

Forest Aquatic Restoration Project NEPA Compliance and Implementation Checklist

Project Name

Project Number: 0410-2019 **Date:** 03/05/2019 **Location:** Sec. 34, T. 11 S., R. 35½ E.,

Category: Category 1: Fish Passage c) Irrigation Diversion Replacement/Relocation & Screen Installation/Replacement

Project Description: Relocate existing point of diversion and install appropriately sized headgate, water measuring device and fish screen on existing irrigation ditch on Wiwaanaytt Creek

Heritage (to be completed by heritage specialist)

Y N Initial
 AGD Specific PDC for Heritage addressed (Heritage Surveys; Avoidance areas).

Botany (to be completed by botany specialist)

Y N Initial
 JB Specific PDC for Botany addressed (Sensitive Plant Surveys). *Survey conducted 2017*
 JB Specific PDC for Nox. Weeds addressed. *Surveys conducted 2015*

Land Management Consistency (is the proposed project within the management area? Check yes or no. If yes, comments should indicate whether proposed actions are consistent with the standards for the management area.)

Y	N	Initial		Y	N	Initial	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>AG</u>	4A Big Game Winter range	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>AG</u>	9 Research Natural Areas
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>AG</u>	6A & 6B Wilderness	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>AG</u>	10 Semi-Primitive Non-Motorized Recreation Areas
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>AG</u>	7 Scenic Area	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>AG</u>	22/22A Wild and Scenic River
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>AG</u>	8 Special Interest Areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>AG</u>	Inventoried Roadless Areas

Comments:

Table 1. Projects Design Criteria and Forest Plan compliance checklist.

I have reviewed this project and have determined it is compliant with the Forest Plan and Aquatic EA Project Design Criteria identified for my resource.			
Resource	Signature	Date	Comments (additional PDCs may be noted if necessary)
Heritage	<i>[Signature]</i>	4/18/2019	NO EFFECT TO HISTORIC PROPERTIES
Botany	<i>[Signature]</i>	4/3/19	no known concerns in project area.
Invasive Plants	<i>[Signature]</i>	4/8/19	Follow PDCS; CIARY + CIWU nearby (will be treated 2019)
Wildlife	<i>[Signature]</i>	3/27/2019	no impacts to existing wildlife
Fish*	<i>[Signature]</i>	3/14/2019	Consistent with relevant PDCs for Fisheries
Hydrology*	<i>[Signature]</i>	3/14/19	consistent " " Hydrology
Range	<i>[Signature]</i>	3/19/19	no concerns
Soils	<i>[Signature]</i>	3/26	NELSON SAYS "EXISTING IMPACTS ARE GENERALLY MINOR"
Recreation	<i>[Signature]</i>	3/19/19	
Special Uses	<i>[Signature]</i>	3/20/19	See attached.
Lands	<i>[Signature]</i>	3/20/19	See attached.
Mining	<i>[Signature]</i>	4-2-19	No mining claims in project area.
Engineering	<i>[Signature]</i>	3/28/19	
Fuels / Fire	<i>[Signature]</i>	4/18/19	No concerns
Silviculture	<i>[Signature]</i>	4/1/19	No concerns

* Ensure that an experienced fisheries biologist or hydrologist is involved in the design of all projects covered by Aquatic Restoration Biological Opinion II. The experience should be commensurate with technical requirements of a project.

District Environmental Coordinator: *Renie Halliwell* Date: 4/24/19

Line Officer Signature: *[Signature]* Date: 4/19/19

Implementation Description

Marchbanks Diversion Relocation & Fish Screen Installation

Category 1: Fish Passage c) Irrigation Diversion Replacement/Relocation & Screen Installation/Replacement	Lead Preparer: Jeff Nelson
Applicant: Prairie City Aquatics	NEPA Reference: DN for Aquatic Restoration EA (http://www.fs.usda.gov/detailfull/malheur/landmanagement/?cid=STELPRD3817723&width=full)
Location: Sec. 34, T. 11 S., R. 35½ E., W.M. USGS Quad: Austin	Lease/Case File/ Serial #: N/A (Reference #): N/A
Begin Date: 03/05/2019	Due Date: 04/15/2019

Project Location

Wiwaanaytt Creek, together with Summit Creek, form the headwaters of the Middle Fork John Day River. Wiwaanaytt Creek contains approximately 5.9 miles of Mid-Columbia River steelhead critical habitat as designated by the National Marine Fisheries Service. The Marchbanks diversion is located on Wiwaanaytt Creek, approximately two miles upstream from the confluence of Summit Creek and Wiwaanaytt Creek (see map 1). T: Drive pathway for spatial data:

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Purpose and Need

The purpose of the Marchbanks Diversion Relocation & Fish Screen Installation project is to relocate the current point of diversion and install an appropriately sized headgate, water measuring device, and rotary fish screen to prevent entrainment of threatened Mid-Columbia River juvenile steelhead within the point of diversion on Wiwaanaytt Creek (see figure 1). There is a need for this project because the current point of diversion lacks a water measuring device and adequate screening to prevent threatened Mid-Columbia River Steelhead and redband trout entrapment within the diversion and ditch as evidenced by figures 1 through 3.



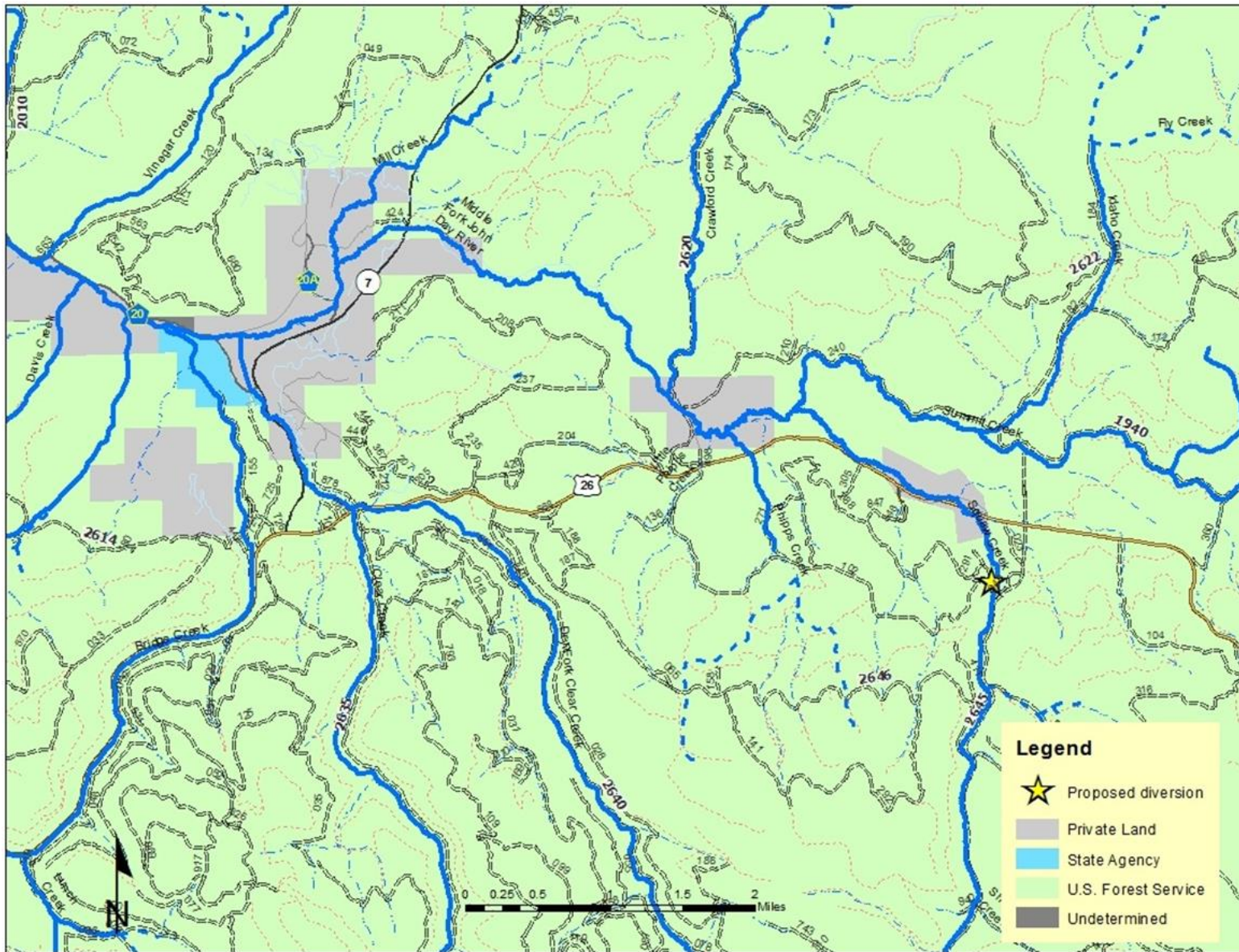
Figure 1. Facing downstream at current point of diversion. Existing ditch is identified with red arrow.



Figure 2. From Wiwaanaytt Creek, facing existing ditchline.



Figure 3. Facing upstream at current point of diversion, existing ditch is identified with red arrow.



Map 1. General location of proposed Marchbanks diversion relocation

Land Use Plan Conformance

The project falls under Management Area (MA) 3B Anadromous Riparian Areas of the 1990 Malheur National Forest Land and Resource Management Plan, as amended. The goal of MA 3B is to “Manage riparian areas to protect and enhance their value for wildlife, anadromous fish habitat and water quality... Design and conduct management in all riparian areas to maintain or improve water quality and beneficial uses” (USDA Forest Service 1990). Wiwaanaytt Creek is within a Category 1 riparian habitat conservation area (fish-bearing stream) as designated by PACFISH/INFISH and is listed as designated critical habitat for Mid-Columbia River steelhead by the National Marine Fisheries Service.

Project activities are located in the Squaw Creek sub-watershed (HUC 170702030106), Bridge Creek-Middle Fork John Day watershed (HUC 1707020301) within the Middle Fork John Day sub-basin (HUC 17070203).

Proposed Action and Implementation Plan

The Malheur National Forest, partnering with the Oregon Department of Fish and Wildlife screen shop, proposes to install a rotary drum fish screen with headgate and water measuring device (see figure 4) at a point of diversion on National Forest System lands located on Wiwaanaytt Creek. The current point of diversion is in disrepair and lacks a water measuring device and adequate screening to prevent threatened Mid-Columbia River steelhead and redband trout entrapment within diversions. Work may also include repair of berms and embankments and point of diversion following the design criteria as stated under: Category 1 Fish Passage, c. Irrigation Diversion Replacement/Relocation & Screen Installation/Replacement.

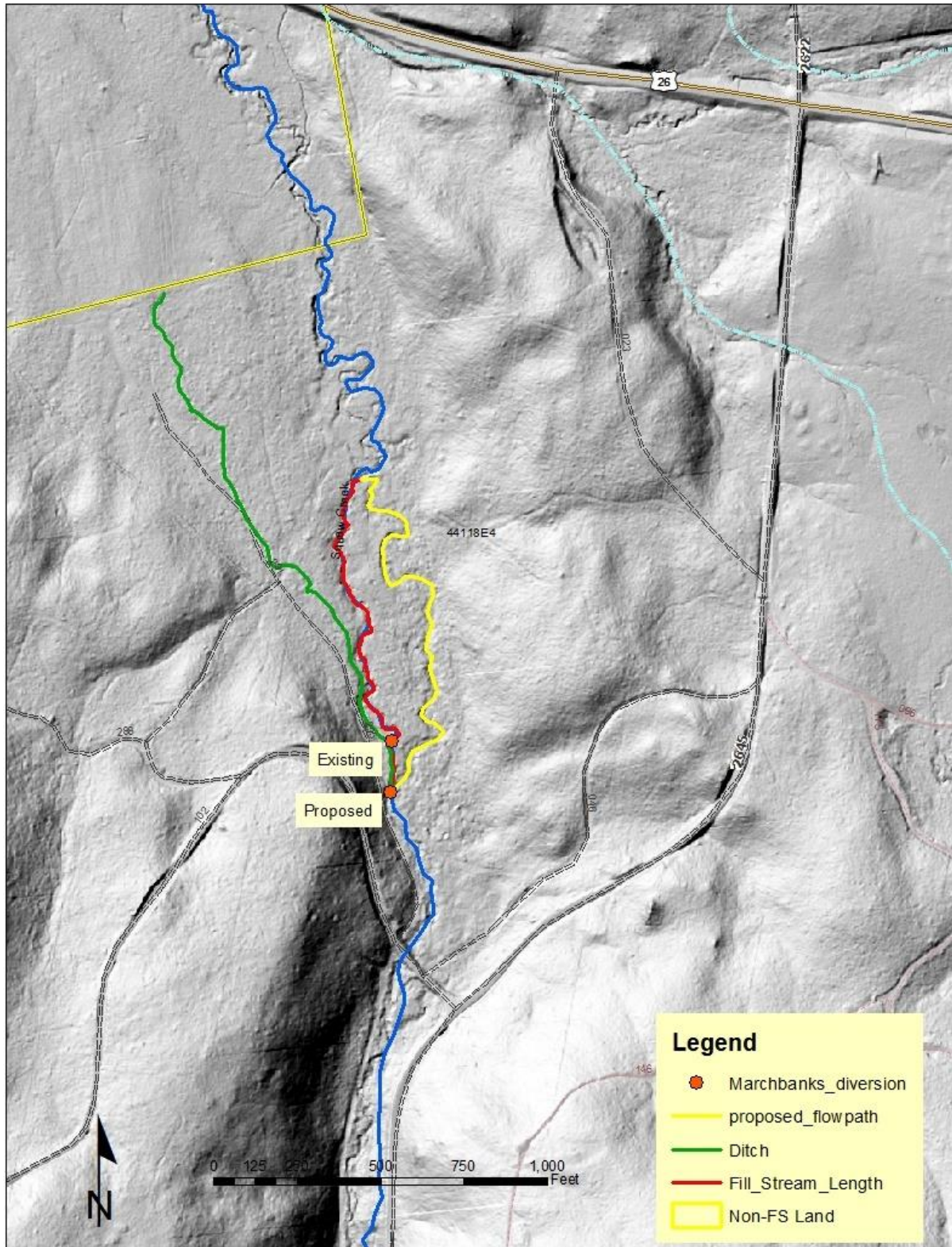


Figure 4. A rotary drum fish screen with water measuring device and headgate installed on East Fork Beech Creek. A similar design is proposed for the Marchbanks diversion on Wiwaanaytt Creek.

Installation of headgate, water measuring device and fish screen would take place as early as summer of 2019. The current diversion point is located in a section of channel that will be filled in order to return the creek to its historical flow path. The new diversion point will be constructed at the point where stream flow is being re-directed into the historical channel, and approximately 150 feet of the current active channel will be partially filled and converted to a ditch to convey water to the old diversion point where flow will be directed into an existing ditch (see figure 5 and map 2).



Figure 5. Location of proposed headgate and fish screen (red arrow) approximately 150 feet upstream of current diversion. Stream flow will be directed into historical flow path shown on right of photo (red bracket) and existing channel will be partially filled to convert into a ditch.



Map 2. Plan view of Marchbanks diversion relocation project.

Appendix to the Aquatic Restoration EA Implementation Description

Project Title: Marchbanks Diversion Relocation & Fish Screen Installation 2019

Project Number: 04102019

Category 1: Fish Passage Restoration c. Irrigation Diversion Replacement/Relocation & Screen Installation/Replacement

The following information will guide actions for this project that is taking place within the bounds of the Decision Notice for the 2014 Malheur National Forest Aquatic Restoration Environmental Analysis to maintain that all conservation measures, guidelines and project design criteria (PDCs) are met under this guiding document.

Program Administration

1. Integration of project design criteria and conservation measures and terms and conditions into project design and contract language.
 - a. This document is to outline the conservation measures and PDCs that will be used during project implementation to remain compliant with the aquatic restoration Biological Assesment, as well as ARBO II.
2. Project notification: The following information will be provided to the National Marine Fisheries Service (NMFS) Level 1 Aquatics members 30 days prior to implementation as a Project Notification Form 7.
 - a. Action identifier –
 - b. Project name – **Marchbanks Diversion Relocation & Fish Screen Installation 2018**
 - c. Location –

Project	Marchbanks Diversion Relocation & Fish Screen Installation 2018
Stream Names	Wiwaanaytt Creek
6 th field HUC	170702030106
Latitude (Decimal Degrees)	-118.401904
Longitude (Decimal Degrees)	44.567209

- d. Agency contact – Jeff Nelson; jeffreynelson@fs.fed.us; 541-820-3818
- e. Timing – Work will occur when ground conditions allow for excavation while maintain a minimal impact to the surrounding resources. All instream work with equipment would occur between July 15-August 15.
- f. Activity category –
 - Category 1: Fish Passage Restoration, c. Irrigation Diversion Replacement/Relocation & Screen Installation/Replacement
- g. Project description – Project description is available in the Implementation Description under the section “Implementation Plan” above.
- h. Work will occur within Wiwaanaytt Creek within the Upper Middle Fork John Day Watershed near Highway 26.
- i. Species affected –
 - i. Listed species: Mid-Columbia River steelhead
 - ii. Critical Habitat: Mid-Columbia River steelhead
 - iii. Regionally Sensitive species and MIS Species: Mid-Columbia steelhead, Interior Columbia redband trout

- j. Date of submittal – To be completed in Spring of 2018, at least 30 day prior to implementation
 - k. Site assessments – Assessment for contaminants is not required at this location.
 - l. Review – NMFS fish passage review and Restoration Review Team review are not required.
 - m. Verification – _____
 - n. SOD project notification – _____
3. Minor Variance: No variances from the criteria specified in the aquatic restoration document are being considered.
 4. NMFS Fish Passage Review and Approval: This work does not require review by the NFMS level 1 team member.
 5. Restoration Review Team: This work does not require review by the restoration review team.
 6. Project Completion Report: To be completed after implementation
 7. Annual Program Report: This project will be completed within two years, completion and annual reporting will occur in the winter of FY20 before February 15.

General Aquatic Conservation Measures¹

8. Technical Skill and Planning Requirements:
 - a. An appropriately qualified fisheries biologist or hydrologist will be involved in the design of this project.
 - b. The scope of this project is limited in both space and context. Field evaluations and site-specific surveys will require little work. Appropriate time will be allotted for these actions, prior to implementation. Planning and design will involve appropriate expertise.
 - c. The assigned fisheries biologist or hydrologist will make sure that any applicable conservation measures and project design criteria are met through the contracting process.
9. Climate Change: due to the small scale of this work, future climate changes impacts will not have dramatic effects on this work.
10. In-Water Work Period: July 15-August 15.
11. Fish passage: Not applicable.
12. Site Assessment For Contaminants: In developed or previously developed sites, such as areas with past dredge mines, or sites with¹ known or suspected contamination, a site assessment for contaminants will be conducted on projects that involve excavation of >20 cubic yards of material. The action agencies will complete a site assessment to identify the type, quantity, and extent of any potential contamination. The level of detail and resources committed to such an assessment will be commensurate with the level and type of past or current development at the site. The assessment may include the following:
 - a. Review of readily available records, such as former site use, building plans, records of any prior contamination events.
 - b. Site visit to observe the areas used for various industrial processes and the condition of the property.
 - c. Interviews with knowledgeable people, such as site owners, operators, occupants, neighbors, local government officials, etc.
 - d. Report that includes an assessment of the likelihood that contaminants are present at the site.

¹ These General Aquatic Conservation Measures are sourced from the Malheur National Forest Aquatic Restoration Environmental Assessment Appendix A.

13. Pollution and Erosion Control Measures: Implement the following pollution and erosion control measures:
- a. Project Contact: Identify a project contact (name, phone number, an address) that will be responsible for implementing pollution and erosion control measures.
 - b. List and describe any hazardous material that would be used at the project site, including procedures for inventory, storage, handling, and monitoring; notification procedures; specific clean-up and disposal instructions for different products available on the site; proposed methods for disposal of spilled material; and employee training for spill containment.
 - c. Temporarily store any waste liquids generated at the staging areas under cover on an impervious surface, such as tarpaulins, until such time they can be properly transported to and treated at an approved facility for treatment of hazardous materials.
 - d. Procedures based on best management practices to confine, remove, and dispose of construction waste, including every type of debris, discharge water, concrete, cement, grout, washout facility, welding slag, petroleum product, or other hazardous materials generated, used, or stored on-site.
 - e. Procedures to contain and control a spill of any hazardous material generated, used or stored on-site, including notification of proper authorities. Ensure that materials for emergency erosion and hazardous materials control are onsite (e.g., silt fence, straw bales, oil-absorbing floating boom whenever surface water is present).
 - f. Best management practices to confine vegetation and soil disturbance to the minimum area, and minimum length of time, as necessary to complete the action, and otherwise prevent or minimize erosion associated with the action area.
 - g. No uncured concrete or form materials will be allowed to enter the active stream channel.
 - h. Steps to cease work under high flows, except for efforts to avoid or minimize resource damage.
14. Site Preparation
- a. Flagging sensitive areas – Prior to construction, clearly mark critical riparian vegetation areas, wetlands, and other sensitive sites to minimize ground disturbance.
 - b. Staging area –Establish staging areas for storage of vehicles, equipment, and fuels to minimize erosion into or contamination of streams and floodplains.
 - i. No Topographical Restrictions – Place staging area 150 feet or more from any natural water body or wetland in areas where topography does not restrict such a distance.
 - ii. Topographical Restrictions – Place staging area away from any natural water body or wetland to the greatest extent possible in areas with high topographical restriction, such as constricted valley types.
 - c. Temporary erosion controls – Place sediment barriers prior to construction around sites where significant levels of erosion may enter the stream directly or through road ditches. Temporary erosion controls will be in place before any significant alteration of the action site and will be removed once the site has been stabilized following construction activities.
 - d. Stockpile materials – Minimize clearing and grubbing activities when preparing staging, project, and or stockpile areas. Any large wood, topsoil, and native channel material displaced by construction will be stockpiled for use during site restoration. Materials used for implementation of aquatic restoration categories (e.g., large wood, boulders, fencing material) may be staged within the 100-year floodplain.
 - e. Hazard trees – Where appropriate, include hazard tree removal (amount and type) in project design. Fell hazard trees when they pose a safety risk. If possible, fell hazard trees within riparian areas towards a stream. Keep felled trees on site when needed to meet coarse large wood objectives.

15. Heavy Equipment Use

- a. Choice of equipment – Heavy equipment will be commensurate with the project and operated in a manner that minimizes adverse effects to the environment (e.g., minimally sized, low pressure tires, minimal hard turn paths for tracked vehicles, temporary mats or plates within wet areas or sensitive soils).
- b. Fueling and cleaning and inspection for petroleum products and invasive weeds
 - i. All equipment used for instream work will be cleaned for petroleum accumulations, dirt, plant material (to prevent the spread of noxious weeds), and leaks repaired prior to entering the project area. Such equipment includes large machinery, stationary power equipment (e.g., generators, canes), and gas-powered equipment with tanks larger than five gallons.
 - ii. Store and fuel equipment in staging areas after daily use.
 - iii. Inspect daily for fluid leaks before leaving the vehicle staging area for operation.
 - iv. Thoroughly clean equipment before operation below ordinary high water or within 50 feet of any natural water body or areas that drain directly to streams or wetlands and as often as necessary during operation to remain grease free.
- c. Temporary access roads – Existing roadways will be used whenever possible. Minimize the number of temporary access roads and travel paths to lessen soil disturbance and compaction and impacts to vegetation. Temporary access roads will not be built on slopes where grade, soil, or other features suggest a likelihood of excessive erosion or failure. When necessary, temporary access roads will be obliterated or revegetated. Temporary roads in wet or flooded areas will be restored by the end of the applicable in-water work period. Construction of new permanent roads is not permitted.
- d. Stream crossings – Minimize number and length of stream crossings. Such crossings will be at right angles and avoid potential spawning areas to the greatest extent possible. Stream crossings shall not increase the risk of channel re-routing at low and high water conditions. After project completion, temporary stream crossings will be abandoned and the stream channel and banks restored.
- e. Work from top of bank – To the extent feasible, heavy equipment will work from the top of the bank, unless work instream would result in less damage to the aquatic ecosystem.
- f. Timely completion – Minimize time in which heavy equipment is in stream channels, riparian areas, and wetlands. Complete earthwork (including drilling, excavation, dredging, filling and compacting) as quickly as possible. During excavation, stockpile native streambed materials above the bankfull elevation, where it cannot reenter the stream, for later use.

16. Site Restoration

- a. Initiate rehabilitation – Upon project completion, rehabilitate all disturbed areas in a manner that results in similar or better than pre-work conditions through removal of project related waste, spreading of stockpiled materials (soil, large wood, trees, etc.) seeding, or planting with local native seed mixes or plants.
- b. Short-term stabilization – Measures may include the use of non-native sterile seed mix (when native seeds are not available), weed-free certified straw, jute matting, and other similar techniques. Short-term stabilization measures will be maintained until permanent erosion control measures are effective. Stabilization measures will be instigated within three days of construction completion.
- c. Revegetation – Replant each area requiring revegetation prior to or at the beginning of the first growing season following construction. Achieve reestablishment of vegetation in disturbed areas to at least 70% of pre-project levels within three years. Use an appropriate mix of species that will achieve establishment and erosion control objectives, preferably forb, grass, shrub, or tree species native to the project area or region and appropriate to

the site. Barriers will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

- d. Planting manuals – All riparian plantings shall follow Forest Service direction described in the Regional letter to Units, Use of Native and Nonnative Plants on National Forests and Grasslands May 2006 (Final Draft), and or BLM Instruction Memorandum No. OR-2001-014, Policy on the Use of Native Species Plant Material.
 - e. Decompact soils – Decompact soil by scarifying the soil surface of roads and paths, stream crossings, staging, and stockpile areas so that seeds and plantings can root.
17. Monitoring
- Monitoring will be conducted by Action Agency staff, as appropriate for that project, during and after a project to track effects and compliance with this opinion.
- a. Implementation
 - i. Visually monitor during project implementation to ensure effects are not greater (amount, extent) than anticipated and to contact Level 1 representatives if problems arise.
 - ii. Fix any problems that arise during project implementation.
 - iii. Regular biologist/hydrologist coordination if biologist/hydrologist is not always on site to ensure contractor is following all stipulations.
 - b. 401 Certification – To minimize short-term degradation to water quality during project implementation, follow current 401 Certification provisions of the Federal Clean Water Act for maintenance or water quality standards described by the following: Oregon Department of Environmental Quality (Oregon BLM, Forest Service, and BIA); Washington Department of Ecology (Washington BLM); and the Memorandum of Understanding between the Washington Department of Fish and Wildlife and Forest Service regarding Hydraulic Projects Conducted by Forest Service, Pacific Northwest Region (WDFW and USDA-Forest Service 2012); California, Idaho, or Nevada 401 Certification protocols (BLM and Forest Service).
 - c. Post project – A post-project review shall be conducted after winter and spring high flows.
 - i. For each project, conduct a walk through/visual observation to determine if there are post-project affects that were not considered during consultation. For fish passage and revegetation projects, monitor in the following manner:
 - ii. Fish Passage Projects – Note any problems with channel scour or bedload deposition, substrate, discontinuous flow, vegetation establishment, or invasive plant infestation.
 - iii. Revegetation – For all plant treatment projects, including site restoration, monitor for and remove invasive plants until native plants become established.
 - iv. In cases where remedial action is required, such actions are permitted without additional consultation if they use relevant PDC and aquatic conservation measures and the effects of the action categories are not exceeded.
18. Work Area Isolation, Surface Water Withdrawals, and Fish Capture and Release – Isolate the construction area and remove fish from a project site for projects that include concentrated and major excavation at a single location within the stream channel. This condition will typically apply to the following aquatic restoration categories: Fish Passage Restoration; Dam, Tidegate, and Legacy Structure Removal; Channel Reconstruction/Relocation.
- a. Isolate capture area – Install block nets at up and downstream locations outside of the construction zone to exclude fish from entering the project area. Leave nets secured to the stream channel bed and banks until construction activities within the stream channel are complete. If block nets or traps remain in place more than one day, monitor the nets and or traps at least on a daily basis to ensure they are secured to the banks and free of organic accumulation and to minimize fish predation in the trap.

- b. Capture and release – Fish trapped within the isolated work area will be captured and released as prudent to minimize the risk of injury, then released at a safe release site, preferably upstream of the isolated reach in a pool or other area that provides cover and flow refuge. Collect fish in the best manner to minimize potential stranding and stress by seine or dip nets as the area is slowly dewatered, baited minnow traps placed overnight, or electrofishing (if other options are ineffective). Fish must be handled with extreme care and kept in water the maximum extent possible during transfer procedures. A healthy environment for the stressed fish shall be provided—large buckets (five-gallon minimum to prevent overcrowding) and minimal handling of fish. Place large fish in buckets separate from smaller prey-sized fish. Monitor water temperature in buckets and well-being of captured fish. If buckets are not being immediately transported, use aerators to maintain water quality. As rapidly as possible, but after fish have recovered, release fish. In cases where the stream is intermittent upstream, release fish in downstream areas and away from the influence of the construction. Capture and release will be supervised by a fishery biologist experienced with work area isolation and safe handling of all fish.
- c. Electrofishing – Use electrofishing only where other means of fish capture may not be feasible or effective. If electrofishing will be used to capture fish for salvage, NMFS’s electrofishing guidelines will be followed (NMFS 2000).
 - i. Reasonable effort should be made to avoid handling fish in warm water temperatures, such as conducting fish evacuation first thing in the morning, when the water temperature would likely be coolest. No electrofishing should occur when water temperatures are above 18°C or are expected to rise above this temperature prior to concluding the fish capture.
 - ii. If fish are observed spawning during the in-water work period, electrofishing shall not be conducted in the vicinity of spawning fish or active redds.
 - iii. Only Direct Current (DC) or Pulsed Direct Current shall be used.
 - iv. Conductivity <100, use voltage ranges from 900 to 1100. Conductivity from 100 to 300, use voltage ranges from 500 to 800. Conductivity greater than 300, use voltage to 400.
 - v. Begin electrofishing with minimum pulse width and recommended voltage and then gradually increase to the point where fish are immobilized and captured. Turn off current once fish are immobilized. vi. Do not allow fish to come into contact with anode. Do not electrofish an area for an extended period of time. Remove fish immediately from water and handle as described above (PDC 20b). Dark bands on the fish indicate injury, suggesting a reduction in voltage and pulse width and longer recovery time.
 - vi. If mortality is occurring during salvage, immediately discontinue salvage operations (unless this would result in additional fish mortality), reevaluate the current procedures, and adjust or postpone procedures to reduce mortality.
- d. Dewater construction site –When dewatering is necessary to protect species or critical habitat, divert flow around the construction site with a coffer dam (built with non-erosive materials), taking care to not dewater downstream channels during dewatering. Pass flow and fish downstream with a by-pass culvert or a water-proof lined diversion ditch. Diversion sandbags can be filled with material mined from the floodplain as long as such material is replaced at end of project. Small amounts of instream material can be moved to help seal and secure diversion structures. If ESA listed-fish may be present and pumps are required to dewater, the intake must have a fish screen(s) and be operated in accordance with NMFS fish screen criteria described below (in part e.iv) of this section. Dissipate flow energy at the bypass outflow to prevent damage to riparian vegetation or stream channel. If diversion allows for downstream fish passage, place diversion outlet in a location to promote safe reentry of fish into the stream channel, preferably into pool

habitat with cover. Pump seepage water from the de-watered work area to a temporary storage and treatment site or into upland areas and allow water to filter through vegetation prior to reentering the stream channel.

- e. Surface water withdrawals
 - i. Surface water may be diverted to meet construction needs, but only if developed sources are unavailable or inadequate. Where ESA-listed fish may be present, diversions may not exceed 10% of the available flow and fish screen(s) will be installed, operated, and maintained according to NMFS's fish screen criteria (NMFS 2011e).
 - ii. For the dewatering of a work site to remove or install culverts, bridge abutments etc., if ESA-listed fish may be present, a fish screen that meets criteria specified by NMFS (2011e) must be used on the intake to avoid juvenile fish entrainment. If ESA-listed salmon, steelhead, eulachon, or green sturgeon may be present, the Action Agencies will ensure that the fish screen design is reviewed and approved by NMFS for consistency with NMFS (2011e) criteria if the diversion (gravity or pump) is at a rate greater than 3 cfs. NMFS approved fish screens have the following specifications: a) An automated cleaning device with a minimum effective surface area of 2.5 square feet per cfs, and a nominal maximum approach velocity of 0.4 feet per second (fps), or no automated cleaning device, a minimum effective surface area of 1 square foot per cfs, and a nominal maximum approach rate of 0.2 fps; and b) a round or square screen mesh that is no larger than 2.38 mm (0.094 inches) in the narrow dimension, or any other shape that is no larger than 1.75 mm (0.069 inches) in the narrow dimension.
- f. Stream re-watering – Upon project completion, slowly re-water the construction site to prevent loss of surface water downstream as the construction site streambed absorbs water and to prevent a sudden release of suspended sediment. Monitor downstream during re-watering to prevent stranding of aquatic organisms below the construction site.

Applicable Project Design Criteria²

Project Design Criteria for Aquatic Restoration Activity Categories

1. **Fish Passage Restoration** includes the following: total removal of culverts or bridges, or replacing culverts or bridges with properly sized culverts and bridges, replacing a damaged culvert or bridge, and resetting an existing culvert that was improperly installed or damaged; stabilizing and providing passage over headcuts; removing, constructing (including relocations), repairing, or maintaining fish ladders; and constructing or replacing fish screens for irrigation diversions. Such projects will take place where fish passage has been partially or completely eliminated through road construction, stream degradation, creation of small dams and weirs, and irrigation diversions. Equipment such as excavators, bull dozers, dump trucks, front end loaders, and similar equipment may be used to implement projects.

c. Irrigation Diversion Replacement/Relocation & Screen Installation/Replacement

NMFS fish passage review and approve-The Action Agencies will ensure that the action is individually reviewed and approved by National Marine Fisheries Service (NMFS) for consistency with criteria in Anadromous Salmonid Passage Facility Design (NMFS 2011e).

² These Project Design Criteria are sourced from the Malheur National Forest Aquatic Restoration Environmental Assessment Appendix A. All references included in this section can be found in the Aquatic Restoration EA.

Diversion structures – associated with points of diversion and future fish screens – must pass all life stages of threatened and endangered aquatic species that historically used the affected aquatic habitat.

- i. Water diversion intake and return points must be designed (to the greatest degree possible) to prevent all native fish life stages from swimming or being entrained into the diversion.
- ii. NMFS fish screen criteria (NMFS 2011e) applies to federally listed salmonid species under their jurisdiction. This included screens in temporary and permanent pump intakes.
- iii. All fish screens will be sized to match the irrigator's state water right or estimated historic water use, whichever is less.
- iv. Size of bypass structure should be big enough to pass steelhead kelt into the stream
- v. Abandoned ditches and other similar structures will be plugged or backfilled, as appropriate, to prevent fish from swimming or being entrained into them.
- vi. When making improvements to pressurized diversions, install a totalizing flow meter capable of measuring rate and duty of water use. For non-pressurized systems, install a staff gauge or other measuring device capable of measuring instantaneous rate of water flow.
- vii. Conversion of instream diversions to groundwater wells will only be used in circumstances where there is an agreement to ensure that any surface water made available for instream flows is protected from surface water withdrawal from another user.
- viii. For the removal of diversion structures constructed of local rock and dirt, the project sponsor will dispose of the removed material in the following manner:
 1. Material more than 60% silt or clay will be disposed in uplands, outside of the active floodplain.
 2. Material with more than 40% gravel will be deposited within the active floodplain, but not in wetlands.
 3. Material with more than 50% gravel and less than 30% fines (silt or clay) may be deposited below the ordinary high water mark (HWM).

Project Design Criteria by Resource

Wildlife

Threatened, Endangered or Sensitive Species

- If wolves become established (denning) while project implementation is occurring, measures will be taken to avoid activity in that vicinity
- If any evidence of wolverines is discovered during project implementation, measures will be taken to provide protection. If a den is found we would protect it from human disturbance.

Raptors

- No activities will occur within currently known goshawk or other raptor nest stands. To conserve nesting habitat and to minimize disturbance to nesting individuals, restrictions would be executed according to the requirements of the species involved.
- With all newly discovered raptor nests, a buffer zone would be established by the wildlife biologist to restrict activities near the nest area during occupancy.
- Where possible, retain trees with inactive nests that may be important to secondary nesters (e.g., Great Gray Owl).
- Any snags in riparian areas or uplands will be protected from disturbance, removal, or use in stream restoration activities unless deemed a safety hazard at a specific work site.

Botany

Note: Pre-implementation planning project design criteria are identified.

Rare and Sensitive Plants and Habitats

- *Pre-Implementation:* Proposed restoration projects shall be completely surveyed early in the implementation planning process by a qualified botanist or rare plant technician, to identify and assess any sensitive or rare plant populations or habitats.
- *Pre-Implementation:* Proposed restoration projects shall develop restoration plans for degraded sensitive species habitats and/or mitigation plans in areas where sensitive plant populations are documented. This shall be accomplished by a journey-level Forest Service botanist in collaboration with the interdisciplinary team and other stakeholders.
- Heavy equipment, vehicle operation, road construction, staging areas, stockpile areas, piling of slash, fence construction, recreation sites, prescribed fires, fire lines, and other operational activities shall not be allowed in any documented sensitive plant sites unless it is for the demonstrated benefit or protection of the site. All sensitive plant populations should be buffered 100 ft. from all operational activities where topography does not restrict such a distance. Sensitive plant sites and associated buffers shall be identified as Areas to Protect.

Sensitive and Unique Habitats

- The integrity of unique habitats shall be maintained. Unique habitats [may] include meadows, rimrock, talus slopes, cliffs, animal dens, wallows, bogs [fens], seeps and springs. This shall be accomplished by incorporating cover buffers approximately 100 feet in width.
- Heavy equipment, vehicle operation, road construction, staging areas, stockpile areas, piling of slash, fence construction, recreation sites, prescribed fires, fire lines, and other operational activities shall not occur within, or at the interface of lithosols (scablands).
- Cutting of old-growth juniper shall be prohibited. Old-growth characteristics include: sparse limbs, dead limbed or spiked-tops, deeply furrowed and fibrous bark, branches covered with bright-green arboreal lichens, noticeable decay of cambium layer at base of tree, and limited terminal leader growth in upper branches.

Groundwater-Dependent Ecosystems

- The integrity of groundwater-dependent ecosystems shall be maintained. Spring developments shall not dewater Groundwater dependent ecosystems. Spring developments shall not be allowed if the spring is occupied by rare or sensitive plant species, or in peatlands, fens, or where histic soils are present. These sites should be buffered 100 ft. from all operational activities where topography does not restrict such a distance, and be identified as Areas to Protect.
- Heavy equipment, vehicle operation, road construction, staging areas, stockpile areas, piling of slash, fence construction, fire lines, and other operational activities shall not be allowed in springs, seeps, or any other groundwater dependent ecosystem, unless it is for the benefit or protection of the groundwater dependent ecosystems or development of the spring.
- Spring developments should not disturb the spring orifice (point where water emerges). Spring head boxes should be placed in a location that will cause the least amount of disturbance to the soils and vegetation of the groundwater dependent ecosystems. Preferable locations for spring head boxes should be in an established channel downstream from the orifice or a location where flowing water becomes subsurface.
- When necessary, construct fenced enclosures around spring developments to prevent damage from wild ungulates and livestock.

- Spring developments shall have a return flow system to minimize the diversion of surface and subsurface water from the catchment area. Consider using a float valve or similar device to reduce the amount of water withdrawn from the groundwater dependent ecosystems.
- When developing springs, place troughs far enough away from Groundwater dependent ecosystems, wetlands, and other sensitive or unique habitats to prevent erosion, compaction, or degradation to sensitive soils and vegetation due to livestock congregation.

Invasive Plant Species

- *Pre-Implementation:* Proposed restoration projects shall be surveyed for invasive plants early in the implementation planning process by a qualified invasive plant specialist or technician, to identify and assess any undocumented invasive plant infestation.
- *Pre-Implementation:* For project areas that overlap or are adjacent to invasive plant infestations, assure that there is sufficient time prior to develop a long-term site strategy for control, eradication, and revegetation of the site. This shall be accomplished by a qualified invasive plant specialist in collaboration with the interdisciplinary team and other stakeholders.
- All activities shall be conducted in a manner as to minimize or prevent the potential spread or establishment of invasive species.
- Actions conducted on National Forest System lands that will operate outside the limits of the road prism, require the cleaning of all heavy equipment (bulldozers, skidders, graders, backhoes, dump trucks, etc.) prior to entering the national forest. Cleaning will be inspected and approved by the forest officer in charge of administering the project.
- Assure that all materials are weed-free. Use weed-free straw and mulch for all projects conducted or authorized by the Forest Service on National Forest System lands. If State certified straw and/or mulch is not available, individual Forests should require sources certified to be weed-free using the North American Weed Free Forage Program standards or a similar certification process.
- Inspect active gravel, fill, sand stockpiles, quarry sites, and borrow material for invasive plants before use and transport. Treat or require treatment of infested sources before any use of pit material. Use only gravel, fill, sand, and/or rock that are judged to be weed free by District or Forest weed specialists.
- Prohibit heavy equipment operation, vehicle travel, staging areas, fire-control lines, and any other operational activities in invasive plant infestations, unless the activities are for the express purpose of eradicating the infestation or INV1 and INV2 have been completed.
- Conduct post-implementation monitoring for invasive plants. Continue monitoring, treating, and removing invasive plants until all infestations are eradicated and native plant species are well established.

Soils

- For projects involving heavy machinery off roads, the project proponents shall inspect the site for existing impacts to the soil. If existing impacts appear to be heavy on the Malheur National Forest or moderate on the Ochoco National Forest, they shall contact a soil scientist, who shall determine what site specific project design criteria are necessary to meet forest plan and Forest Service Manual standards and guidelines. (If a soil scientist is not available, a silviculturist or hydrologist can do the work.) If standards and guidelines cannot be met, heavy machinery shall not be used.
- Erosion would be minimized by following General Aquatic Conservation Measures and by implementing the appropriate project design criteria based on the type of activity (see appendix A).
- Erosion from heavy machinery use would be minimized; by minimizing compaction and puddling, rutting would be minimized.

Heritage Resources

- Compliance with Section 106 of the National Historic Preservation Act for activities authorized under this analysis will be completed and concurred with by the Oregon State Historic Preservation Office before any ground disturbing action takes place. For each potential activity the District or Zone archaeologist³ will determine which of the criteria in the 2004 Programmatic Agreement with the Oregon State Historic Preservation Office best fit the particular project. This will vary somewhat project to project based on the scale of the particular activity, the location on the landscape, and the nature of associated cultural resources, if any.
- The District or Zone archaeologist will document their findings on a Programmatic Agreement form with a project description, rationale and location map which will be attached to the Forest Service Heritage Event database. The Forest archaeologist will review and sign off on the Programmatic Review form if concurred with. For appendices A, B and C projects as defined in the 2004 Programmatic Agreement, the Forest will retain the documentation and provide the Oregon State Historic Preservation Office with the annual summary of projects as described in the Preservation Act.
- For full inventories the District or Zone archaeologist will complete an inventory report meeting current Oregon State Historic Preservation Office standards which will be reviewed by the Forest archaeologist. The Forest archaeologist will forward the completed inventory report to the Oregon State Historic Preservation Office for review and concurrence signature or further discussion as appropriate.
- Consultation with Native American tribes is conducted under the terms of the Memorandums of Understanding the Malheur National Forest has with each individual tribe. The Malheur National Forest regularly consults with the Burns Paiute Tribe, the Confederated Tribes of the Umatilla Indian Reservation and the Confederated Tribes of Warm Springs Reservation.
- For work requiring a full inventory under the terms of the 2004 Programmatic Agreement any identified cultural resources sites will generally be avoided. For cases where site avoidance is impractical mitigation procedures will be developed in consultation with the Oregon State Historic Preservation Office before project work begins.
- If any previously unidentified cultural resources are located during project implementation, ground disturbing work will be halted until the resources are evaluated by the District or Zone archaeologist. If the cultural resources are determined to be potentially eligible for listing on the National Register of Historic Places, work will either be permanently halted or a mitigation plan will be developed in consultation with the Oregon State Historic Preservation Office before work continues.

Grazing

Protection of Government and Permittee Investments

- All existing structural range improvements (fences, gates, spring developments, etc.) and permanent ecological plots would be contractually protected.
- Maintain structural integrity of range improvements.
- If structural improvements are damaged during project operations they would be repaired to Forest Service standards prior to livestock scheduled use by the party responsible for causing the damage. Repairs would be required of the purchaser if damage were done during thinning or fuel treatment contractors or by force account where appropriate.

³ Archaeology field work may be done by the Oregon Department of Fish and Wildlife per the approval of the Forest Archaeologist.

- Three or more splices to a single wire within a distance of 20 feet will be replaced with a single splice.
- Fence right of ways (6 feet either side of fence), trails, other developments and access to them would be cleared of slash produced by project activities.

Notification

- During planning stage of each individual project, well in advance of implementation, all potentially impacted grazing permittees will receive notice of action and opportunity to provide input that may lessen impacts to their livestock operation.
- Prior to implementation all potentially impacted grazing permittees will be given notice of dates when work will start.