consider the following when selecting release site(s): Similar water temperature as capture location, ample habitat for captured fish, low likelihood of fish reentering work site or becoming impinged on exclusion net or screen. • Water temperature, dissolved oxygen, and conductivity shall be recorded in an electrofishing log book, along with electrofishing settings. • The following methods shall be used if fish are removed with seines: A minimum of three passes with the seine shall be utilized to ensure maximum capture probability of salmonids within the area. All captured fish shall be processed and released prior to each subsequent pass with the seine. The seine mesh shall be adequately sized to ensure fish are not gilled during capture and relocation activities. 	<p>2020 TRRP BiOp & PEA</p>

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Fishery Resources (FR) Conservation Measures	Procedures	Applicable regulation/guidance
<p>FR-11 If seining, dip-netting, or trapping of fish is infeasible or otherwise ineffective, electrofishing may be used to capture fish from isolated work areas. Electrofishing will primarily be used to ensure fish removal (salvage) from areas where construction will otherwise result in the death of fish that are not removed.</p>	<ul style="list-style-type: none"> NMFS's (2000) electrofishing guidelines³ shall be followed. If possible, electrofishing shall not occur when water temperatures are greater than 64°F (18°C) or are expected to rise above this temperature prior to concluding fish capture. No electrofishing shall be conducted in the vicinity of spawning fish or active redds. If fish mortality occurs, capture shall be immediately discontinued (unless this would result in additional fish mortality) until current procedures are re-evaluated and any necessary adjustments are made to prevent or reduce further injury and mortality. Electrofishing is not permitted if listed adult salmon or steelhead are present. Any listed adult salmon or steelhead encountered while electrofishing must be reported to NMFS. 	<p>2020 TRRP BiOp & PEA</p>
<p>FR-12 During relocation activities associated with either method of capture (electrofishing or seining) for salmonids, measures will be taken to protect fish.</p>	<ul style="list-style-type: none"> Salmonids shall not be overcrowded into buckets; allowing no more than 150 0+ fish (approximately six cubic inches per young-of-the-year [0+] individuals approximately) per five-gallon bucket and fewer individuals per bucket for larger fish. Every effort shall be made not to mix (0+) salmonids with larger salmonids, or other potential predators. Have at least two containers and segregate (0+) fish from larger age classes. Larger amphibians shall be placed in the container with larger fish. Native salmonid predators collected and relocated during electrofishing or seining activities shall be relocated in a dispersive manner so as to not concentrate them in one area. Particular emphasis shall be placed on avoiding relocation of predators into steelhead and salmon relocation pools. To minimize predation on salmonids, these species shall be distributed throughout the wetted portion of the stream so as not to concentrate them in one area. All captured listed fish shall be relocated outside of the proposed construction site and placed in suitable habitat. Captured fish shall be placed into a pool, preferably with a depth of greater than two feet with available instream cover. All native captured fish will be allowed to recover from electrofishing and anesthesia before being returned to the stream. Temporarily hold fish in cool, shaded, aerated water in a container with a lid. Provide aeration with a battery-powered external bubbler. Protect fish from jostling and noise and do not remove fish from this container until time of release. Place a thermometer in holding containers and, if necessary, periodically conduct partial water changes to maintain a stable water temperature. 	<p>PEA, NOAA RC BiOp</p>

³ NMFS (National Marine Fisheries Service). 2000. Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act. June 2000. Available at: <https://media.fisheries.noaa.gov/dam-migration/electro2000.pdf>. Accessed November 2024.

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Fishery Resources (FR) Conservation Measures	Procedures	Applicable regulation/guidance
<p>FR-13 Where ESA-listed and sensitive aquatic species that require access to stream habitat are present, off-channel features should be designed to slope toward and drain to the primary stream habitat as streamflow subsides. Isolated pools or ponds that do not incorporate return channels to the stream should be situated at an appropriate distance from the edge of the active channel to avoid temporary connectivity and subsequent fish stranding following flood events. Proposed restoration projects should not result in stranding of fish in isolated waterbodies.</p>	<p>The funding and/or land management agency will review all restoration plans to ensure that site-specific conditions and designs meet the criteria for off-channel features and do not pose risk of stranding ESA-listed species individuals in isolated waterbodies.</p>	<p>PEA, NOAA RC BiOp</p>
<p>FR-14 For small dam removal, the sediment upstream of the dam would be physically removed and the channel through the excavated reach would be designed using natural channel evolution or stream simulation. Designs would be developed in accordance with known stream restoration and fish passage guidance documents⁴.</p>	<p>The project proponent will prepare small dam removal designs that will be reviewed by the funding and/or land management agency to ensure that anticipated outcomes are compliant with stream restoration and fish passage guidance documents.</p>	<p>PEA, NOAA RC BiOp</p>

⁴ NMFS (National Marine Fisheries Service). 2001. Guidelines for Salmonid Passage at Stream Crossings: For Applications in California at Engineered Stream Crossings to Facilitate Passage of Anadromous Salmonids. September 2001. Available at: <https://www.fisheries.noaa.gov/s3//2023-02/stream-crossing-guidelines-ca.pdf>. Accessed November 2024.

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Fishery Resources (FR) Conservation Measures	Procedures	Applicable regulation/guidance
<p>FR-15 The funding and/or land management agency with jurisdiction 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 will be developed.</p>	<p>Any freshwater mussel beds would be identified during the planning process for each site-specific restoration action that is part of the Project. Construction-related effects would be minimized through implementation of erosion and sediment control BMPs and avoidance of physical disturbance to any freshwater mussel beds using a buffer of 5 meters from any construction activities or any scour as a result of construction activities⁵. If avoidance is not possible, freshwater mussel salvage and relocation BMPs described in “Conserving the Gems of Our Waters”⁶ would be implemented during Project actions.</p> <p>This plan will include measures to collect, transport and relocate lamprey ammocetes within the site-specific project area. Relocation of ammocetes would occur using techniques to extract them from substrate habitat and move into the water column; thereby being transported to alluvial habitat downstream.</p>	<p>PEA, NOAA RC BiOp</p>
<p>FR-16 Blasting hydroacoustic effects would need to stay below the 207 dB L_{PEAK} and 203 dB $SEL_{CUMULATIVE}$ thresholds (or the most current thresholds accepted by NMFS).</p>	<p>The following avoidance and minimization measures would be incorporated:</p> <ol style="list-style-type: none"> 1. TRRP personnel and implementors would coordinate with NMFS when blasting is determined to be unavoidable. 2. Blasting would be performed during recommended in-water work windows. 3. Accomplish blasting in dry conditions utilizing dewatering techniques as necessary and without impeding fish passage to the extent possible. 4. Incorporate attenuation methods into blasting activities as directed by NMFS (e.g., bubble curtain, isolation casing, and dewatered cofferdam). 5. If blasting is implemented in, or adjacent to, a wetted stream, monitoring of fish shall occur during pile-driving activity to ensure no fish stranding or mortality occurs. 	<p>PEA, resource specialist recommendation based on Caltrans guidance</p>

⁵ Blevins, E., L. McMullen, S. Jepsen, M. Blackburn, A. Code, and S. H. Black. 2019. Mussel-Friendly Restoration: A Guide to the Essential Steps for Protecting Freshwater Mussels in Aquatic and Riparian Restoration, Construction, and Land Management Projects and Activities. 32 pp. Portland, OR: The Xerces Society for Invertebrate Conservation. Available online at www.xerces.org.

⁶ Blevins, E., S. Jepsen, J. B. Box, D. Nez, J. Howard, A. Maine, and C. O’Brien. 2017. "Extinction Risk of Western North American Freshwater Mussels: *Anodonta Nuttalliana*, the *Anodonta Oregonensis*/Kennerlyi Clade, *Gonidea Angulata*, and *Margaritifera Falcata*." *Freshwater Mollusk Biology and Conservation* 20: 71-88. <https://bioone.org/journals/freshwater-mollusk-biology-and-conservation/volume-20/issue-2/fmbc.v20i2.2017.71-88/Extinction-Risk-of-Western-North-American-Freshwater-Mussels--Anodonta/10.31931/fmbc.v20i2.2017.71-88.full>

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Fishery Resources (FR) Conservation Measures	Procedures	Applicable regulation/guidance
<p>FR-17 Implementors proposing impact pile driving or blasting would provide information similar to that required by the Caltrans Hydroacoustic Project Information Checklist⁷ during site-specific project design to evaluate potential hydroacoustic effects.</p>	<p>Information provided would be adapted to include details about blasting (e.g., types and numbers of explosions, locations of explosions, etc.). This information would then be used in concert with the NMFS Multi-Species Pile Driving Calculator Tool⁸ to ensure that project effects do not exceed hydroacoustic effects thresholds.</p>	<p>PEA</p>
<p>FR-18 To minimize pile driving impacts, only wooden piles will be used for SLJ placement below the OHWM.</p>	<p>Wooden piles may be driven by an excavator, or when needed, a vibratory pile driver will be used in preference over an impact driver.</p>	<p>2020 TRRP BiOp</p>
<p>FR-19 For bridge replacement projects requiring impact pile driving, hydroacoustic effects would need to stay below the 207 dB L_{PEAK} and 203 dB SEL_{CUMULATIVE} thresholds (or the most current thresholds accepted by NMFS).</p>	<p>The following avoidance and minimization measures would be prioritized as shown below:</p> <ol style="list-style-type: none"> 1. Design channel spanning bridge structures so that in-channel pile driving would not be required. 2. Avoid installing 24-inch and larger piles when possible 3. Pile driving would be performed during recommended in-water work window. 4. Accomplish pile driving in the dry utilizing dewatering techniques as necessary without impeding fish passage to the extent possible. 5. Utilize vibratory hammers when considered an appropriate installation method according to site conditions. 6. If impact pile driving is implemented in, or adjacent to, a wetted stream, monitoring of fish shall occur during pile-driving activity to ensure no fish stranding or mortality occurs. If sound level thresholds are met, pile driving shall cease for a minimum of 12 hours. 7. Incorporate attenuation methods into pile driving activities (e.g., bubble curtain, isolation casing, and dewatered cofferdam). 	<p>PEA</p>
<p>FR-20 Pile driving shall occur during the established/approved in-water and general work windows.</p>	<p>See FR-1.</p>	<p>PEA</p>
<p>FR-21 Sheet piling shall be driven by vibratory or nonimpact methods (i.e., hydraulic) that result in sound pressures below threshold levels to the extent feasible.</p>	<p>See FR-19.</p>	<p>PEA</p>

⁷ <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/hydroacoustic-project-information-checklist-ally.pdf>

⁸ <https://www.fisheries.noaa.gov/resource/data/multi-species-pile-driving-calculator-tool>

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Fishery Resources (FR) Conservation Measures	Procedures	Applicable regulation/guidance
<p>FR-22 Pile driving activities shall occur during periods of reduced currents.</p>	<p>Pile-driving activities shall be monitored to ensure that the effects of pile driving on protected fish species are minimized. If any stranding, injury, or mortality to fish is observed, NMFS shall be immediately notified and in-water pile driving shall cease. Vibratory hammers, rather than impact hammers, shall be used whenever possible.</p>	<p>PEA</p>

Table 3-5. Wildlife Resources

Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
General Wildlife (WL)		
<p>WL-1 Known active nesting, denning, and roosting sites for special status species (threatened, endangered, proposed, candidate, and BLM/USFS sensitive wildlife species) will be protected during implementation to prevent disruption of reproductive success.</p>	<p>Coordinate with Wildlife Biologist. Protective measures may include timing restrictions, no-activity buffers, or modifications to planned activities. Site-specific protective measures shall be determined by the Wildlife Biologist and will depend on species and occupancy status.</p>	<p>Federal Endangered Species Act California Endangered Species Act Statewide Restoration General Order (SRGO) Program Environmental Impact Report (PEIR) (SPM-01)</p>
<p>WL-2 Special status species nesting, denning and roosting sites discovered during the implementation period will be protected to prevent disruption of reproductive success. Comparable provisions shall be included in all contracts to provide protection for special status species discovered during implementation.</p>	<p>Contact the Wildlife Biologist if special status species nest, den, or roost sites are discovered during implementation for guidance. Protective measures may include timing restrictions, no-activity buffers, or modifications to planned activities.</p>	<p>Federal Endangered Species Act California Endangered Species Act SRGO PEIR (MAM-02; BIRD-01 – BIRD-05)</p>

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Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
<p>WL-3 A qualified biologist will conduct surveys of project sites to determine whether there is suitable nesting habitat for migratory birds.</p>	<p>If suitable habitat is present, the following measures will be implemented.</p> <p>Project activities will be scheduled to avoid the nesting season to the extent possible. The nesting season in Trinity County typically extends from March 15 through July 31. If project activities occur outside the breeding season, no further mitigation is necessary. If project activities during the breeding season cannot be completely avoided, the following measures will be implemented.</p> <p>A qualified biologist will conduct a minimum of one pre-project survey for nesting birds within the project sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of project in any given area. The pre-project surveys will be used to ensure that no nests within or immediately adjacent to the project sites will be disturbed during project implementation. If an active nest is found, a qualified biologist will determine the extent of a project-free buffer zone to be established around the nest.</p> <p>Where impacts are unavoidable, a qualified biologist should prioritize the Partner's in Flight's (https://partnersinflight.org/) species of conservation concern (e.g. Vaux's swift, Willow flycatcher, Tree swallow, Spotted sandpiper). Other species of conservation concern for Trinity River's Bird Conservation Region (BCR5: Northern Pacific Rainforest) can be found in the Avian Conservation Assessment Database (https://pif.birdconservancy.org/avian-conservation-assessment-database-scores/).</p>	<p>Migratory Bird Treaty Act</p>
<p>WL-4 Nesting bird protection</p>	<p>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 bird season (typically March 1 for migratory songbirds). This will help preclude nesting and substantially decrease the likelihood of construction-related impacts.</p>	<p>Migratory Bird Treaty Act</p>
<p>WL-5 Live trees with evidence of large stick nests should be retained.</p>	<p>Site-specific protective measures shall be determined by the Wildlife Biologist and will depend on species and occupancy status. Protective measures may not be necessary or may include timing restrictions, no-treatment buffers, or modifications to planned prescriptions. Development of protective measures will be coordinated with the appropriate resource staff. Species that this may apply to include osprey, red-tailed hawks, Cooper's hawk, sharp shinned hawk, great horned owl, long-eared owl or other raptors.</p>	<p>California Endangered Species Act</p> <p>SRGO PERI (BIRD-01 – BIRD-05)</p>

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Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
<p>WL-6 Qualifications of the Qualified Biologist and USFWS-Approved Biologist</p>	<p>Biological monitoring and construction oversight will be provided by biologists at two different experience levels, depending on the activity. These two levels are described in this measure, below. In general, the Qualified Biologist will complete many tasks across species for a Proposed Restoration Project, and the USFWS-Approved Biologist will only be required for specific tasks that require additional species expertise. In some cases, the Qualified Biologist(s) may work under the guidance, direction, or supervision of the USFWS-Approved Biologist. Unless otherwise indicated, Guild- and Species-Specific Protection Measures, general site surveys and biological monitoring can be conducted by a Qualified Biologist. Because the qualifications for the USFWS-Approved Biologist exceed those for the Qualified Biologist, any activity indicated as appropriate for the Qualified Biologist may also be completed by a USFWS Approved Biologist.</p> <ul style="list-style-type: none"> • Qualified Biologist: The Qualified Biologist is required to meet certain qualifications, as confirmed by the Project Proponent. Résumé review by the USFWS is not required for the Qualified Biologist. Minimum qualifications for the Qualified Biologist include a bachelor’s degree in biological or environmental science, natural resources management, or related discipline; field experience in the habitat types that may occur at the project site; familiarity with the Covered Species (or closely related species) that may occur at the project site; and prior preconstruction survey, construction monitoring, or construction oversight experience (if and as relevant to the activity to be conducted). • USFWS-Approved Biologist: For some Covered Species, additional qualifications may be required for biologists who would be responsible for species handling or relocation, or other activities. These activities would be completed by the USFWS-Approved Biologist when required by the protection measures. Résumé(s) for the USFWS-Approved Biologist(s) with experience in the identification of all life stages and ecology of the applicable Covered Species (or closely related species) and their critical habitat will be submitted to the USFWS Field Office for review and approval at least 30 days prior to any activity for which the protection measures indicate that a USFWS-Approved Biologist is required. Because species handling and relocation of some species for proposed restoration projects would be authorized by USFWS through issuance of the PBO and associated ITS, it may not be a requirement for the USFWS-Approved Biologist to hold a federal Section 10(a)(1)(A) Recovery Permit to implement this role on an approved project under this program. However, it is noted that some presence/absence surveys that may be performed by a USFWS-Approved Biologist may require that the person conducting those surveys hold a Section 10(a)(1)(A) Recovery Permit. For any surveys, securing/confirming necessary 10(a)(1)(A) permits and other authorizations should be coordinated with the respective USFWS Field Office or S7 Delegated Authority Program (DAP). 	<p>2025 Reinitiated USFWS Statewide Restoration BiOp (ASP-1)</p>

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Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
WL-7 Preconstruction Surveys	If Covered Species and/or their habitat is present, where appropriate and based on project-specific requirements, a Qualified Biologist will conduct visual preconstruction surveys and implement additional protection measures within 5 days prior to beginning work to protect the species and habitat from avoidable construction-related disturbance. The intent of the survey is to assess current species habitat and species use locations in the project area immediately prior to construction. The preconstruction survey is not intended to be a presence/absence or protocol-level survey; the potential for species presence would have already been evaluated prior to project approval. Pre-construction surveys may be phased across a construction site if construction in different areas will occur at different times; only areas where disturbance is imminent need be surveyed. If construction activities at a given location cease for more than 5 consecutive days, and there is potential for Covered Species to reoccupy habitat at that site, the Qualified Biologist will resurvey the project area prior to resuming construction and implement applicable protection measures. Additional Guild- and Species-Specific Protection Measures may supersede this more GPM, as applicable.	2025 Reinitiated USFWS Statewide Restoration BiOp (ASP-2) SRGO PEIR (SPM-01)
WL-8 Species Capture, Handling, and Translocation	Covered Species capture, handling, and translocation will only be conducted by a USFWS-Approved Biologist(s). The Project Proponent will prepare a Covered Species translocation plan to be reviewed and approved by the USFWS Field Office as part of the ESA Section 7(a)(2) Review Form. The plan will include capture and translocation methods, translocation site, and post translocation monitoring, if applicable. If capture, handling, and translocation are necessary due to dewatering activities, follow the USFWS-Approved translocation plan. Additional Guild- and Species-Specific Protection Measures may supersede this more GPM, as applicable.	2025 Reinitiated USFWS Statewide Restoration BiOp (ASP-3) SRGO PEIR (SPM-04)
WL-9 Covered Species Entrapment Prevention	To prevent the accidental entrapment of Covered Species during construction, all excavated, steep-walled holes or trenches will be covered with appropriate covers (e.g., plywood, thick metal sheets, or similar materials) at the end of each workday. Covers will be placed so that trench edges are fully sealed with rock bags, sand, or other appropriate material. Alternatively, one or more escape ramps (e.g., fill dirt or wood planking) will be installed at an angle no greater than 30 degrees, to allow wildlife to escape. Before holes or trenches are filled, sealed, or collapsed, the holes or trenches will be thoroughly inspected for trapped animals. If pipes are stored on site or in associated staging areas, they will be capped when not in use or stored above ground level at an appropriate height to minimize species entrapment and will be inspected before being moved. Any animals discovered will be allowed to escape voluntarily or will be relocated by a USFWS-Approved Biologist. Additional Guild- and Species-Specific Protection Measures may supersede this more GPM, as applicable.	2025 Reinitiated USFWS Statewide Restoration BiOp (ASP-4) SRGO PEIR (SPM-05)

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<p>WL-10 Airborne Noise Reduction</p>	<p>Equipment (including the noise abatement systems) will be maintained in good working order. If construction noise has the potential to adversely affect Covered Species, the Project Proponent will include site-specific protection measures for construction activities in the Project ESA Section 7(a)(2) Review Form to minimize impacts. Muffler (or spark arrester) damage must be promptly remedied.</p> <p>Potential adverse effects from project-related noise should be avoided or minimized to the maximum extent practicable by implementing sufficient disturbance buffers between noise generating project activities and covered amphibian, bird, and mammal species habitat. When applicable, species-specific noise buffer distances will be followed from Guild and Species-Specific Protection Measures. Noise buffer distances are distinct from other indicated buffer distances, which may relate to an area involving dispersal, visual disturbance, or other considerations; however, incorporating the larger of two buffer distances will provide buffer for both purposes. Noise buffer distances may be modified in coordination with the USFWS Field Office based on project specific characteristics or a Project Proponent/Action Agency may choose to submit their own analysis and buffer recommendations for the USFWS’s consideration. If sufficient buffers cannot be implemented, the proposed activities may lead to adverse effects, including possible incidental take.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp (ASP-5)</p> <p>SRGO PEIR (SPM-06)</p>
<p>WL-11 Environmentally Sensitive Areas and/or Wildlife Exclusion</p>	<p>Monitoring, flagging, and/or fencing will be used to minimize disturbance to environmentally sensitive areas (e.g., waters and wetlands).</p> <p>If fencing is used:</p> <ul style="list-style-type: none"> • The agency-approved biologist or resource specialist will determine the location of the fencing prior to the start of construction (e.g., between active work area(s) and sensitive resources). • Fencing will remain in place throughout the duration of the construction activities, and will be inspected and maintained regularly by the agency-approved biologist or resource specialist until completion of the project. • Repairs to the fencing will be made within 24 hours of discovery. • Fencing will be removed when all construction equipment is removed from the site, and the area cleared of debris and trash, and returned to natural conditions. 	<p>SRGO PEIR (SPM-02)</p>
<p>WL-12 Species Protection Construction Work Windows</p>	<p>Construction work windows may be required, depending on whether or not the project involves in-water construction and/or whether special-status species have potential to occur onsite.</p>	<p>SRGO PEIR (SPM-03)</p>

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Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
WL-13 Reporting Requirements	<p>Agencies will be notified within 24 hours if any individual special-status species is captured. The date; time of capture; specific location (GPS coordinates); and approximate size, age, and health of the individual will be recorded and provided in both hard copy and digital format to the agency(ies) within 2 weeks of the conclusion of the protective trap-and-release operation.</p> <p>The agency(ies) will be notified within 24 hours if any special-status mammal species is found injured or dead. A written notification will also be prepared by the project proponent after verbal notification to the agency(ies). The report will include the date, time, and location of the discovered animal/carcass; cause of injury or death; and any other pertinent information. All dead and preserved specimens will be submitted to the appropriate agency(ies) upon request. Salvaged animals will be kept cooled or frozen until delivered.</p>	SRGO PEIR (MAM-05)
WL-14 Use of Handheld Tools	If exclusion fencing will be installed, vegetation in active work areas outside of the exclusion areas will be trimmed and cleared to the ground using handheld tools (which can include handheld motorized equipment, such as weed whackers or mowers) to the maximum extent practicable, under the supervision of an agency-approved biologist, to discourage presence of species in the construction area.	SRGO PEIR (MAM-03)
WL-15 Clearing and Grubbing Vegetation	An agency-approved biologist will be present during all vegetation clearing and grubbing activities in areas where the special status reptiles are confirmed to occur, or where measures are being implemented based on presence of suitable habitat. Prior to vegetation removal, the agency-approved biologist will thoroughly survey the area for these species. Vegetation in sensitive areas will be cleared by handheld motorized tools (e.g., weed eaters, chainsaws) or hand pulling unless alternate methods are proposed by the project proponent and approved by agency(ies). Tree stumps and roots will be left in place where possible to avoid any ground disturbance and preserve refugia habitat, with the exception of non-native invasive plants that could propagate from remaining vegetative material. Native branches, leaf litter, mulch, woody debris, and other vegetative trimmings may be retained and spread on site to enhance habitat as appropriate.	SRGO PEIR (REP-03)
WL-16 Species Trapping and Relocating	If the minimum avoidance zone cannot be maintained and the agency-approved biologist believes activities will disturb or destroy habitat (e.g., collapse burrows) or may otherwise adversely affect these special-status mammal species, then an agency-approved biologist may be required to implement a trap and release program at the agency's discretion. Project-specific guidance on trapping, temporary holding, release location, and release method will be required by the agency prior to the start of trapping.	SRGO PEIR (MAM-04)
WL-17 Prohibited Use of Rodenticides	No rodenticides will be used at the project site during construction in areas that support suitable habitat for special-status species.	SRGO PEIR (REP-04)
Northern Spotted Owl (NSO)		

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<p>NSO-1 Inquire with USFWS on Northern Spotted Owl Data Records.</p>	<p>If the proposed project is in suitable nesting, roosting, or foraging (NRF) habitat for the northern spotted owl and may affect the northern spotted owl or its habitat, the Project Proponent will contact USFWS to obtain contact information for local USFS, County, or other biologists who can provide a northern spotted owl survey, Activity Center, and habitat suitability data for the project area. An Activity Center represents the “best of detections” such as a nest tree, an area used by roosting pairs or territorial singles, or an area of concentrated nighttime detections. This step will provide baseline information for the project area and will help determine if and where surveys will be done, or if recent surveys have been completed.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>
<p>NSO-2 Protocol Level Surveys.</p>	<p>If northern spotted owl surveys have not been done or are not current in accordance with the 2012 Northern Spotted Owl Survey Protocol guidance (depending on activity), and surveys are planned, conduct surveys according to the 2012 Northern Spotted Owl Survey Protocol and 2019 guidelines revision and follow the seasonal restrictions described 119 below for “Surveyed Landscape”⁹. If surveys are not planned, assume occupancy by nesting owls based on the presence of suitable NRF habitat; adhere to the guidance and seasonal restrictions described below for operating in an “Unsurveyed Landscape.”</p> <ol style="list-style-type: none"> 1. As an alternative to the full six-visit protocol surveys described in the 2012 Northern Spotted Owl Survey Protocol¹⁰ three surveys can be conducted in the year of action implementation if there have been two consecutive years of surveys with six visits per year in the immediately previous years. If no northern spotted owls are detected within 0.25-mile of the proposed activities, activities may proceed that year without seasonal restrictions. 	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>
<p>NSO-3 Habitat Avoidance. In all suitable NRF habitat:</p>	<ol style="list-style-type: none"> 1. Removal or damage of known nest trees and associated screen trees will be avoided, unless they must be removed to implement the proposed project or are a confirmed safety hazard according to the guidance documents from the implementing agency or another agency with jurisdiction in the project area. 2. Removal or damage of trees or snags with potential nesting platforms and associated screen trees will be avoided. These include trees with large, flattened tops; large, broken-topped trees; trees with decadence, such as large cavities; mistletoe broom structures, catfaces, or large limbs; or large snags with these similar characteristics. 3. Removal of large (20 inches in diameter at breast height or larger) snags will be avoided, unless they must be removed to implement the proposed project or are a confirmed safety hazard according to the implementing agency’s guidance documents. 	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>

⁹ USFWS (U. S. Fish and Wildlife Service). 2012. Protocol for Surveying Proposed Management Activities that May Impact Northern Spotted Owls. Revised January 9, 2012. Available online at: <https://www.fws.gov/media/protocol-surveying-proposed-management-activities-mayimpact-northern-spotted-owls-0> and USFWS. 2019. Revision to Take Avoidance and Analysis and Guidance for Northern spotted owl. Letter from M.J. Senn, USFWS to H. Eng, California Department of Forestry and Fire Protection with two attachments. November 1.

¹⁰ USFWS (U. S. Fish and Wildlife Service). 2012. Protocol for Surveying Proposed Management Activities that May Impact Northern Spotted Owls. Revised January 9, 2012. Available online at: <https://www.fws.gov/media/protocol-surveying-proposed-management-activities-mayimpact-northern-spotted-owls-0>.

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Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
<p>NSO-4 Avoid Reducing Habitat Quality.</p>	<p>Project activities will not result in net loss of habitat or downgrade or remove the function of suitable NRF habitat to the degree that the habitat does not function in the capacity that existed prior to treatment:</p> <ol style="list-style-type: none"> 1. Although habitat elements such as individual large trees or snags may be removed from NRF habitat, the treatment must not be so extensive as to downgrade or remove the overall function of the habitat. 	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>
<p>NSO-5 Avoid Foraging Habitat.</p>	<p>In suitable foraging habitat in northern spotted owl core areas (a 0.5-mile radius or 500-acre area around an Activity Center) and in suitable foraging habitat in northern spotted owl home ranges (a 1.3-mile radius, including core, or a 3,398-acre area around an Activity Center):</p> <ol style="list-style-type: none"> 1. Downgrading or removal of suitable foraging habitat function will be avoided. 2. Although habitat elements—such as individual trees, shrubs, down logs, and snags—may be removed from foraging habitat, the treatment must not be so extensive as to downgrade or remove the overall function of the habitat in a northern spotted owl core or home range below the recommended habitat levels for supporting survival, reproduction, and occupancy¹¹. In the interior California Klamath and California Cascades Provinces, this level is a combination of 400 acres of suitable NRF habitat in the core. For the home range, the level is 40% suitable NRF (approximately 1,336 acres). In the Redwood zone, the recommended level is 100 acres of suitable NRF habitat in the core and 500 acres of suitable NRF habitat in the home range¹². 	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>

¹¹ USFWS (U.S Fish and Wildlife Service). 2011. Revised Recovery Plan for the Northern Spotted Owl (*Strix occidentalis caurina*). Region 1: Portland, Oregon. June 28.

¹² USFWS (U.S Fish and Wildlife Service). 2019. Revision to Take Avoidance and Analysis and Guidance for Northern spotted owl. Letter from M.J. Senn, USFWS to H. Eng, California Department of Forestry and Fire Protection with two attachments. November 1.

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<p>NSO-6 Work Restrictions in Previously Surveyed Landscape.</p>	<p>If surveys are completed or are current for the project area (based on surveys conducted by the Project Proponent, or other data provided from other agencies):</p> <ol style="list-style-type: none"> 1. Do not conduct activities that result in loud or continuous noise above ambient levels within 0.25 mile (or 1,320 feet) of a nest site between February 1 and July 9. <p>This includes activities that generate sound levels 20 or more decibels above ambient sound levels, or activities that generate maximum sound levels above 90 decibels, excluding vehicle back-up alarms. Maximum sound levels are the combined ambient and activity-generated sound levels.</p> <ol style="list-style-type: none"> 2. Do not conduct any suitable habitat modification or smoke-generating activities within 0.25 mile (or 1,320 feet) of a nest site between February 1 and September 15. <p>Suitable habitat includes northern spotted owl NRF habitat. Modification includes cutting and removal of large trees, down logs, or snags. Tree or limb trimming or pruning, brush trimming or removal, and hazard tree felling may occur as long as the noise levels described above are not exceeded during the critical breeding period of February 1 through July 9.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>
<p>NSO-7 Work Restrictions in Unsurveyed Landscape.</p>	<p>If surveys have not been completed and cannot be done, assume occupancy by nesting owls in the project area/portion of it based on the presence of suitable NRF habitat:</p> <ol style="list-style-type: none"> 1. Do not conduct activities that result in loud and continuous noise above ambient levels within 0.25-mile (or 1,320 feet) of unsurveyed suitable NRF habitat between February 1 and July 9. <p>This includes activities that generate sound levels 20 or more decibels above ambient sound levels or activities that generate maximum sound levels above 90 decibels, excluding vehicle back-up alarms. Maximum sound levels are the combined ambient and activity-generated sound levels.</p> <ol style="list-style-type: none"> 2. Do not conduct any suitable habitat modification or smoke-generating activities within 0.25 mile (or 1,320 feet) of unsurveyed suitable NRF habitat between February 1 and September 15. <p>Suitable habitat includes northern spotted owl NRF habitat. Modification includes cutting and removal of large trees, down logs or snags. Tree or limb trimming or pruning, brush trimming or removal, and hazard tree felling may occur as long as the noise levels described above are not exceeded during the critical breeding period of February 1 through July 9.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>

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NSO-8 Work Restrictions in Designated Critical Habitat.	When working in designated critical habitat, adhere to all measures described in NSO-5, NSO-6, and NSO-7 for reducing impacts in suitable NRF habitat. This will ensure that effects to physical and biological features related to NRF ¹³ are minimized.	2025 Reinitiated USFWS Statewide Restoration BiOp
American Goshawk & Nesting Bald Eagles (AGBE)		
AGBE-1	<p>Seasonal restrictions would be imposed from January 1 through August 15 within 0.25 mile of any known goshawk and eagle nest sites in the project area to all activities causing above-ambient loud and continuous noise (for >=2 hours per day) to avoid potential disturbance during the goshawk and eagle breeding season.</p> <ol style="list-style-type: none"> 1. For smoke producing activities within 0.25 miles of active nests, employ firing techniques that provide good smoke dispersion and ventilation aloft and/or away from active nests. 2. If effects of smoke cannot be avoided or minimized within 0.25 miles of an active nest site, prescribed burning will be conducted outside the seasonal restriction period. 3. Seasonal restrictions may be lifted if surveys determine no nesting activity within 0.25 miles of proposed activities. 	STNF LRMP 1995
AGBE-2	Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, construction will be scheduled to avoid the nesting season for eagles and American goshawks to the extent feasible. The nesting season for most raptors in Trinity County extends from January 1 through July 31. Thus, if construction can be scheduled to occur between August 1 and December 31, the nesting season will be avoided and no impacts to nesting bald eagles and northern goshawks would be expected. If it is not possible to schedule construction during this time, Mitigation Measures 4.7-8c and 4.7-8d of the TRRP Master EIR will be implemented.	TRRP Master EIR (4.7-8a) SRGO PEIR (BIRD-01)
AGBE-3	Construction will be scheduled to avoid the nesting season for eagles and American goshawks to the extent feasible. The nesting season for most raptors in Trinity County extends from January 1 through July 31. Thus, if construction can be scheduled to occur between August 1 and December 31, the nesting season will be avoided and no impacts to nesting eagles and American goshawks would be expected. If it is not possible to schedule construction during this Mitigation Measures 4.7-8c and 4.7-8d of the TRRP Master EIR will be implemented.	TRRP Master EIR (4.7-8b) SRGO PEIR (BIRD-02)
AGBE-4	Pre-construction surveys for nesting northern goshawks will be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the biologist will inspect all trees immediately adjacent to the impact areas for eagle and northern goshawk nests. If an active nest is found close enough (i.e., within 500 feet) to the construction area to be disturbed by these activities, the biologist, in consultation with the CDFW, will determine the extent of a construction-free buffer zone to be established around the nest.	TRRP Master EIR (4.7-8c) SRGO PEIR (SPM-01; BIRD-05)

¹³ USFWS (U.S Fish and Wildlife Service). 2012. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Northern Spotted Owl Final Rule (77 FR 71876). Available online at: <https://www.fws.gov/federal-register-document/revised-designation-critical-habitatnorthern-spotted-owl-1>.

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AGBE-5	If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) within 0.25 miles of a known eagle nest 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 construction-related impacts.	TRRP Master EIR (4.7-8d) SRGO PEIR (BIRD-02)
Bats		
BAT-1	Surveys would be conducted of crevices in caves, mines, and abandoned wooden bridges and buildings for the presence of roosting bats.	STNF LRMP (1995) SRGO PEIR (MAM-01)
BAT-2	No noise-generating or habitat-modification activities (including timber harvest) will take place within 250 feet from caves, mines and mine adits to protect known or potential sensitive bat species (Townsend’s big-eared bat, pallid bat, and fringed myotis) roost sites. Activities necessary to address safety threats (e.g. hazard trees to the road or operations) will prevail over this measure.	STNF LRMP (1995) SRGO PEIR (SPM-06)
BAT-3	Options for conducting burning around caves/mines could include the following: <ul style="list-style-type: none"> • Limit burning to outside the breeding season (do not burn March 1 through August 31); or • Burn under prevailing wind conditions that disperse smoke away from cave/mine entrances. 	STNF LRMP (1995)
BAT-4	A pre-construction survey for roosting bats will be conducted prior to the start of construction activities. The survey will be conducted by a qualified biologist. No activities that would result in disturbance to active roosts of special-status bats will proceed prior to completion of the surveys. If no active roosts 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, Mitigation Measures 4.7-9b and/or 4.7-9c of the TRRP Master EIR will be implemented. CDFW will also be notified of any active bat nurseries within the disturbance zones.	TRRP Master EIR (4.7-9a) SRGO PEIR (MAM-01)
BAT-5	If an active maternity roost or hibernaculum is found, the project will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the project 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 (as determined by a Memorandum of Understanding with CDFW), 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 the darker hours.	TRRP Master EIR (4.7-9b) SRGO PEIR (MAM-02)
Pacific/American Marten, Ringtail, and Fisher (MRF)		

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MRF-1	A pre-construction survey for ring-tailed cats will be conducted prior to the start of construction activities. The survey will be conducted by a qualified biologist. No activities that would result in disturbance to active dens of ring-tailed cats will proceed prior to completion of the surveys. If no active dens are found, no further action is needed. If a ring-tailed den is present, Mitigation Measures 4.7-9b and/or 4.7-9c of the TRRP Master EIR will be implemented. CDFW will also be notified of any active bat nurseries within the disturbance zones.	TRRP Master EIR (4.7-9a) SRGO PEIR (MAM-01)
MRF-2	If an active ringtail nest is found, the project will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that 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, the individuals will be safely evicted under the direction of a qualified biologist. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ringtails to escape during the darker hours.	TRRP Master EIR (4.7-9c) SRGO PEIR (MAM-02)
Northwestern Pond Turtle (WPT)		
WPT-1 Habitat Avoidance	<p>A Qualified Biologist will survey and flag the work area for suitable overwintering habitat (e.g. leaf litter layer under trees and shrubs) or nesting habitat to avoid. Any flagging used must be removed after work is completed. Project personnel will be advised to avoid disturbance in these areas unless site-specific conservation measures allow work to be conducted in these areas to minimize or avoid disturbance.</p> <p>To the extent feasible, logs or rocks will not be moved or otherwise disturbed to avoid impacts to turtles utilizing these objects as cover. If such features must be moved, the biologist will visually inspect these features prior to and during moving to ensure turtles are not present. The biologist will also ensure any work materials do not create dispersal barriers to pond turtle. If a pond turtle is found in the work area during construction, work will stop until the individual(s) leave the area on their own volition. Workers should be vigilant to avoid turtles on roadways and be made aware of the potential for hatchling dispersal. Workers must also visually check for turtles (particularly hatchlings) under vehicles and equipment prior to moving them and allow the turtles to leave the area on their own volition before moving vehicles or equipment. Vehicles should stay on designated roads where feasible and if overland travel is needed in suitable habitat where there is a possibility of dispersing hatchlings, a monitor may be required.</p>	2025 Reinitiated USFWS Statewide Restoration BiOp

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<p>WPT-2 Visual Encounter Surveys</p>	<p>Before construction activities occur, a Qualified Biologist will search all suitable aquatic habitat in the project area a minimum of three times during appropriate weather conditions (e.g. sunny periods between 8am to 12pm, and from 3pm until an hour before dusk; air temperatures 55.0-90.0 degrees Fahrenheit; wind speeds less than 12.0 mph). Surveys will occur when western pond turtles are most likely to be detected in aquatic habitat:</p> <ul style="list-style-type: none"> • For the northwestern pond turtle, the highest probability of detection is from April 1 to September 30 (May 1 to August 31 at elevations above 3,500 feet). If work will occur outside of this window, a Qualified Biologist will also search upland habitat between October 1 and March 31 (September 1 to April 30 at elevations above 3,500 feet). <p>In areas where western pond turtles are known to occur or could be present, follow current guidance for visual encounter surveys in the Visual Encounter Survey Protocol for Western Pond Turtles developed by the Oregon Native Turtle Working Group (ODFW 2020). If surveys are not conducted or do not follow USFWS-approved methods, assume western pond turtles are present in suitable aquatic and upland habitat. Inquire with local USFWS Field Office on western pond turtle data records and if surveys have been completed in the project area.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>

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<p>WPT-3 Work Windows</p>	<p>For project areas where the northwestern pond turtle are known or assumed to occur, avoid work during the following windows:</p> <ul style="list-style-type: none"> • For project activities that involve in-water/dewatering work, work will be avoided from October 1 to March 31. • For project activities within 500 meters (1604.4 feet) of suitable nesting habitat (i.e. sunny, open grasslands and ruderal habitat or bare soil), avoid disturbing nesting adult females from May 15 to July 31 for the northwestern pond turtle (except May 1 to July 31 in the San Joaquin Valley) unless wildlife exclusion fencing has been installed around all suitable nesting habitat within the proposed project footprint prior to the start of the nesting season (i.e., prior to May 15 for the northwestern pond turtle (except prior to May 1 in the San Joaquin Valley)). • For project activities in overwintering habitat (e.g. muddy pond bottoms), work will be avoided from October 1 to March 31 (September 1 to April 30 above 3,500 feet elevation) unless wildlife exclusion fencing has been installed around all suitable overwintering habitat within the proposed project footprint prior to the start of the overwintering season (i.e., prior to October 1 at elevations < 3,500 feet and prior to September 1 at elevations >3,500 feet). Alternatively, if installation of wildlife exclusion fencing around all overwintering habitat is not feasible, then all suitable overwintering cover (e.g. leaf litter layer, woody debris) will be removed from the project footprint before overwintering begins (i.e., prior to October 1 at elevations < 3,500 feet and prior to September 1 at elevations >3,500 feet), and will be maintained daily free of suitable overwintering cover. A qualified biologist will also search all mammal burrows for overwintering western pond turtles and move them out of harm’s way. The qualified biologist then may collapse the burrows to prevent their usage by overwintering western pond turtles. • For project activities in aestivation habitat (e.g., upland habitat (e.g. leaf litter) within 500 meters (1,640.4 feet) of suitable aquatic habitat), work will be avoided when nearby seasonal aquatic habitat is dry unless wildlife exclusion fencing has been installed around all suitable aestivation habitat within the proposed project footprint before nearby seasonal aquatic habitats dry up. <p>Work windows may be modified via completion of the ESA Section 7(a)(2) Review Form and local Field Office approval.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>

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<p>WPT-4 Environmentally Sensitive Areas and Wildlife Exclusion</p>	<p>Fencing and/or monitoring will be used to protect western pond turtles and will be implemented in coordination with a Qualified Biologist. If the project site is suitable for fencing, the USFWS requires an Exclusion Fencing Plan, and a Qualified Biologist will determine where environmentally sensitive area fencing (ESAF) will be installed to protect western pond turtle habitat adjacent to the proposed project footprint.</p> <p>If complete exclusion of the project disturbance footprint with Wildlife Exclusion Fencing (WEF) is not feasible in the project area, projects may consider directional fencing (fencing that is meant to guide the movement of western pond turtles safely around a work area) to discourage western pond turtles from entering the project area from suitable habitat, or fencing off only portions of the larger project area as they are being actively worked on. The local USFWS Field Office may be contacted for technical assistance on excluding western pond turtles from a project area where complete exclusion fencing is not feasible.</p> <p>WEF must be opaque, non-climbable material, at least 2.0 feet (0.6 meters) high, have one-way exit funnels away from the work area, and contoured such that western pond turtles are unable to climb over the fence. WEF will include coverboards spaced every 50 to 100 feet on either side to provide cover to western pond turtles that encounter the fence. If WEF is found to be compromised, a Qualified Biologist will conduct a survey immediately preceding construction activity that occurs in western pond turtle habitat, or in advance of any activity that may affect other species. The Qualified Biologist will search along WEF and in pipes, culverts, and beneath equipment (e.g., vehicles or heavy equipment) before they are moved. Monitoring can be conducted in lieu of WEF at sites where installation is not practicable.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>

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<p>WPT-5 Capture and Relocation</p>	<p>Western pond turtles will only be captured and relocated when it is the only option to prevent injury or mortality, and after all attempts to avoid interaction with the species have been used. If necessary to avoid injury or mortality, relocation of western pond turtles will be conducted by a Qualified Biologist in accordance with the requirements of <i>REP-6, Species Handling and Relocation</i> in the 2022 Statewide BiOp. Western pond turtle relocation will be conducted as described in a USFWS-approved reptile relocation plan submitted by the Project Proponent to the local USFWS Field Office concurrently with the ESA Section 7(a)(2) Review Form or at least 60 days before construction. Early submission facilitates timely USFWS review and approval and helps avoid project delays.</p> <ul style="list-style-type: none"> • Avoid and minimize transfer of diseases (e.g. turtle-shell disease, respiratory disease). The Qualified Biologist will wear disposable nonlatex or rubber gloves when handling individual turtles to inhibit transmission of disease. Any suspected observations of disease such as respiratory or turtle-shell disease in western pond turtles or any other species of turtle at the project site will be reported to the USFWS within 24 hours and before relocating any western pond turtle. If any western pond turtle or other turtle species in the project site test positive or are suspected of turtle-shell disease, then all turtles at the project site will be considered to be potentially infected. All equipment and clothing will be decontaminated and dried completely prior to and after use at an aquatic project site to prevent disease transmission between water bodies. • Western pond turtles will be released within a few hours of capture. Individuals will be kept in containers with high sides, such as 5-gallon (18.9 liter) plastic buckets or 10-gallon (37.9 liter) storage tubs. Place a lid or piece of cloth over the top to darken the container. Keep captured western pond turtles out of direct sunlight because overheating is possible in a short time. • The Qualified Biologist will capture and relocate the western pond turtle the shortest distance possible to a location that contains similar suitable habitat and that will not be affected by activities associated with the project. No western pond turtles will be relocated more than 500 meters or to a different watershed to prevent disorientation and the spread of diseases. • If a western pond turtle found in upland habitat is suspected of traveling to an overwintering/aestivation or nesting site and voids its bladder upon handling, then the western pond turtle will be returned to aquatic habitat. • Nesting or gravid female western pond turtles will be avoided to the greatest extent practicable. If an adult female western pond turtle is gravid or post-nesting, the Qualified Biologist will determine if she will be relocated to suitable undisturbed nesting habitat or suitable aquatic habitat outside of the work area. All possible precautions will be taken to allow her to continue to nest and to avoid nest failure. <p>Refer to the 2024 Northwestern Pond Turtle Avoidance and Minimization Measures in Appendix A of the Wildlife Technical Report (Appendix L) for more details on relocation of western pond turtles.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>
<p>WPT-6 No Net Loss of Basking Habitat</p>	<p>Maintain existing basking structures (e.g. logs, rocks, shorelines, emergent vegetation, algal mats, and substrate adjacent to aquatic habitat whenever possible. Avoid planting trees and shrubs that would shade suitable basking habitat and maintain an open riparian canopy to allow sufficient solar exposure for basking. Install basking structures as necessary for any basking habitat that is removed.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp</p>

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WPT-7 Avoid Excessively Shading Nesting Habitat	Avoid planting trees and shrubs that would shade suitable nesting habitat if nesting habitat is limited near the project area.	2025 Reinitiated USFWS Statewide Restoration BiOp
Foothill Yellow-Legged Frog (FYLF) & Amphibians (AMP)		
FYLF-1 Work Windows ¹⁴	<p>For projects where the Sierra Nevada yellow-legged frog, mountain yellow-legged frog, and foothill yellow-legged frog are known or assumed to occur, project activities in uplands areas will be confined to August 1 through October 31.</p> <p>For project activities in occupied aquatic breeding habitat that typically dries before the end of autumn, grading and other disturbance will be confined to May 1 through November 15, and to when the breeding habitat feature (or portion of the feature where work would occur) has been dry for a minimum of 30 days before initiating work.</p> <p>These frogs have a multi-year larval development stage and are present in aquatic breeding habitat year-round. Therefore, project activities in occupied aquatic breeding habitat that does not dry before the end of autumn will be confined to May 1 through November 15 and will require a USFWS-Approved capture and relocation plan (see AMP-11, Species Observations and Handling Protocol) prior to initiating grading and other disturbance in the aquatic breeding habitat. Dewatering sites will be located and timed to avoid and minimize adverse effects to instream flows and depletion of pool habitat.</p>	2025 USFWS Statewide Restoration BiOp
FYLF-2 Water Temperature ¹⁴	Project activities will not result in long-term deleterious changes to water temperatures in occupied or potential habitat.	2025 USFWS Statewide Restoration BiOp
FYLF-3 Borrow Site Sediment Control ¹⁴	Any borrow sites used will be developed so that the topsoil is removed and piled at the base of the slope to act as a berm catching any sediment that may be transported down slope. For most of the period during borrow, the slope will have a low basin at the base of the borrow area that can be substituted as a sediment pond (if needed) during a storm event. If applicable, all remaining spoils not used during construction will be hauled off-site and deposited in stable areas once construction is complete.	2025 USFWS Statewide Restoration BiOp
FYLF-4	If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for yellow-legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey would need to 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.	TRRP Master EIR (4.7-5a)
FYLF-5	In the event that a yellow-legged frog individuals, larvae, or nests are observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until the species has been moved to a safe location with suitable habitat outside of the construction limits.	TRRP Master EIR (4.7-5b)

¹⁴ CM would only apply to site-specific projects if FYLF were to become an ESA-listed species, triggering the need for coverage under the 2025 USFWS Statewide Restoration BiOp.

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FYLF-6	Mitigation measures presented in Section 4.5 of the TRRP Master EIR (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential long-term impacts to dispersal habitat for the yellow-legged frog due to sedimentation and accidental spills.	TRRP Master EIR (4.7-5c)
FLYF-7	The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c of the TRRP Master EIR) will be fully implemented.	TRRP Master EIR (4.7-5d)
AMP-1 Rain Event Limitations	To the maximum extent practicable, construction activities will be restricted to periods of low rainfall (less than 0.5 inch per 24-hour period) and periods of dry weather (with less than a 50% chance of rain). During these restricted periods, no construction activities will occur between 30 minutes prior to sunset and 30 minutes after sunrise (no night work during rain events). If rain exceeds 0.5 inch during a 24-hour period, work will cease until no further rain is forecast. Construction activities halted due to precipitation may resume when precipitation ceases and the National Weather Service 72-hour weather forecast indicates less than a 50% chance of 0.5 inch of rain or less during a 24-hour period. Before construction activities resume, a Qualified Biologist will inspect the project area and all equipment/materials for the presence of Covered Species of amphibians.	2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-2) SRGO PEIR (AMP-2)
AMP-2 Preconstruction Survey	If covered amphibians are present or assumed present, no more than 24 hours prior to the date of initial ground disturbance and vegetation clearing, a USFWS-Approved Biologist will walk in the project site to investigate all potential areas that could be used by the Covered Species of amphibians for feeding, breeding, sheltering, movement, and other essential behaviors. If a covered amphibian species is encountered during the survey, the Project Proponent will refer to and follow procedures described below in AMP-9, Encounters with Species; and AMP-10, Species Observations and Handling Protocol, for passively allowing the species to move out of the work area or actively relocating the species out of harm's way. Proposed restoration projects that may need to actively relocate amphibians out of harm's way will require the Project Proponent to submit a project specific species relocation plan for USFWS review and approval, as described in AMP-10.	2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-3) SRGO PEIR (AMP-3)
AMP-3 Disease Prevention and Decontamination	To prevent disease conveyance among work sites during project implementation, the USFWS-Approved Biologist will ensure that the decontamination protocols described in CDFW, Aquatic Invasive Species Disinfection/Decontamination Protocols ¹⁵ (or latest version) will be implemented prior to gear and equipment arriving at or moving between work sites and will be followed at all times. A copy of the code of practice must be available at the project site.	2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-4) SRGO PEIR (AMP-4)

¹⁵ CDFW (California Department of Fish and Wildlife). 2016. California Department of Fish and Wildlife, Aquatic Invasive Species Disinfection/Decontamination Protocols. February. Available online at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92821&inline>. Accessed August 2019.

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Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
AMP-4 Clearing and Grubbing Vegetation	A USFWS-Approved Biologist will be present during all vegetation clearing and grubbing activities in areas within the currently occupied range of Covered Species of amphibians where suitable habitat is present. Before vegetation removal, the USFWS-Approved Biologist will thoroughly survey the area for these species (see AMP-3, Preconstruction Survey). Either vegetation in sensitive areas will be cleared with handheld motorized tools (e.g., weed eaters or chainsaws) or by hand pulling; or a USFWS-Approved Biologist will walk in front of vegetation-clearing equipment. Where dense brush occurs (e.g., blackberry or periwinkle), the USFWS-Approved Biologist may direct an equipment operator to lift and shake dense vegetation with an excavator or backhoe so that the USFWS Approved Biologist can look underneath and search for amphibians. Tree stumps and roots will be left in place to avoid any ground disturbance and preserve refugia habitat, with the exception of nonnative invasive plants that could propagate from remaining vegetative material. Native branches, leaf litter, mulch, woody debris, and other vegetative trimmings may be retained and spread on site to enhance habitat, as appropriate.	2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-6) SRGO PEIR (AMP-6)
AMP-5 Pump Screens	If a waterbody is to be temporarily dewatered by pumping, intakes will be completely screened, consistent with NMFS and CDFW screening guidelines ¹⁶ or latest updates to those guidelines (currently, where fry-sized salmonids are present, wire mesh openings no larger than 3/32 inch [2.38 mm] for woven wire or perforated plate screens, or 0.0689 inch [1.75 mm] for profile wire screens, and other relevant criteria such as limited approach velocities), to avoid entrainment or impingement of larval amphibians. The intake will be placed in a perforated bucket or another method to attenuate suction, to prevent Covered Species of amphibians from entering the pump system. Water will be returned to the water body when diversions or cofferdams are removed and flow is restored. If no diversion or cofferdams are used during dewatering, the waterbody will be allowed to refill naturally from precipitation, runoff, or hydrological processes.	2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-7) SRGO PEIR (AMP-7)

¹⁶ NMFS (National Marine Fisheries Service). 1997. Fish Screening Criteria for Anadromous Salmonids. National Marine Fisheries Service. Southwest Region. January 1997. 12 pp. and CDFW (California Department of Fish and Wildlife). 2001. Fish Screening Criteria. Available online at: http://www.fgc.ca.gov/regulations/2008/749_3EXHIBIT%20A.pdf.

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Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
<p>AMP-6 Removal of Nonnative Invasive Species</p>	<p>Removal of any individuals of nonnative invasive species (e.g., bullfrogs, nonnative crayfish, or nonnative fishes) is encouraged as practicable to facilitate conditions for project success. The Project Proponent is responsible for ensuring that these activities comply with the California Fish and Wildlife Code. Suspected hybrid California tiger salamander will not be removed without specific authorization from USFWS (and CDFW, in accordance with their requirements). More details on nonnative animal removal are provided below.</p> <ol style="list-style-type: none"> 1. In federally-listed aquatic species occupied habitat, a USFWS-Approved Biologist will be present during removal activities. Less experienced personnel assisting with removal efforts will get confirmation of species identification of all vertebrates prior to collection and removal. 2. All individuals participating in removal activities will have training in identification of Covered Species that might be present and nonnative species proposed for removal and proper techniques for all planned removal methods prior to the initiation of removal activities. 3. Crew size, along with the amount of time spent in any given habitat area, will be kept to the minimum necessary. Repeated disturbance of any given area within a single year will be avoided unless necessary for eradication purposes. 4. To the extent feasible, both native and nonnative fauna will be examined for signs of diseases or parasites soon after capture, and any abnormalities will be photographed and documented. 5. Prior to initiation of electrofishing activities in Covered Species habitat, the names and credentials of all electrofishing crew leaders will be submitted for review and approval by USFWS. 6. The USFWS-approved electrofishing crew leader will provide training to the crew regarding potential risks associated with electrofishing and injury to Covered Species. The crew will also be trained to identify signs of injury and appropriate response. 7. Electrofishing will be conducted using the minimum pulse rate and width that is effective. Only direct or pulsed direct current will be used. In shallow waters, undercut banks, near algal mats or other areas where Covered Species can be concentrated or are more likely to come into close contact with electrofishing equipment, the amount of time spent electrofishing will be minimized. 8. If any Covered Species are immobilized by electrofishing activities, they will be carefully removed from the water body by a USFWS-Approved Biologist until activities are completed. These individuals will be held for the minimum amount of time necessary and monitored until they are completely mobile and then returned to the point of capture. 9. Handling of individuals (e.g., arroyo toad, California red-legged frog) may occur if they are inadvertently collected by net or trap, in accordance with procedures for handling in AMP-11 and FISH-3 of the Statewide BiOp. These individuals will be released at the place of capture or will be relocated to the nearest available suitable habitat. 10. Gill nets will be used upstream and downstream of occupied stream stretches, but not in stream stretches where Covered Species might occur. Where gill nets are used, they will not be left unattended overnight 11. If traps are used, they will be carefully monitored to minimize the potential for injury and mortality of nontarget species. Fish traps will be used under the following conditions: (a) fish traps will be checked a minimum of once a day; (b) fish traps will be set so that air will be available at the top of the trap; and (c) if predator tracks adjacent to or signs of predator tampering with fish traps occur, these traps will be closed for a period of time until predator activity is no longer detected. 	<p>2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-8)</p> <p>SRGO PEIR (AMP-8)</p>

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<p>AMP-7 Placement of Suitable Erosion Control Material</p>	<p>To prevent amphibians from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting will not be used. Silt fencing can be used because it is not considered a netting and does not entangle species. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine, or other similar fibers. Following site restoration, erosion control materials such as straw wattles will not block the movement of Covered Species of amphibians.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-9)</p> <p>SRGO PEIR (AMP-9)</p>
<p>AMP-8 Encounters with Species</p>	<p>Each encounter with a covered amphibian will be treated on a case-by-case basis. If any life stage of the Covered Species of amphibian is found and these individuals may potentially be killed or injured by work activities, the following will apply:</p> <ul style="list-style-type: none"> a. If a Covered Species of amphibian is detected in the project area, work activities within 50 feet of the individual that may potentially be harmed, injured, or killed will cease immediately, and the USFWS-Approved Biologist will be notified. Based on the professional judgment of the USFWS-Approved Biologist, if project activities can be conducted without harming or injuring the species, it may be left at the location of discovery and monitored by the USFWS-Approved Biologist. All project personnel will be notified of the finding, and at no time will work occur within 50 feet of a species without a USFWS-Approved Biologist present. b. Contact with the Covered Species of amphibian will be avoided, and the amphibian will be allowed to move out of the potentially hazardous situation of its own volition. Allowing a Covered Species of amphibian to move out of the potentially hazardous situation of its own volition may not be appropriate for multi-day projects because covered amphibians could stay or move back into the project site. If there is an immediate hazard or if there is no suitable, accessible habitat nearby to which the amphibian may relocate, the amphibian will be moved following approved handling protocol (see AMP-11, Species Observations and Handling Protocol). c. Not to exceed the self-imposed take limits provided in Table 4 of the Statewide BiOp. 	<p>2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-10)</p> <p>SRGO PEIR (AMP-10)</p>

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Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
<p>AMP-9 Species Observations and Handling Protocol</p>	<p>The potential need to handle and relocate covered amphibian species should be evaluated during the technical assistance step. If a Covered Species of amphibian does not or cannot leave the work area and handling covered amphibians is required, capture and relocation will only be allowed in accordance with a plan developed in accordance with the guidance below and submitted to USFWS for review and approval. Although it could be submitted after the ESA Section 7(a)(2) Review Form, to avoid project delays and facilitate timely USFWS review and approval, a draft of the capture and relocation plan may be submitted with the ESA Section 7(a)(2) Review Form. The capture and relocation will be conducted by a USFWS-Approved Biologist. In addition to measures described in GPM-9 of the Statewide BiOp, Practices to Prevent Pathogen Contamination; and AMP-5, Clearing and Grubbing Vegetation¹⁷, to prevent the spread of pathogens among sites, special care should be taken to prevent transferring potential pathogens among individual animals, as described below.</p> <ul style="list-style-type: none"> a. Prior to handling and relocation, the USFWS-Approved Biologist will take precautions to prevent the introduction of amphibian diseases, in accordance with the Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander¹⁸. <ul style="list-style-type: none"> i. All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, should be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with water. Cleaned items should be rinsed with clean water before leaving the work area. ii. Boots, nets, traps, etc., should then be scrubbed with either a 70% ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6% sodium hypochlorite 3 solution and rinsed clean with water between study sites. Cleaning equipment in the immediate vicinity of a pond or wetland should be avoided. Care should be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat. iii. When working at sites with known or suspected disease problems, disposable gloves should be worn and changed between handling each animal. iv. Used cleaning materials (liquids, etc.) should be disposed of safely, and if necessary, taken back to the lab for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags. b. Disinfecting equipment and clothing is especially important when biologists are coming to the project area to handle amphibians after working in other aquatic habitats. Covered amphibians will also be handled and assessed according to the Restraint and Handling of Live Amphibians¹⁹. <p>Covered amphibians will be captured by hand, dip net, seine net, or other USFWS-Approved methodology, transported and relocated to nearby suitable habitat outside of the work area, and released as soon as practicable the same day of capture. Soaps, oils, creams, lotions, repellents, or solvents of any sort cannot be used on hands within two hours before and during periods when the biologist is capturing and relocating individuals. Individuals will be relocated to areas containing suitable habitat, as identified in the relocation plan. If the animal will be held in captivity for any length of time, they shall be kept in a cool, dark, moist environment with proper airflow, such as a clean and disinfected bucket or plastic container with a damp sponge. Holding/transporting containers will not contain any standing water, objects (except sponges), or chemicals. Holding/transporting containers and dip nets will be thoroughly cleaned, disinfected, and rinsed with fresh water prior to use in the project area²⁰. USFWS will be notified (e.g., via phone, email, or text message) as soon as practicable and no longer than 1 week after all capture, handling, and relocation efforts.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-11)</p> <p>SRGO PEIR (AMP-11)</p>

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Wildlife Conservation Measures	Procedures	Applicable regulation/guidance
<p>AMP-9 Species Observations and Handling Protocol (Continued)</p>	<p>If an injured covered amphibian is encountered, and the USFWS-Approved Biologist determines that the injury is minor or healing and the individual is likely to survive, the individual will be released immediately, consistent with measures above. The individual(s) will be monitored until it is not imperiled by predators or other dangers.</p> <p>If the USFWS-Approved Biologist determines that a covered amphibian has major or serious injuries as a result of project-related activities, the USFWS-Approved Biologist will take it to a USFWS-Approved facility as soon as practicable, if such a facility is within a reasonable distance from the project site. If taken into captivity, the individual will remain in captivity and not be released into the wild unless it has been kept in quarantine and the release is authorized by USFWS. The circumstances of the injury, the procedure followed, and the final disposition of the injured animal will be documented in a written incident report to USFWS, as described below.</p> <p>Notification to USFWS of an injured or dead covered amphibian in the project area will be made and reported, whether or not its condition resulted from project-related activities. In addition, the USFWS-Approved Biologist or Project Proponent will follow up with USFWS in writing (e.g., email) within 2 calendar days of the finding. Written notification to USFWS will include the following information: the species; number of animals taken or injured; sex (if known); date, time, and location of the incident or of the finding of a dead or injured animal; how the individual was taken; photographs of the specific animal; the names of the persons who observe the take and/or found the animal; and any other pertinent information. Dead specimens will be preserved, as appropriate, and will be bagged and labeled (i.e., species type; who found or reported the incident; when the report was made; when and where the incident occurred; and, if possible, the cause of death). Specimens will be held in a secure location until instructions are received from USFWS regarding the disposition of the specimen.</p>	<p>2025 Reinitiated USFWS Statewide Restoration BiOp (AMP-11)</p> <p>SRGO PEIR (AMP-11)</p>
<p>Invertebrates (INV)</p>		
<p>INV-1</p>	<p>Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees on-site when needed to meet coarse woody debris objectives.</p>	<p>TRRP Master EIR (RA-2)</p>

¹⁷ CDFW (California Department of Fish and Wildlife). 2016. California Department of Fish and Wildlife, Aquatic Invasive Species Disinfection/Decontamination Protocols. February. Available online at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92821&inline>. Accessed August 2019.

¹⁸ USFWS (U.S. Fish and Wildlife Service). 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. Available online at: <https://www.fws.gov/media/interim-guidance-site-assessment-and-field-surveysdetermining-presence-or-negative-finding>.

¹⁹ USGS (United States Geological Survey). 2001. Guidelines for Use of Live Amphibians and Reptiles in Field and Laboratory Research. Second Edition, Revised by the Herpetological Animal Care and Use Committee (HACC) of the American Society of Ichthyologists and Herpetologists, 2004. (Committee Chair: Steven J., Beaupre, Members: Elliott R. Jacobson, Harvey B. Lillywhite, and Kelly Zamudio).

²⁰ CDFW (California Department of Fish and Wildlife). 2016. California Department of Fish and Wildlife, Aquatic Invasive Species Disinfection/Decontamination Protocols. February. Available online at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92821&inline>. Accessed August 2019.

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INV-2	Prior to the start of construction activities, project proponents 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, the project proponent 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. They will inspect and maintain marked areas on a regular basis throughout the construction phase.	TRRP Master EIR (4.7-1a)
INV-3 Implement Butterfly and Bumble Bee Protection Measures	<p>The following general butterfly and bumble bee protection measures apply to all special-status butterfly and bumble bee species and their habitat, as applicable.</p> <ul style="list-style-type: none"> • Site Restrictions: Access routes, staging areas, and total project footprint within butterfly or bumble bee habitat will be limited to the minimum necessary to achieve the project goal. • Biological Monitor: Biological monitoring will be overseen by an agency-approved biologist. During the adult flight season of special-status butterfly and/or bumble bee species, an agency-approved biologist will be present when construction activities occur in or within 150 feet of suitable habitat (dispersal habitat as well as areas containing the larval host plant and adult food plants). • Environmentally Sensitive Areas: Any larval food or host plants found within 300 feet of the project footprint will be clearly marked and will be avoided to the maximum extent practicable. Prior to any ground-disturbing or vegetation removal activities, the edge of the work area near any larval food or host plants will be clearly marked to prevent workers and vehicles from entering this area. • Dust Control: The agency-approved biologist will ensure that dust is controlled by construction personnel by periodically watering down areas within 100 feet of special-status butterfly and/or bumble bee habitat, as necessary. Watering down the construction area will prevent dirt from becoming airborne and accumulating on larval host plants and adult food source plants for special-status butterflies and/or bumble bees. 	SRGO PEIR (INVERT-04)

Table 3-6. Cultural, Land Use, Noise, and Recreation Resources

Cultural, Land Use, Visual, Recreation, and Noise Conservation Measures	Procedures	Applicable regulation, guidance, & BMPs
Cultural (CR)		
CR-1 Compliance with Section 106 of the National Historic Preservation Act (NHPA) must be completed for all site-specific projects under the EA. Compliance will also occur in consideration of other federal laws and regulations such as the Archaeological Resources Protection Act (ARPA).	The extent of cultural resource field inventory, tribal consultation, cultural resource evaluation, and CMs undertaken related to this compliance will be determined by the lead federal agency archeologist.	NHPA, ARPA, Native American Graves Protection and Repatriation Act, EO11593, American Indian Religious Freedom Act, etc.
CR-2 CMs will be designed to avoid or minimize adverse effects to cultural resources listed on or eligible (or potentially eligible) for listing on the	The CMs will be based on results of the cultural resource compliance study and will be approved the lead federal agency manager after	NHPA and others as listed above

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National Register of Historic Places (NRHP) including districts, sites, objects, structures, and buildings, as well as cultural resources that are traditional cultural significance to Native American Indian Tribes (i.e., traditional cultural places).	consultation with his or her archeologist(s) and incorporated into Section 106 and NEPA compliance documentation.	
CR-3 The lead federal agency archeologist will define the site-specific project's Area of Potential Effects (APE) in consultation with the implementor and in accordance with agency policy and covering laws and regulations.	The APE will include, but will not be limited to, areas where the site-specific project could cause construction-related effects, particularly as a result of ground-disturbing activities, to cultural resources (i.e., disturbance areas, staging areas, material storage, temporary roads, etc.).	NHPA and others as listed above
CR-4 Determine through interdisciplinary review if the timing of the project at a specific location may impact Tribal cultural practices, recreational uses or other resource areas.	Adjust project timing to avoid impacts.	NHPA and others as listed above as well as laws and regulations pertaining to other resource areas
CR-5 At the request of the lead federal agency archeologist, cultural resources within the APE will be monitored by an archaeologist and/or Tribal monitor (where Tribal-related resources are present) approved by the affected agency or agencies during and after project implementation.	Not applicable.	NHPA and others as listed above
CR-6 Cultural resource flagging and fencing will be used to avoid and mitigate effects to site specific cultural resources. Other measures may be determined by the cultural resource specialist(s) in consultation with various parties such as Tribes, operators, SHPO, etc.	Procedures include flagging, fencing, capping, avoidance (including modifications to the site-specific project design), monitoring, type of equipment employed (e.g., rubber tires), season of work, pre-work conferencing, etc.	NHPA and others as listed above (Federal Land Policy and Management Act specific to BLM)
CR-7 Prior to ground-disturbing activities, all workers will be alerted to the possibility of discovering undocumented cultural resources. This includes prehistoric and/or historic resources.	Personnel will be instructed that upon discovery of buried or undocumented cultural resources, work within 50 feet of the find will be halted and the designated archaeologists for Reclamation and the respective land management agency will be consulted. Once the find has been identified, Reclamation, in coordination with the respective land management agency, will be responsible for developing and authorizing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the PA and in compliance with the NHPA and other pertinent laws and regulations	NHPA and others as listed above

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<p>CR-8 Federal law and regulations as well as California state law require that all human remains discovered are to be treated with respect and dignity.</p>	<p>Federal and Tribal Lands:</p> <p>In the event that suspected human remains are discovered during proposed project activity on Federal land, all activities in a 50-foot radius of the discovery will cease, and appropriate precautions will be taken to protect the remains and any associated cultural items from further disturbance. Under the Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 3001) and implementing regulations 43 CFR Part 10, the Federal agency is responsible for the protection of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that are discovered on Federally owned lands. All human remains and potential human remains must be treated with respect and dignity at all times. The Federal agency with jurisdictional authority (Reclamation, US Forest Service, or the Bureau of Land Management) will follow the procedures outlined in 43 CFR § 10.4 Inadvertent Discoveries. The Federal agency with jurisdictional authority will be immediately notified by telephone and will take responsibility for the discovery by contacting the appropriate law enforcement and agency officials. Within three (3) working days of confirmation of the discovery [see 43 CFR Part 10.4(d)(1)(iii)], the jurisdictional agency will ensure that Indian tribes likely to be affiliated with the discovered human remains (e.g., lineal descendant, culturally affiliated Indian tribe, Indian tribe with other cultural relationship, and Indian tribe that aboriginally occupied area) are notified by telephone or in person, with written confirmation. Treatment and handling of the remains will be determined through consultation between the jurisdictional agency and consulting tribes. Upon discovery of human remains on Federal land, please contact the appropriate agency contact below (Federal Agency Contacts).</p> <p>Non-Federal Lands:</p> <p>In the event that suspected human remains are discovered during proposed project activity on non-Federal land, all activities in a 50-foot radius of the discovery will cease, and appropriate precautions will be taken to protect the remains and any associated cultural items from further disturbance. There are numerous California State laws and codes that direct the preservation of prehistoric and historic cultural resources, establish the procedures for protecting inadvertently discovered Native American human remains, and impose penalties and punishments for persons acting in violation of the legal code.</p>	<p>Archaeological Resources Protection Act (ARPA) 16 USC 470 & 43 CFR 7; Native American Graves Protection & Repatriation Act (NAGPRA) 25 USC 3001 & 43 CFR 10; Public Lands, Interior 43 CFR 8365.1-7; California Health & Safety Code 7050.5, Dead Bodies; and California Public Resources Code 5097.98, Notification of Discovery of Native American Human Remains</p>

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	<p>Specifically, Section 7050.5 of the California Health and Safety Code deals with the discovery of human remains in any location other than a dedicated cemetery, and directs that in such cases the coroner of the county in which the remains are discovered be contacted and further excavation or disturbance in the location of discovery be discontinued until the coroner has examined the remains and made recommendations concerning their treatment and disposition. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, the coroner is required to contact the California Native American Heritage Commission (NAHC), by telephone, within 24 hours. Stipulations encouraging private landowners to work with the NAHC and the most likely descendant identified by the NAHC to establish and carry out appropriate treatment of the remains are established in Section 5097.98 of the California Public Resources Code. Upon discovery of human remains on non-Federal land, please contact the appropriate lead Federal agency contact below (Federal Agency Contacts).</p> <p>Federal Agency Contacts:</p> <p>Reclamation: Mr. Scott Williams, Regional Cultural Resources Officer, will be notified immediately at (916) 978-5042 and Dr. Melanie Ryan, Reclamation Native American Graves Protection and Repatriation Act (NAGPRA) Specialist, will be notified immediately at (916) 978-5526 (office) or (916) 281 7743 (cell)</p> <p>USFS: Matthew Padilla, Heritage Program Manager, (530) 226-2339 (office), (530) 921-3335 (cell), matthew.j.padilla@usda.gov</p> <p>BLM: BLM Redding Field Office Archaeologist, (530) 224-2100</p>	
Land Use (LU)		
<p>LU-1 Ensure proposed project does not impact existing rights-of-way or other land uses with prior existing rights.</p>	<p>During project design, federal agencies will confirm if there are existing rights-of-way or other land uses in the project area that could be affected by the project and notify holders of the project as needed. Impacts to existing rights-of-way or land uses will be designed or modified to avoid impacts.</p>	<p>43 CFR 2800 (BLM)</p>

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<p>LU-2 Issue rights-of-way or other land use rights to restoration projects where needed.</p>	<p>Federal agencies could consider issuing rights-of-way or other land use rights to restoration project proponents. The federal agencies will determine if a right-of-way or other land use right is appropriate and needed in order to protect restoration investments and facilitate orderly management of public lands in the future. Exact procedures for the right-of-way or other land use rights would be subject to agency specific guidance.</p>	
<p>LU-3 Wilderness and Wilderness Study Areas</p>	<p>Site-specific projects in wilderness and wilderness study areas would be limited in scope to avoid impacting the wilderness character. Each project in wilderness or wilderness study areas would coordinate with the lead federal agency for specifics about how to avoid impacts and this information would be incorporated into project designs and implemented during site-specific project construction.</p>	<p>BLM NCIP and MS 6330 - Management of Wilderness Study Areas</p>
<p>Visual (VIS)</p>		
<p>VIS-1 Ensure proposed project meets visual resource management objectives for the project area.</p>	<p>During project design, consider the visual resource management objectives for the project area and design or modify the project to accommodate those objectives. Considerations could include short term vs. long-term impacts, using screening vegetation, shifting project location, and modifying the color or form of human-made structures.</p>	<p>BLM Visual Resource Management Manual 8400</p>
<p>Recreation (REC)</p>		
<p>REC-1 Notification and signage will be used to provide information to the public about interruptions to access to recreation facilities, sites, and opportunities associated with site-specific restoration activities.</p>	<p>Where interruptions to recreation may occur as a result of a project, project implementers would be required prepare and post precautionary signage and public notifications 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 channel rehabilitation projects and has been particularly effective in reducing impacts on in-water recreational activities such as boating and fishing.</p>	<p>California Code of Regulations, Wild and Scenic River compliance</p>
<p>REC-2 Site-specific projects will be reviewed for potential interruptions and hazards to recreation access, opportunities or activities and develop site-specific prescriptions to minimize and reduce hazards or interruptions.</p>	<p>After construction is completed, the activity areas would be evaluated by the permit-issuing agency 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 in the project boundaries.</p>	
<p>REC-3 Recreation access and facilities affected by the implementation of restoration projects will be repaired to pre-construction conditions.</p>	<p>Implementers 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</p>	

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	<p>requirements of the BLM, USFS, or other property owner or manager. Pre-construction meetings between implementers and landowners/land managers will identify the amount of vegetative screening to be retained at each recreation site within the project area.</p>	
Noise (NOISE)		
<p>NOISE-1 Construction activities will be limited to occur during time windows when noise disturbance is least likely to affect nearby sensitive receptors.</p>	<p>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 from Reclamation, as needed.</p>	
<p>NOISE-2 Noise from construction equipment will be minimized.</p>	<p>All construction equipment will be equipped with the manufacturer’s specified noise muffling devices. Placement of all stationary noise-generating equipment will be 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).</p>	
<p>NOISE-3 Sensitive receptors will be provided project construction information.</p>	<p>Landowners, business owners, and stakeholders within 0.5 miles of the proposed project will be notified by letter prior to project construction about restoration project noise disturbances that may occur.</p>	