

Decision Notice & Finding of No Significant Impact

The Dalles Watershed Hazardous Fuels Reduction Project

**USDA Forest Service
Barlow Ranger District, Mt. Hood National Forest
Wasco and Hood River Counties, Oregon**
Legal Land Description: T1S and T2S, R10 E and R11E, Willamette Meridian

Decision and Reasons for the Decision

Background

In February 2004, the City of The Dalles requested that the Barlow Ranger District take action to improve and protect forest health on public lands within and adjacent to The Dalles Municipal Watershed. In response to their request, and under the authorities of the Healthy Forest Restoration Act (HFRA) of 2003, the District convened a collaborative working group to assist with developing recommended actions for protecting the watershed. I have determined that the Dalles Watershed Hazardous Fuels Reduction Project fits the following HFRA criteria: 1) it is within a municipal watershed and 2) the treatments proposed are within Fire Regime Condition classes 2 and 3.

Collaborative representatives met from November 2004 to August of 2005. The group recommended developing and maintaining a defensible space around the perimeter of the watershed and along designated interior roads, with an emphasis on continued maintenance of the defensible space. It was their recommendation that work along perimeter roads should be planned to minimize potential adverse impacts to wildlife and scenic values.

The purpose and need for the hazardous fuels reduction project is to:

- Reduce the risk of uncharacteristic wildfire on forest ecosystem components, especially the risk of a severe wildfire contributing to the degradation of water quality;
- Provide locations for wildland firefighter forces to quickly suppress a severe wildfire; and,
- Increase firefighter safety during wildland fire suppression efforts.

This purpose and need was developed over time through changing ecosystem conditions, interest from the City of The Dalles, identification by writers of the Wasco County Community Wildfire Protection Plan, and finally a group of community members as part of a collaborative group.

Purpose of Project

The purpose for the fuelbreak project is to reduce the risk of human-caused fires spreading from public access roads into The Dalles Municipal Watershed and to provide a location for fire suppression personnel to actively engage a fire safely. The majority of fires in proximity to the watershed have been human-caused and have occurred near roads outside the protection boundary of the watershed.

Interest from the City of The Dalles

The need for reducing severe fire risk was first identified by the City of The Dalles based on the concern of future fires and their effect on water quality. Past fires have caused damage that has led to the water treatment plant being shut down. The Dalles Municipal Watershed is the primary water supply for the City of The Dalles, serving over 12,000 residents. The watershed was identified as a municipal watershed before the establishment of the National Forest and is therefore managed jointly by the Forest Service and the City, according to a Memorandum of Understanding and a subsequent Comprehensive Management Plan (December, 1972).

Community Wildfire Protection Plan for Wasco County

The Community Wildfire Protection Plan (CWPP) for Wasco County was initiated by the Wasco County Board of Commissioners and carried out with a collaborative, interagency team. The planning process was designed to meet the guidance in the National Fire Plan and the Healthy Forest Restoration Act of 2003 (HR 1904). The primary purpose for the plan is to identify and prioritize areas in the county with high levels of wildfire hazards and to develop a strategy to reduce these hazards (CWPP, 4). One of the major concerns identified in the CWPP was heavy fuel loads on National Forest System and private forest lands along the western portion of the county and the risk of large forest fires beginning on these lands and moving to adjacent private lands, especially those with residential developments (CWPP, 6). As part of the CWPP, The Dalles Municipal Watershed was identified as one of the highest priorities for treatment according to a risk rating and recommendations from the Oregon Department of Forestry. The zone which includes The Dalles Watershed was labeled as the highest hazard risk rating of the five zones in the CWPP. The rating is based on severe weather conditions, steep slopes with an east facing aspect, and heavy fuel loads with potential long flame lengths and high crown fire likelihood (CWPP, 50).

Need for Action

District personnel began the interdisciplinary process of developing a detailed fuelbreak proposal that would meet the need to protect water quality in the watershed. The Environmental Assessment (EA) documents the analysis an alternative to meet this need, as well as the No Action Alternative.

Fire suppression efforts over the past 100 years, favorable climatic conditions, vegetation growth and dead fuels resulting from insects and diseases have altered stand composition and structure and increased tree and brush densities (Harvey et al. 1994). The high density of the stands contributes to mortality of trees because of competition for nutrients, water and sunlight. Insects and diseases are more likely to kill trees that grow in dense, crowded conditions. Dwarf mistletoe-infected trees, diseased trees, insect-killed trees, and down fuel are creating continuous fuel ladders from the ground to the tree crowns. The majority of National Forest System lands in the area have been mapped as Condition Class 3, indicating these lands have missed multiple natural fire events and now contain unnaturally high fuel situations.

Particularly, the eastern portion of the watershed, where frequent fire return intervals of low and moderate intensity would have been expected, vegetation would normally consist of well-spaced fire tolerant species such as ponderosa pine, western larch, white oak, and dry-climate Douglas-fir. The shade-tolerant, thin-barked species such as grand fir, lodgepole pine, and juniper would have been thinned out regularly by fire. Historical fire return intervals in the western portion of

the watershed are in the 50 years or less (moist Douglas-fir), to the 50 to 100 year fire return interval of the mixed conifer zone (grand fir, western hemlock, white pine, etc.). These species typically have a low to moderate fire tolerance, as low intensity, high frequency fires do not occur, due to higher moisture amounts and greater fuel loadings.

Stand structure changes from lack of fire include a much higher stocking level of fire-tolerant species, an increase of shade-tolerant species in the intermediate layer, an increased shrub and reproduction component, and fewer openings associated with the natural stands. This change results in stands that are more likely to experience a higher intensity fire, with stand-replacing consequences.

Management Direction

The Dalles Watershed Hazardous Fuels Reduction Project responds to goals and objectives of the National Fire Plan (2000) and the Mt. Hood Land and Resource Management Plan (Forest Plan), as amended. The Environmental Assessment (EA) process and documentation were completed according to direction contained in the National Forest Management Act (NFMA), the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations, Clean Water Act (CWA), the Endangered Species Act (ESA) and other applicable laws, policies and direction. The EA implements, and is tiered to, the Mt. Hood National Forest Land and Resource Management Plan Final Environmental Impact Statement and Record of Decision (1990), and incorporates by reference the accompanying Forest Plan, as amended.

Applicable National Fire Plan goals and objectives include:

- Reduce the number of small fires that become large;
- Restore natural ecological systems to minimize uncharacteristically intense fires;
- Create new jobs in both the private and public sectors;
- Improve capabilities for state and volunteer fire organizations; and,
- Reduce the threat to life and property from catastrophic wildfire.

The Forest Plan includes both forest-wide goals and objectives, and management area specific goals, objectives, and desired future conditions. Goals, objectives and desired future conditions of the management areas within the project area are discussed below in the description of land allocations. In addition, management direction for the area is provided in three major Forest Plan amendments:

- The Northwest Forest Plan (NWFP) – Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (April, 1994); Riparian Reserves (portions of watersheds where riparian-dependent resources receive primary emphasis and where special standards and guidelines apply);
- Survey & Manage – Record of Decision and Standards and Guidelines for Amendments to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines (January, 2001); and,
- Invasive Plants – Pacific Northwest Invasive Plant Program Preventing and Managing Invasive Plants Record of Decision (October, 2005).

Together, these documents are referred to as the amended Forest Plan.

Additional guidance for the project area is provided by the Mill Creek Watershed Analysis (2000) and the Surveyor's Ridge Late-Successional Reserve Assessment (1997) and The Dalles Municipal Watershed's MOU with the US Forest Service and Comprehensive Management Plan (1972). The watershed analysis and LSR assessment give direction and guidance to limit destructive crown fire, limit insect and disease mortality, reduce stand density and fuel loads, provide for public and firefighter safety, and protect homes and other structures. The MOU, and subsequent management plan, provide that the primary resource to be managed for is the protection of water quality, as does an agreement between the City and the US Secretary of Agriculture which dates back to 1912. The Plan provides guidance on allowable timber harvests (methods and acreages), road construction and maintenance, and planning and protection measures to be taken to protect water quality. Specific restrictions for operations within the watershed will be included in the implementation contract.

Desired Future Condition/ Land Allocation

A key goal of the Forest Plan is to manage the forest resources to protect and maintain the character and quality of water; provide long-term sustained production of water; and provide a favorable flow from the Forest, for both on-Forest and off-Forest uses. Watersheds supplying domestic water for cities, towns, recreation sites and individuals will be managed so that water quality of the source stream is not degraded below existing or natural levels (Forest Plan, Four-17).

There are several land allocations as designated by the Forest Plan and Northwest Forest Plan within The Dalles Municipal Watershed (see Figure 1-3 in Appendix A of EA). The majority of the project area is designated as a Special Emphasis Watershed, the goal of which is to maintain or improve watershed, riparian, and aquatic habitat conditions and water quality for municipal uses and/or long-term fish production. A secondary goal is to maintain a healthy forest condition through a variety of timber management practices (Forest Plan, Four-246). The northeast corner of the planning area is designated as the Mill Creek Research Natural Area, which provides opportunities for research and studies of natural processes. The west side of the watershed is inside the Surveyor's Ridge Late Successional Reserve (LSR), as designated by the NWFP. The desired future condition from the Surveyor's Ridge LSR Assessment is to provide the maximum amount of habitat for late successional and old growth associated species. Certain restrictions are placed on activities in the specific land allocations and were addressed in the EA; these are referenced as standards and guidelines, mitigation measures, or design features of the proposed action.

Decision

Based on the analysis described in the Environmental Assessment, collaboration with the Mill Creek Group, the Wasco County Rural Fire Protection District, coordination with other state and federal agencies, and comments received from the public during this analysis, it is my decision to implement the Action Alternative (selected alternative). This alternative establishes a fuel break along roads forming the perimeter of The Dalles Municipal Watershed, as well as along interior roads. Fuel reduction activities include 752 acres of commercial thinning to open dense stands

and reduce fuel ladders, 552 acres of non-commercial treatments, and 125 acres of hand thinning, brushing, pruning, and/or burning. Underburning will occur on approximately 710 acres after mechanical or hand treatment to reduce ladder fuels and excessive downed wood. See Appendix 2. Temporary roads and landings will be rehabilitated after implementation.

All design criteria/mitigation measures will be implemented to avoid, minimize, rectify, reduce, eliminate or compensate project impacts as required by the National Environmental Policy Act (NEPA). Also, guidelines from The Dalles Municipal Watershed's MOU with the US Forest Service and Comprehensive Management Plan (1972) will be implemented. This includes guidelines on activities including allowable timber harvests (methods and acreages), road construction and maintenance, and other planning and protection measures to be taken to protect water quality. For a complete list, please see Appendix 1.

Rationale for the Decision

When compared to the No Action Alternative, the selected alternative will improve the ability of wildland fire fighters to safely engage a wildfire in the vicinity of the South Fork of Mill Creek, and lessen the likelihood of a crown fire running into or out of the watershed for the City of The Dalles by creating a fuelbreak to influence fire behavior. The selected alternative meets the intent of the Healthy Forest Restoration Act to reduce fire hazards within a municipal watershed. The potential for tree mortality from insects and disease will be reduced over a portion of the area by thinning in overstocked stands. Treating the accumulated natural fuels will reduce the overall risk of uncharacteristically severe wildland fire. Treated areas will be returned to Condition Class 1, where fire will function as it did historically, in a stand maintenance mode rather than as a stand-replacement event.

The selected alternative protects cultural resources, improves forage quantity and quality, and addresses the visual appearance of treated areas. Under the treatment regime of the selected alternative, forage improvement for big game and other wildlife should be effective for 20 to 25 years. Fuel treatments should be effective for about the same time before stand growth creates fuel conditions that may require another treatment, such as a maintenance underburn.

Known cultural sites were avoided by unit design and buffers will be used for additional protection. Units will be adjusted to protect sites during layout when needed. Water quality and quantity will not be negatively affected by the fuels treatment activities.

Other Alternatives Considered

In addition to the selected alternative, I considered the No Action Alternative. A comparison of the two alternatives can be found in the EA on page 2-18. The Healthy Forest Restoration Act allows the consideration of a limited number of alternatives [HR 1904, Section 104(c)(1)].

Under the No Action alternative, current management plans would continue to guide management of the project area. The objective to reduce the risk of uncharacteristic wildfire that could contribute to the degradation of water quality would not be met. Also, the objective to provide locations for wildland fire fighters to quickly and safely suppress an active wildfire would not be met.

Public Involvement

As described in the background, the need for this action arose in February 2004. In addition to the collaborative effort, a proposal to reduce fuels in the watershed for the City of The Dalles was listed in the Schedule of Proposed Actions Winter 2006 issue. The proposal was provided to the public and other agencies for comment during scoping in January 2007. In addition, as part of the public involvement process, the agency held a public meeting at the Barlow Ranger Station in Dufur, Oregon on January 11, 2007.

Using the comments from the collaborative effort, the public, and other agencies, the interdisciplinary team identified issues regarding the effects of the selected alternative. The main issues of concern included the reduction of cover for deer and elk that the fuel break would bring, and the resource damage that temporary roads may cause (See EA pages 1-10, 2-18). The Forest Service responds to these issues in the EA. The effects to wildlife are analyzed in Chapter 3 of the EA. Mitigation measures were established to protect wildlife species to the largest extent possible: these are described in the Appendix 1. In response to the concern over temporary roads, the project design includes the rehabilitation of any temporary roads constructed for the implementation of this project.

Finding of No Significant Impact

After considering the environmental effects described in the EA, I have determined that these actions will not have a significant effect on the quality of the human environment considering the context and intensity of impacts (40 CFR 1508.27). Thus, an Environmental Impact Statement will not be prepared. I base my finding on the following:

1. My finding of no significant environmental effects is not biased by the beneficial effects of the action. I find that my decision would have neither a significant beneficial or adverse impact because the acres treated are a small percentage of similar acres across the landscape, and the anticipated effects are similar to those in past fuel reduction projects, which have not proven to cause significant impacts. The project changes approximately eight percent of the Condition Class 3 acres to the desired Condition Class 1 (EA, pages 3-3, and 3-24) within the project area. This is a very small portion of the Condition Class 3 acres found on the Barlow Ranger District. Project effects are limited to the project area, and, except for smoke, are not transported out of the treated areas. The project changes the current condition by moving forest and fuel conditions toward the natural conditions found historically in the area prior to fire suppression. This should have the added benefit of making future fuel and silvicultural actions less intensive and less expensive. This it is not a significant federal action.
2. There will be no significant effects on public health and safety, because fuel reduction activities are not generally known to negatively impact public health and safety (EA page 3-104). Burning of activity fuels will be conducted according to the operation guidance for the Oregon Smoke Management Program (see EA page 3-10). The impact is not significant because the area treated is a small component of a much larger area with high fire hazard, and because weather conditions and the random nature of fire ignitions make it impossible to project more than potential benefits.

3. There will be no significant effects on unique characteristics of the area, because there are no unique characteristics or ecologically critical areas being affected. Historic or cultural resources have been protected by project design, and wetlands and streams have been buffered (see EA page 2-11). Lands treated within the Research Natural Area (RNA) will reduce the likelihood of stand-replacing fire in the remainder of the RNA and in the South Fork Mill Creek watershed (EA page 2-15). The objectives of Surveyor's Ridge Late Successional Reserve will be met by retaining a higher number of trees per acre to meet the 60 percent canopy cover objective (EA page 2-4 to 2-5)
4. The effects on the quality of the human environment are not likely to be highly controversial. There is no known scientific controversy over the impacts of the project (see EA pages 3-103). The types of activities proposed have taken place in similar areas and the resulting effects are well-known and understood.
5. My decision does not involve highly uncertain, unique, or unknown risks. The activities proposed in this decision are well established land management practices, and the risks are well known and understood.
6. The action is not likely to establish a precedent for future actions with significant effects, because this action is not unusual in and of itself, and does not lead to any further action that is unique.
7. The cumulative impacts are not significant (see chapter 3 of the EA).
8. The action will have no significant adverse effect on districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, because of mitigation measures and design criteria (see Appendix 1). The action will also not cause loss or destruction of significant scientific, cultural, or historical resources, because protective measures were part of the project design.(see EA pages 3-99 to 3-102). Heritage Resource Reports 2006/060601/0001 and 2006/060601/0002 documented the survey methodology, findings and recommendations for archaeological resources associated with this proposed project. The State Historic Preservation Officer has been consulted as to the determination made and had no objections with this finding.
9. The action will not adversely affect any endangered or threatened species under the Endangered Species Act of 1973 (see EA table 3-9). There is no bald eagle habitat in the planning area. Canada lynx and Northern spotted owls are not present in the planning area. Within the Surveyor's Ridge Late-Successional Reserve (LSR), the project falls within 234 acres of suitable and 80 acres of dispersal spotted owl habitat. Outside the LSR, 237 acres of suitable habitat and 375 acres of dispersal habitat are within the fuelbreak units. As a result of this project, large amount of suitable and dispersal habitat would be better protected from the threat of wildfire. There are approximately 4,528 acres of suitable and 2,340 acres of dispersal habitat within the alternative boundary, of which, 3,121 acres are in LSR. Any large wildfire activity would have the potential to downgrade or remove some or this entire habitat.

The effects to spotted owls for this project were consulted with US Fish and Wildlife Service (USFWS) through formal and informal consultation on CY 2005-2006 projects

within the Willamette Province which may modify habitats for bald eagles and northern spotted owls. The Biological Opinion (BO) was recently rescinded after litigation. A new Biological Assessment is being submitted to USFWS, and implementation of this fuelbreak proposal is pending a new BO. There will be no irreversible commitments resulting from this project until formal consultation is complete with USFWS.

No fish species listed as threatened, endangered, proposed, or sensitive are known to be present in streams within the analysis area (EA page 3-73). The proposed action will have no effect on Essential Fish Habitat for any species in the project area as designated under the 1996 Amendment to the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

There are no threatened or endangered plant species in the planning area.

10. The action will not violate Federal, State, and local laws or requirements for the protection of the environment. Applicable laws and regulations were considered in the EA (see EA pages 2-12 to 2-17). The action is consistent with the Mt. Hood Land and Resource Management Plan (See EA pages 2-14).

Findings Required by Other Laws and Regulations

This decision to reduce fuels along roads on the boundary of and within the watershed for the City of The Dalles is consistent with the intent of the Forest Plan's long term goals and objectives. The project was designed in conformance with Land and Resource Management Plan standards and incorporates appropriate land and resource management plan guidelines for watersheds supplying domestic water for cities, towns, recreation sites and individuals. The watershed will be managed so that water quality of the source stream is not degraded below existing or natural levels (Land and Resource Management Plan, page Four-17).

The project is consistent with **late-successional reserve** (LSR) objectives. A portion of the allotment is located in the Surveyor's Ridge LSR.

There will be no significant adverse effects to Forest Service, Region 6 **sensitive species**. For aquatic species, the action will have no effect on any sensitive species.

For wildlife species, it was determined that the actions may impact individuals, but are not likely to impact populations, nor contribute to a potential loss of viability of this species to the following wildlife sensitive species and their habitat due to human activities: wolverine, Larch Mountain and Oregon slender salamander, Crater Lake tightcoil, Puget and Columbia oregonium, Dalles sideband, and evening fieldslug (EA, 3-37 to 3-38). There will be no impact to the Pacific fisher. The area within the Surveyor's Ridge LSR would have 240 linear feet of down logs/acre and two snags/acre remaining post treatment. Therefore, the populations of these species would persist. Without action, more of the species habitat would be at risk to be lost or altered by landscape wildfires.

There are 17 fungi species where surveys were not practical and therefore habitat was assumed. For these fungi species, and botanical species *Botrychium minganense* and *Arabis sparsiflora* var. *atrorubens*, the project will have no effect (EA page 3-90).

I have considered the effects to **management indicator species** (MIS) as disclosed in the EA (EA, 3-38 to 3-42 and 97-100). Wildlife MIS include mule/blacktailed deer, Rocky Mountain elk, marten, pileated woodpecker, western gray squirrel, wild turkey and snag and down log associated species. MIS aquatic species include all salmonids.

The project is consistent with the **Aquatic Conservation Strategy** objectives. I have also considered the existing condition of riparian reserves, including the important physical and biological components of the fifth-field watersheds and the effects to riparian resources. I find that the selected alternative is consistent with riparian reserve standards and guidelines, and will contribute to maintaining or restoring the fifth-field watersheds over the long term (EA pages 2-16 and 3-80 to 3-81).

The “Record of Decision and Standards and Guidelines for Amendments to the **Survey and Manage** Protection Buffer and Other Mitigation Measure Standards and Guidelines” was issued in 2001. The effects to these species have been analyzed in the sensitive species discussions in the EA (Aquatic Species, 3-82; Wildlife Species, 3-32; Botanical Species, 3-90).

Finally, by considering the prevention of invasive plant introduction, establishment and spread of invasive plants (EA page 3-92 to 3-96) the planning process is consistent with the Pacific Northwest **Invasive Plant** Program Preventing and Managing Invasive Plants Record of Decision issued in 2005. Mitigation measures are included to prevent the spread and establishment of invasive plants, see Appendix 1.

Implementation Date

Implementation of the decision may occur immediately upon receipt of a Biological Opinion from the US Fish and Wildlife Service.

Administrative Review or Appeal Opportunities

This decision is not subject to appeal pursuant to 36 CFR 215.12 (Decisions and actions not subject to appeal). The objection process pursuant to 36 CFR 218 provided the sole means of administrative review for this HFRA project. This objection process has been completed and no objections were received.

APPENDIX 1

Design Criteria/Mitigation Measures

The National Environmental Policy Act defines “mitigation” as avoiding, minimizing, rectifying, reducing, eliminating or compensating project impacts. The following mitigation measures are an integral part of this project and would be carried out if the project is implemented. In most cases, the effects analysis in Chapter 3 is based on these mitigation measures being implemented.

Soil Resource:

1. All temporary roads, skid trails, and landings will be rehabilitated after project activities are completed in each unit.
2. In commercial units, ground-based harvest systems should not be used on slopes greater than 30 percent to avoid detrimental soil and/or watershed impacts.

Engineering:

1. Haul will be restricted to the normal operating season, unless weather conditions permit operating outside of this window.
2. Snowplowing will be restricted when a freeze/thaw condition is expected or when a saturated base and subgrade would result.

Fuels:

1. Any mechanical slash piling will be done with a grapple piler/excavator.
2. As much as possible, mechanized piles will be free from soil.

Vegetation:

1. Patch openings will be created in root disease pockets. These openings will be planted with root disease resistant species.
2. Retained trees with a dwarf mistletoe rating of 2 or more will be girdled.

Invasive Species:

1. It is recommended that “pre-treatment” occur before any harvest activities are implemented along the 1720190, 1720192, 1721, and the 1721012 roads. The effects of treatment type (hand pulling, mechanical, and/or herbicide treatment) were analyzed in the Barlow Noxious Weed EA and are included in the final Mt. Hood National Forest Invasive Species EIS.
2. In order to prevent any introduction of noxious weed and/or seeds onto National Forest System lands, the actions conducted or authorized by written permit by a purchaser/contractor (if operating outside the road prism) require the cleaning of all heavy equipment prior to entering National Forest System lands. Only construction and maintenance equipment and the equipment necessary to transport said equipment will be allowed to operate within the project area. All subsequent move-ins of equipment to the project area shall be treated in the same manner as the initial move-in. This requirement does not apply to service vehicles, water trucks, log trucks, pickups, cars, and/or similar vehicles.

3. The purchaser/contractor shall give the Forest Service at least 48 hours notice of when equipment is ready for inspection. Notification will include an agreed upon location where the equipment will be available for inspection by the Forest Service. Inspection will be required after every cleaning. The Forest Service shall approve the methods of cleaning and the locations for the cleaning.
4. The process for locating all skid trails and landings will be coordinated with a noxious weed specialist so as to insure these locations are not within any currently established noxious weed populations.
5. If at all possible schedule the implementation of work from infestation-free areas into infested areas rather than vice-versa.
6. If the need for restoration/revegetation of skid trails and landings is identified, the use of native plant materials are the first choice for meeting this objective where timely natural regeneration of the native plant community is not likely to occur. Non-native, non-invasive plant species may be used in any of the following situations: 1) when needed in emergency conditions to protect basic resource values (e.g., soil stability, water quality and to help prevent the establishment of invasive species), 2) as an interim, non-persistent measure designed to aid in the re-establishment of native plants, 3) if native plant materials are not available, or 4) in permanently altered plant communities.
7. Under no circumstances will non-native invasive plant species be used for revegetation.
8. If using straw, hay or mulch for restoration/revegetation in any areas, use only certified, weed-free materials.

Wildlife:

1. The area within the Surveyor's Ridge LSR must have 240 linear feet of down logs/acre (three tree-length logs/acre) and two snags/acre (100% biological potential) remaining post-treatment.
2. If a spotted owl activity center is located during the 2007 survey, a seasonal operating restriction (March 1- July 15) would be placed in the area impacted.
3. A seasonal operating restriction (restricting harvest and fuels treatment activities) for winter range would be implemented with this project from December 1 through April 1 for units 1-9, 73-88.

Visual Quality:

1. Ground disturbance and activity debris resulting from project activities will remain visually subordinate in the immediate foreground of the North Section Line and Surveyor's Ridge Trails.
2. Retain at least three to five trees per acre in the immediate foreground of the North Section Line and Surveyor's Ridge Trails where stands contain suitable trees.
3. All brush piles should be located at least 100 feet from Surveyor's Ridge or North Section Line trails. Piles may be closer if topography or post-treatment vegetation screens the piles from the trail. Piles may also be closer if they will be completely consumed when burned.
4. All stumps within 100 feet of Surveyor's Ridge or North Section Line trails will be cut to less than six inches in height.
5. Prescriptions will ensure that small islands of trees and shrubs will be interspersed along both Surveyor's Ridge and North Section Line trails to aid in holding visual quality.

6. The methods used to rehabilitate landings, skid trails and temporary roads will be designed to meet visual quality standards within foreground of both the Surveyor's Ridge and North Section Line trails.

Riparian Areas:

1. No vegetation removal or manipulation will occur within 50 feet of any perennial and intermittent streams, seeps, springs or wetlands. This will maintain current stream shading which will protect stream temperatures as well as existing aquatic flora and fauna (see footnote *).
2. No mechanized equipment will be allowed within 100 feet of perennial and intermittent streams, seeps, springs or wetlands. This will reduce the chance of sediment delivery to surface water (see footnote*).
3. During road reconstruction, erosion control measures are required (e.g. silt fence, native grass seeding) where de-vegetation may result in delivery of sediment to adjacent surface water. Coordinate with District soil scientist or hydrologist.
4. The structural and hydrological integrity of ephemeral draws will be protected during layout and implementation.
5. Fueling of gas-powered machinery will not occur within 150 feet of any live waters to maintain water quality. Each fueling area shall have a spill kit on site.
6. Temporary roads and landings will be located within project units and outside of Northwest Forest Plan designated Riparian Reserves.
7. Trees should be contour felled or felled away from all surface water.
8. The outer edges of the protection buffer around the seep/spring in unit 20 will be permanently marked to protect *Botrychium minganense* plants from future maintenance of the fuelbreak.

Heritage Resource Sites:

1. The Surveyor's Ridge and North Section Line trails will be flagged with a 25-foot- wide buffer zone for the exclusion of heavy machinery. Exceptions to the 25-foot- wide buffer zone may occur only in portions of units 60 and 70, and throughout unit 72. Exceptions to the buffer would occur only when necessary, in coordination with an archaeologist.
2. Trees harvested within the buffer zone of Surveyor's Ridge or North Section Line trails will be felled directionally away from the trail. No trees will be skidded onto the Surveyor's Ridge Trail. Trees will only be skidded across the North Section Line Trail where previously disturbed ground exists.
3. Hand bucking and piling of slash will be the only method used within the buffer zone of the Surveyor's Ridge Trail. Equipment may reach into the buffer zone to remove slash for grapple piling.
4. There will be no new road construction or landings within 25 feet of Surveyor's Ridge trail. Existing log landings, skid trails and roads can be re-used and previous disruptions in the trail can be used for trail crossings without damage to heritage resources.
5. All trees with historic blazes will be retained and protected along the North Section Line Trail.

* The Forest Service will meet an *average* distance of 50 feet or 100 feet from streams, seeps, springs or wetlands. From past experience with implementation, it is virtually impossible to maintain an exact distance from a wet area due to stream sinuosity and dense riparian vegetation so allowance for a small deviation will be made as long as this deviation doesn't jeopardize meeting the above stated goals.

6. An interpretive sign about the historic North Section Line Trail and the project will be placed at one end of the trail.
7. The portion of Unit 63 adjacent to the North Section Line trail will be limited to hand treatment.
8. Trees immediately adjacent to the Dog River Aqueduct, the Mill Creek Ridge Lookout, the S16 Cabin, the 1720 Can Dump, the Woodgate Road, and the Dufur to Brooks Meadow Road will be felled and yarded directionally away from the feature or buffer zone.
9. Hand bucking and piling of slash will be the only method used within the Dog River Aqueduct corridor [50 feet from the centerline], and the buffer zones for the Surveyor's Ridge Trail, the Dufur to Brooks Meadow Road, the Woodgate Road, and the North Section Line Trail.
10. There will be no skidding across the Dog River Aqueduct.
11. There will be no temporary road construction or landings within 50 feet of the Dog River Aqueduct.
12. The bundle of timbers within the open area on Mill Creek Ridge Lookout will be sprayed with water and foam and protected during burning operations.
13. A 100 foot buffer zone for the exclusion of heavy machinery will be flagged around all structural remains on designated cultural resource sites.
14. Prescribed burning may occur, but machine piling may not occur within the flagged buffer zones.
15. Trees with Section 8 and 9 line and Sections 15 and 22 markers will be flagged for protection from any logging activity.
16. Each tree with an insulator from the Hilleary Grade Telephone Line will be flagged for protection from any logging and will have surface duff and accumulated fuels scraped or raked from the tree base.

Guidelines for Operating within the Municipal Watershed

The Dalles Municipal Watershed's MOU with the US Forest Service and Comprehensive Management Plan (1972) includes guidelines on activities including allowable timber harvests (methods and acreages), road construction and maintenance, and other planning and protection measures to be taken to protect water quality. Those guidelines listed below are more restrictive than the mitigation measures listed above and will be added to the contract.

Sanitary Waste:

1. Privies or suitable toilet facilities shall be provided on-site prior to any sale layout, construction, or harvest activity. These facilities shall not be within 500 feet of any stream, spring, or seepage; secured from weather damage; and be maintained at necessary intervals. Special circumstances will be handled on a case-by-case basis.
2. Disposal of composted human waste is prohibited inside the Watershed area.

Location of the Mt. Hood National Forest in Oregon (left) and the Dalles Watershed in relation to the entire Mt. Hood National Forest *Petroleum Product Care:*

1. Absorbent pads shall be placed on the ground or on stationary equipment such as a loader and yarder to catch spills or leaks.

2. There shall be no discharge of any petroleum product within the Watershed. If oil is changed on-site, all waste materials must be removed from the Watershed.
3. Hydraulic fluid, gasoline, diesel fuel, and any other petroleum product spills or leaks will require immediate and proper attention. Complete removal of contaminated soil may be required.
4. Fixed storage of petroleum products within the Watershed will not be permitted.
5. Application of road emulsions and dust control products (except water) to transportation systems within the Watershed will require Forest Service approval. Forest Service will consult with the City of The Dalles prior to approving any emulsion application.
 - a. Any water tanker used for dust control will not have been used for any other previous chemical storage or application purpose and will not present a potential chemical/bacteriological contamination to the Watershed.

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Appendix 2
The Dalles Watershed
Hazardous Fuels Reduction
Units

Unit	Stand Group	MA	Target Canopy Cover	Yarding	Under-burn	Comments	Acres
1	C	B6	35	Tractor	Yes	Girdle residual DMT trees.	30.1
2	D	B6	n/a	NC Mech	Yes		3.11
3	D	B6	n/a	NC Mech	Yes		2.24
4	C	B6	35	Tractor	Yes	Girdle residual DMT trees.	10.32
5	D	B6	n/a	NC Mech	Yes		97.98
6	D	B6	n/a	NC Mech	Yes	Girdle DMT, PP, DF overstory	28.92
7	B	B6	35	Cable	Yes	Girdle residual DMT trees.	28.14
8	A	B6	40	Tractor	Yes	SMZ	18.27
9	B	B6	35	Tractor	Yes	Girdle residual DMT trees. RR	3.88
10	B	B6	35	Tractor	Yes	Girdle residual DMT trees.	85.67
10A	B	LSR	40	Tractor		RR, PP WL DF DMT. Girdle residual DMT trees	9.52
11	D	B6	30	NC Mech	Yes		2.72
12	D	B6	n/a	NC Mech	Yes	Plant WL	60.00
13	D	B6	n/a	NC Mech			5.33
14	D	B6	n/a	NC Mech		Brushing, pruning	13.00
15	D/G	LSR	n/a	NC Mech		Girdle DMT overstory	42.52
16	B	B6	40	Tractor		SMZ	6.28
17	A/D	B6	40	Tractor		SMZ. Commercial plantation	25.91
17A	B	B6	40	Tractor		SMZ	2.10
18	D	B6	20	NC Mech			9.04
19	B	B6	40/60	Tractor			11.79
20	B	B6	50	Tractor		SMZ	12.67
20A	B	B6	40	Cable			5.99
21	B	B6	40/60	Tractor	Yes	SMZ	12.04
22	D	LSR	n/a	NC Mech	Yes	RR. Girdle DMT OS.	13.00
23	B	LSR	50	Tractor	Yes	RR. Girdle residual DMT trees.	25.21
24	D	LSR	20	NC Mech	Yes	RR. Girdle DMT OS.	29.39
25	A/D	LSR/B6	60	Tractor	Yes		25.9
26	D	B6	n/a	NC Mech		Brushing	1.44
27	B	B6	35	Tractor		RR. Girdle residual DMT trees.	11.15
28	A	LSR/B6	40/60	Tractor			9.63
28A	B	LSR	40	Tractor		Salvage BB in LP, PP.	5.41
29	D	LSR/B6	(20)	NC Mech		Hazard trees.	17.40
30	B	LSR	40/60	Tractor			17.89
31	D	LSR	n/a	NC Mech			5.78
32	D	B6	n/a	NC Mech		Prune PP. leave WL, WP, PP.	22.85
33	A	LSR	60	Tractor			20.51
34	E	LSR	n/a	NC Hand		light thin and prune	1.95
35	E/G	LSR	n/a	NC Hand			1.18
36	B/D	LSR	40	Tractor		WL DMT. Hazard trees.	3.34

Unit	Stand Group	MA	Target Canopy Cover	Yarding	Under-burn	Comments	Acres
37	B	LSR	40	Tractor		Girdle residual DMT trees. RR.	34.88
38	E	LSR	n/a	NC Hand			4.38
39	D	LSR	n/a	NC Mech		thin to 100 tpa	37.80
40	B	LSR	60	Tractor			7.29
40A	E	LSR	40	NC Hand			2.46
41	D	LSR	n/a	NC Mech		Trail VQO	3.75
42	E	LSR	n/a	NC Hand		Favor WP, PP	3.01
43	B	LSR	50	Tractor		RR. WL DMT. Patch cut & plant PP WL. Girdle DMT overstory.	25.08
44	D	LSR	n/a	NC Mech		Favor WL & WP. Mowing.	19.69
45	B	LSR/C1	60/40	Tractor		Heavy fuels.	4.40
46	E	C1	n/a	NC Hand		Favor PP & WL. Slashbust-mow.	1.38
46A	E	B2	40	NC Hand			0.95
47	B	C1	40	Cable		RR. Plant PP.	4.01
48	B	LSR/B2	40	Tractor		RR. Girdle residual DMT trees. SMZ. Plant PP	19.34
49	D	LSR	n/a	NC Mech		RR. Girdle DMT OS. VQO, SMZ	20.88
50	B	LSR	50	Tractor		RR. Trail VQO	7.72
51	B	LSR	40	Cable		SMZ	13.61
52	B	LSR	40	Tractor		RR Pocket. Plant PP, WL. Trail VQO	44.18
53	B	LSR	40	Cable		Girdle residual DMT trees.	7.79
54	D	B6	n/a	NC Mech		Trail VQO	13.47
55	D	B6	n/a	NC Mech		Trail VQO	9.17
56	B	B6	40	Tractor	Yes	Trail VQO	6.03
57	D	C1	n/a	NC Mech		VQO PR	6.63
58	B	B6	40	Tractor		Trail VQO	4.74
59	D	B6	n/a	NC Mech		Trail VQO	8.51
60	B	B6	40	Tractor		Trail VQO. RR on ridge. Girdle DF DMT trees. Heritage buffer 25'.	34.85
61	D	C1	n/a	NC Mech		Slashbust. Girdle DF DMT OS.	2.35
62	B	C1	40	Tractor		Heavy downed wood	5.38
63	B	B6	40	Cable		Trail VQO	16.01
64	E	C1	n/a	NC Hand			1.38
65	B	B6	40	Tractor		Trail VQO. Barbed wire fence	3.91
66	D	C1	n/a	NC Mech		Hazard trees	15.02
67	D	C1	n/a (30)	NC Mech		Trail VQO	12.30
68	B	C1	40	Tractor			6.74
69	D	C1	n/a	NC Mech		Girdle DMT DF OS. Slashbust	6.00
70	B	B6	40	Tractor			22.64
71	D	B6	n/a	NC Mech	Yes	RR. Trail VQO	15.33
72	B	B6	40	Cable	Yes	Trail VQO	13.46
73	B	RNA	40	Cable	Yes	Girdle residual DMT DF. Trail VQO.	20.49
73A	E	B6	n/a	NC Hand	Yes	Hand thin brush & saplings	1.20
74	D	RNA	n/a (20)	NC Mech	Yes		1.74
75	B	RNA	40	Tractor		Downed wood	15.28
76	B	RNA	40	Tractor	Yes		2.8
77	C	RNA	40	NC Mech	Yes	Brushing.	6.18

Unit	Stand Group	MA	Target Canopy Cover	Yarding	Under-burn	Comments	Acres
78	B	RNA	40	Cable	Yes	maint. w/ fire	5.06
79	C	RNA	40	NC Mech	Yes	brushing, burning	6.16
80	F	C1	n/a	NC	Yes	Pruning Burning	64.80
81	A	B6	40	Tractor	Yes		21.82
82	D	C1	n/a	NC Mech	Yes		12.21
83	F	B6	n/a	NC	Yes		38.19
84	E	C1	n/a	Hand	Yes	Hazard trees	0.66
85	B	C1	40	Tractor	Yes		4.48
86	F	A6/B10	n/a	NC	Yes		17.57
87	C	A6	40	Tractor	Yes		4.75
88	B	A6	35	Cable	Yes		19.77
							1449.25

Abbreviations: RR = Root Rot (Root Disease), DMT = dwarf mistletoe, BB = Bark Beetle, WL= Western larch, PP = Ponderosa pine, LP = Lodgepole pine, DF = Douglas-fir, WP = White pine, VQO = Visual Quality Objective, SMZ= Streamside Management Zone, OS = Overstory

Acres are approximate based on Geographic Information Systems and have not been measured in the field. Acreage in italics has been measured with a global positioning system since the publication of the Environmental Assessment. Overall, there was a slight increase (3%) in acreage.