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Cabin F7 Replacement Project Block F Lake of the Woods Housing Track

Environmental Assessment

Klamath Ranger District
Fremont-Winema National Forest

Klamath County, Oregon

T. 37S. R. 5E. Section 11 Willamette Meridian



Existing Cabin F7 (Goeller) looking NE from dock/Lake of the Woods (June 2014)

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INTRODUCTION

The permit holder for Recreation Residence Cabin F7 has requested authorization to replace their cabin in accordance with the Operating and Maintenance Plans (March 2007) and Fremont-Winema Design Guidelines for Recreation Residential Tracts. This cabin is authorized by a special use permit under the authority of the Act of March 4, 1915, 16 U.S.C. 497.

The project is designed in conformance with the Winema National Forest Land and Resource Management Plan, as amended (USDA Forest Service, 1990) and is consistent with the goals, objectives and standards for Management Area 2 and Management Intensities - Management Area 2D: Developed Recreation, Special-Use Permit Areas. The project location within lands covered under the Forest Plan Amendment for Management of Habitat for Late-successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl, also known as the Northwest Forest Plan (USDA & USDI, 1994).

This Environmental Assessment (EA) was prepared by a third party contractor and has been reviewed by the Klamath Ranger District of the Fremont-Winema National Forest. This document discloses the direct, indirect and cumulative environmental impacts that would result from the proposed action and alternatives.

The Responsible Official for this project is Heather Berg, District Ranger Klamath Ranger District. In making her decision, the Responsible Official will review the purpose and need, the Proposed Action and other alternatives, the environmental consequences, and public comment to make the following decisions.

PURPOSE AND NEED FOR ACTION

Cabin F7 owners want to raze the existing cabin and replace it with a new structure constructed with modern materials and conveniences, including utilities and plumbing, consistent with the Operating and Maintenance Plans (March 2007) and Fremont-Winema Design Guidelines for Recreation Residential Tracts. Replacing the cabin is a permissible action under the Recreation Residence Permit. The cabin owner's need to replace the structure is to address structural, electrical and plumbing deficiencies which would be difficult to address within the existing structure. Additionally the existing cabin sits at the lake's edge and relocating the cabin would provide the opportunity to meet set-back requirements not addresses with the current location.

PUBLIC INVOLVEMENT AND TRIBAL CONSULTATION

This project was listed in the Fremont-Winema National Forest Schedule of Proposed Actions starting in April 2015. The project was listed on the Forest's website at http://www.fs.fed.us/nepa/nepa_project_exp.php?project=46728

Scoping for this project was conducted by Ken Grigsby under contract with the owner of cabin F7. Advice and instructions for conducting scoping were provided by Margaret Bailey (previous District Ranger) and Mike DeSmit (Special Uses Permit Administrator), Klamath Ranger District, Fremont-Winema National Forest.

Scoping included contacting by email or letter the President of the Cabin Owners Association (who then contacted all cabin owners), other permittees in the Lake of the Woods area including

Camp Ester Applegate, Boy Scout Camp, Lake of the Woods Resort, the State Historic Preservation Society, the Lake of the Woods History Association, and the Klamath Tribe.),.

Scoping began on July 29, 2015, and concluded on August 28, 2015. Comments and letters received in response to scoping are contained in the project record. There were minimal concerns expressed about replacement of Cabin F7 and no comments were received from the Klamath Tribes.

Comment	Response
An adjacent cabin owner expressed a concern about the new cabin location blocking the view of their upland cabin (not adjacent to the lake)	There are no prohibitions for constructing a 2-story cabin
Commenter questioned whether year-round use was appropriate	Year-round use is not prohibited.
Commenter questioned the size of the cabin footprint	The original cabin footprint was slightly larger than the maximum allowable footprint on 1,200 sq. ft. The size of the replacement cabin footprint and features would be designed to meet all applicable regulations and codes.
A commenter noted an error and inconsistency from the scoping notice and the site plan, which had different numbers for the size of the lot and the size of the new cabin footprint.	The correct size of the F7 lot is 0.43 acres (not 0.53 or 0.20).
Other cabin owners seemed interested or are planning to replace their cabins and wondered if they would be subject to similar requirement under the NEPA and historical evaluations and mitigations if applicable.	NEPA analysis would be required for any replacement on National Forest System lands

In August 2005, as part of the documentation of built resources at the Lake of the Woods Recreation Residence Tract, the Fremont-Winema National Forest documented Cabin F7 (originally referred to as the Goeller cabin, then dated as 1920) found it to be directly contributing to historical character as described in the Lake of the Woods Historic Assessment document. Cabin F7 has been evaluated as contributing resources significant in the development and history of the property within the history of Lake of the Woods under criterion “A” for association with the area’s development, and under criterion “C” for architectural design as an example of the early rustic/vernacular architecture that characterize the development (FWNF, 2005). The shed/garage and outhouse associated with Cabin F7, while not documented or dated, were determined to be contributing resources and also considered eligible for listing on the National Register of Historic Places (FWNF, 2005).

Recognizing the Federal Register eligibility, the potential cultural significance of Cabin F7 to the historical context of the Lake of the Woods Recreation Residences and the probability that the proposed action would affect the historic qualities and character the cabin owner engaged the Oregon SHPO and Fremont-Winema National Forest to evaluate potential effects as required under Section 106 of the Historic Preservation Act.

To address the potential effects of the proposed action, the Fremont-Winema National Forest and Cabin F7 owners consulted with the Oregon SHPO pursuant to 36 CFR Part 800, implementing Section 106 of the National Historic Preservation Act (16 U.S.C.

470f). The result of that consultation was a Memorandum of Agreement between the Fremont-Winema National Forest, the Oregon SHPO, and Cabin F7 owners signed March 30, 2015 that stipulates certain actions and activities that will be accomplished by the owners to mitigate the adverse impact.

PROJECT LOCATION

Cabin F7 is located in the F-Block of recreation residents at Lake of the Woods. The lot is approximately 100 x 200 feet with a total area of 18,794 square feet (0.43 acres), as identified on Klamath County Assessor's Map 37-5, Detail #5, as Tax Lot 100L1 (T.37S., R.5E., section 11, W.M.) and shown in Figure 1 below. The lot is adjacent to Lake of the Woods, is heavily treed, and generally flat. Cabin F7 is located at the western lot line, abutting the lake and has an overall footprint of approximately 24x32 feet, plus a front facing deck that extends to the water's edge

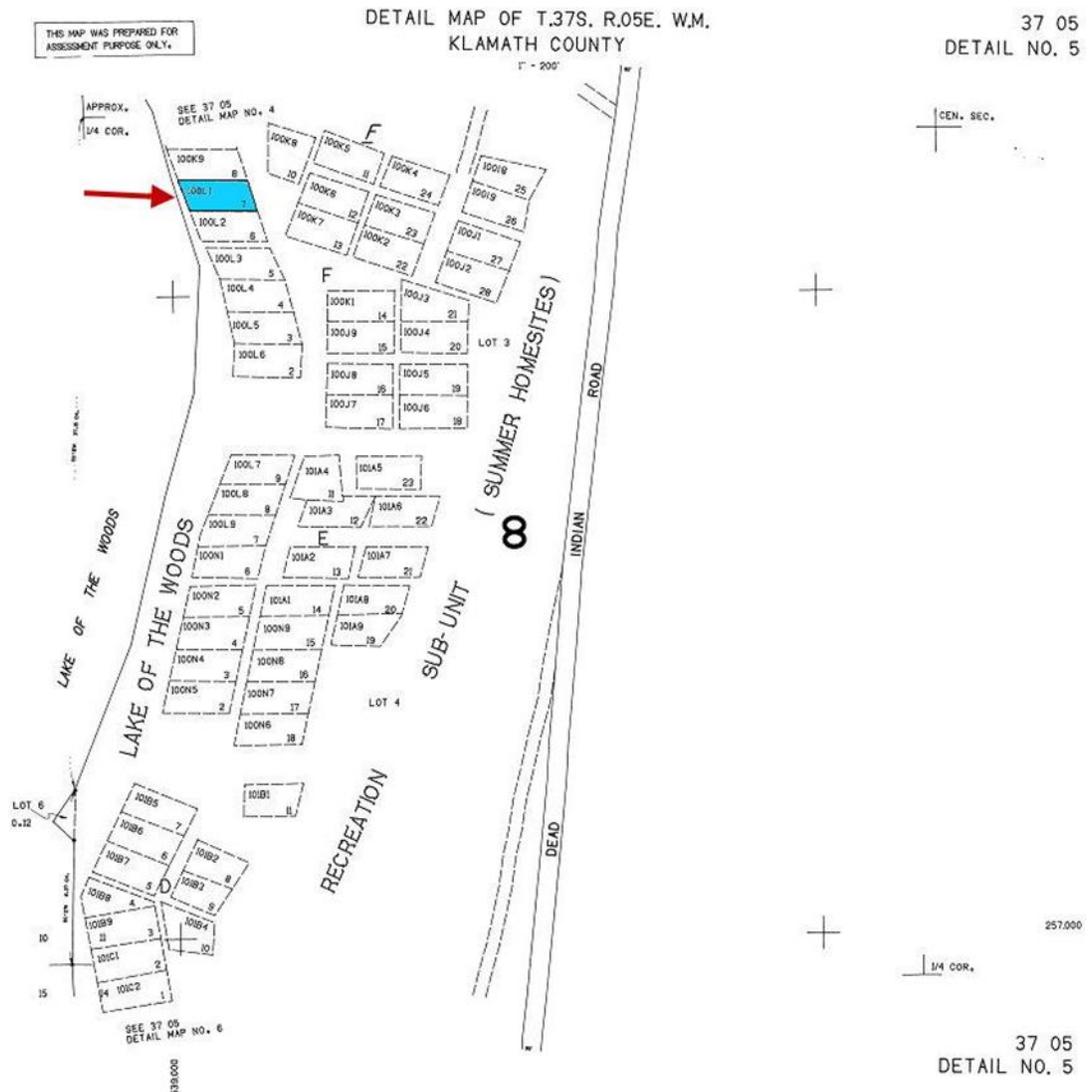


Figure 1. "F-Block" Lake of the Woods Vicinity Map, Klamath County, Oregon

PROPOSED ACTION AND ALTERNATIVES

The proposed action and no action have been analyzed in detail. Other alternatives were considered but not analyzed in detail. All are described in this section.

No Action Alternative

Under the no-action alternative, the permit holder would not be authorized to replace Cabin F7. The existing structure would remain in place. Interior modifications could be made. Current conditions would continue.

Proposed Action

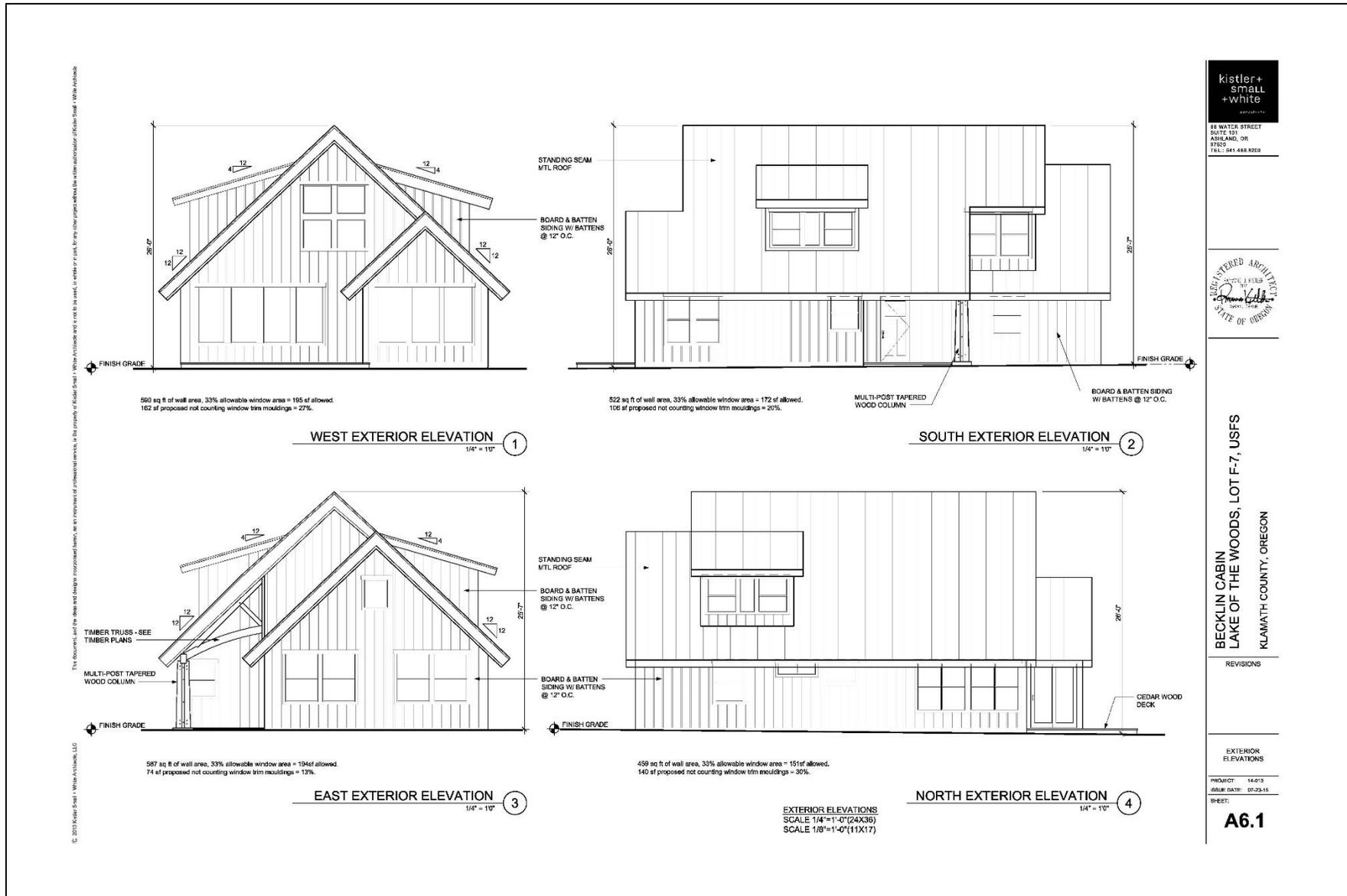
The Klamath Ranger District proposes to allow Cabin F7 owners to raze the existing cabin and replace it with a new structure constructed with modern materials and conveniences, including utilities and plumbing, consistent with the Operating and Maintenance Plans (March 2007), the Fremont-Winema Design Guidelines for Recreation Residential Tracts, and the proposed site plan, design criteria itemized below.

The Cabin F7 Replacement would be located to the east of the existing structure and 25 feet from the shore. The footprint of the new structure would be approximately 1,195 Sq. Ft. There would be a second story of approximately 553 Sq. Ft. Three Douglas-fir trees (10, 12, and 20 inches diameter), located within the new footprint would need to be removed to facilitate the new cabin location. Exterior construction materials would consist of earth tone colored boar and batten siding and a metal roof. The specific materials and colors would meet the Fremont-Winema Design Guidelines for Recreation Residential Tracts and would be approved by the District Ranger prior to construction. Conceptual elevations are displayed in Figure 2

The new cabin would include sanitation facilities which would require construction of County approved septic system. The approximate location is shown on Figure 3. The existing outhouse would be permanently removed. 225 linear feet of drainfield would be trenched to a maximum depth of 36 inches and a minimum of 24 inches deep. Setbacks for sanitation facilities would be maintained 10 feet from property lines and building foundations, 100 feet from wells, to drainlines, and 50 feet from wells to septic tank.

The existing shop/garage outbuilding in the middle of the lot would be rehabilitated and retained for additional storage to support the occupancy.

In preparation for new cabin construction, the existing one-story cabin would be demolished and removed. Refuse would be hauled off-site.



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REGISTERED ARCHITECT
 STATE OF OREGON

**BECKLIN CABIN
 LAKE OF THE WOODS, LOT F-7, USFS
 KLAMATH COUNTY, OREGON**

Figure 2. Conceptual Elevation Design, Proposed Cabin F7, Lake of the Woods (Kistler-Small_White Architects, July 2015)

Project Design Criteria

The proposed action would include the following project design, and mitigation measures to meet project objectives and/or to reduce or minimize unwanted effects (all replacement and construction would comply with the following):

- Implement all terms and conditions specified in the March 30, 2015 Memorandum of Agreement (available in project file) between the Fremont-Winema National Forest, the Oregon SHPO and Cabin F7 owners.
- All work would comply with federal, state, and local building codes. All designs would meet the Design Guidelines for Recreation Residential Tracts. During the implementation of this decision, close collaboration with the Forest Service authorized officer is required where necessary specific details will be submitted to and approved by the Klamath District Ranger.
- The following Best Management Practices will be implemented:
 - Install a temporary erosion control measure, such as a silt fence or wattle, to prevent work site runoff from entering the lake during demolition and construction. (2012 BMP¹ Fac-2. Facility Construction and Stormwater Control; 1988 BMP R-2. Erosion Control Plan²).
 - Timing of construction activities shall correspond with time periods when probabilities for rain and runoff are lowest. (1988 BMP R-3. Timing of Construction Activities). For this area that would be the summer and fall months.
 - Designate limits of the work area, as well as areas for stockpiling materials, staging equipment, and parking. Confine disturbance to the designated areas. (2012 BMP Fac-2. Facility Construction and Stormwater Control; 2012 BMP Road-8. Parking and Staging Areas). Keep the work area as far away from the lake shore as possible.
 - Control materials at the work site to prevent trash from blowing into the lake. For example, use trash containers with lids, use durable tarps that are weighted down rather than thin plastic sheeting or weathered tarps that produce plastic fragments. (2012 BMP Fac-5. Solid Waste Management).
 - Refuel and service equipment as far away from the water as possible. Store hazardous materials in spill-proof containers in a location where they will not be introduced to the lake. Store these materials only in the quantities needed for the work. (BMP Road-10. Equipment Refueling and Servicing).
 - Avoid the potential for soil and water resource contamination by hazardous materials by preventing release. (2012 BMP Fac-6. Hazardous Materials). Keep a spill kit on site for responding to unexpected leaks and spills. (2012 BMP Road-10. Equipment Refueling and Servicing).
 - Inspect equipment regularly for leaks. Repair leaky equipment. (2012 BMP Road-10. Equipment Refueling and Servicing).
 - Consider applying erosion control (jute netting or mulch) to disturbed areas when the project is completed. (2012 BMP Fac-2. Facility Construction and Stormwater Control). Base the decision on observations of disturbance, recovery, and erosion potential.

¹ USDA Forest Service. 2012. National Best Management Practices (BMP) for Water Quality Management on National Forests System Lands. Volume 1: National Core BMP Technical Guide. FS-990a.

² USDA Forest Service. 1988. General Water Quality Best Management Practices, Pacific Northwest Region, November 1988.

- Sanitation facilities must be in compliance with State and local regulations to prevent degradation of water quality in groundwater and surface water resources and for the protection of public health. (2012 BMP Fac-4. Sanitation Systems; 1988 BMP Rec-3. Management of Sanitation Facilities).
- All heavy equipment necessary for operations and maintenance will be washed prior to entering National Forest lands to reduce the potential introduction of noxious weeds or invasive plant species. (2012 BMP Fac-7. Vehicle and Equipment Wash Water).
- Native plant materials are recommended for use in re-vegetation for restoration and rehabilitation.
- Invasive plants (oxeye daisy) are present at the site. Sites will be treated prior to disturbance.
- All food containers or food refuse will be removed from the site each day and properly disposed of by the responsible parties to ensure that wildlife is not attracted and encouraged to visit the site.
- As much as possible, keep ground-disturbing activities within already disturbed areas such as previous cabin footprint and driveways. Notify Forest Service authorized officer if disturbance of natural forest ground is anticipated.

Alternatives Considered but Eliminated from Detailed Study

In order to create a functional, code-compliant, multi-season recreational dwelling, various options for the Cabin F7 site were considered in an effort to minimize impact on the historic character of Cabin F7 or to otherwise maintain it as an element relating the original development period at the Lake of the Woods.

Rehabilitate and Expand Cabin F7: This alternative would upgrade the historic portion of the existing structure, maintaining its current location on a new, slightly higher foundation, so as to create a safe, year-round, weather-tight envelope while constructing a compatible addition to the rear, in place of the current kitchen volume, and provide for increased space and utility within a historically-compatible rehabilitated and expanded volume. This alternative was considered problematic due to the inherent characteristics of the cabin and the difficulties in expanding the volume and upgrading while maintaining historic character and feel. This alternative would not address the current setback issues as defined by FWNF, would not meet the design requirements for new construction at Lake of the Woods, and would not meet the applicant's goals of safe and secure multi-season use.

Relocate and Expand Cabin F7 on Current Lot: This alternative would move the historic portion of the existing structure to the east upon the current lot, complying with FWNF setback requirements from the shore while allowing for the construction of a new and compatible addition to augment the existing historic space and meeting the applicant's goals for safe and secure multi-season use. Similar to above, this alternative was considered problematic due to the inherent characteristics of the cabin and the difficulty of complying with required standards while maintaining the original volume.

Remove and Relocate Cabin F7 for Interpretative Use and Construct New: This alternative would have carefully prepared or disassembled the historic portions of Cabin F7 for relocation to another site at Lake of the Woods for public interpretive usage, allowing for construction of a new cabin on the property to meet the applicant's goals. Applicant's offered the Cabin, funding toward relocation expenses and some investment in future interpretative design to several entities including the Lake of the Woods Historical Association, the Lake of the Woods Resort, and the Fremont-Winema National Forest without success. Because no site or partner for this option was identified, it was dropped from consideration.

ENVIRONMENTAL EFFECTS

Heritage

Cabin F7 is a single-story gable-roofed volume that was built circa 1925 by George W. and Gladys Rose, of Ashland. In 1926 the Rose's Cabin F7 was purchased by Harry E. and Maude Goeller (LoWHA Cabin History, 2012). Cabin F7 is considered one of the best documented cabins at the lake based largely upon the recollections of Harry and Maude's daughter, Adra Goeller Turner, as collected during an oral history interview with the Lake of the Woods Historic Committee in June 2010 and then augmented by a written statement from her older sister, Nan Goeller Alexander (n.d., circa 2010). The cabin is fairly typical of the small cabins that were associated with the recreational developments built at Lake of the Woods in the decades prior to World War II. During this era before air-conditioning, the mountain lakes served as a way to escape the heat of summer for the families of both Jackson and Klamath counties.

The original, central volume of the cabin is a wood-framed, gable approximately 20x24 feet beneath a corrugated metal roof with a 16-foot tall ridgeline that runs parallel to the lake. The post and pier foundation is partially skirted with painted wood shingle. Exterior siding is of board and batten, currently painted a pale "Forest Service" green. Early-appearing wood-sash windows, presumed to have been installed in place of the original screened openings, remain. The shed-roofed addition to the front (west) that was originally built as a screened-in porch and was later converted to living space, has multiple 6-light wood sash casement windows set in a character-defining bank that faces the lake. This addition volume, also wood-framed and corrugated metal roofed, is approximately 10x25 feet and is supported on an open post and pier foundation. Roof rafters, 2x8 inches project 10 inches beyond the window wall, open and exposed without any fascia or cornice detail. Simple blocking at the plate defines the exterior envelope.

A second addition to the rear of the main, central volume, was built later (n.d, circa 1940s?) and has matching board and batten siding and metal roofing. This area houses a small kitchen and a single bedroom. A stacked concrete block chimney is centrally located within the kitchen area, with a sheet-metal flue extension rising approximately 5 feet above the main ridgeline. The majority of the cabin's space consists of the single, rectangular, space under the primary gable.

Direct and Indirect Effects of the Proposed Action

In July 2014, in anticipation of the proposed action, Cabin F7 was re-evaluated and submitted to SHPO for review by the cabin owners. The Oregon State Historic Preservation Office (SHPO) re-confirmed the original evaluation of eligibility with a letter dated July 18, 2014.

The USDA Fremont-Winema National Forest, in concurrence with the Oregon State Historic Preservation Office has determined that the proposed action would have an adverse effect on a National Register eligible property. This project would result in complete loss of resources that have been evaluated as contributing resources significant in the development and history of the property. As a result, the project as proposed results in a finding of "Historic Properties Adversely Affected," according to the criteria set forth in 36 CFR 800.5.

Note that finding that the loss of historical resources evaluated as significant in the development of the area and history of the property the criteria set forth in 36 CFR 800.5, is not the same as "significance" as defined under the NEPA, which includes the consideration of context and intensity (40 CFR, §1508.27).

To address the adverse effect of the proposed action, the Fremont-Winema National Forest and Cabin F7 owners consulted with the Oregon SHPO pursuant to 36 CFR Part 800, implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f). The result of that

consultation was a Memorandum of Agreement between the Fremont-Winema National Forest, the Oregon SHPO, and Cabin F7 owners signed March 30, 2015 that stipulates certain actions and activities that will be accomplished by the owners to mitigate the adverse impact.

Cumulative Effects of the Proposed Action

Cumulative effects are those projects and actions and effects from those actions that overlap in time and space with the proposed action and its associated effects. There are no other projects or activities within Lot F7 or in adjacent lots that would overlap in time and space. There are other cabin replacement projects proposed at Lake of the Woods, some of which also involve historical resources similar to Cabin F7. These are minimal compared to the number of historical cabins currently located at the lake; see FWNF, 2005. With each cabin removal there is one less historic structure to provide context to the character of Lake of the Woods. There are no adverse cumulative effects associated with heritage anticipated.

Direct and Indirect Effects of No Action Alternative

Demolition of the existing Cabin F7 would not occur, therefore this alternative would preserve the historic character of Cabin F7 and there would be no effect to historic properties.

Hydrology

Lake of the Woods is located near the crest the Cascade Range in southern Oregon, 7 miles (11 km) southeast of Mount McLoughlin. It is a natural lake and is situated in a linear valley oriented north-south, the orientation and genesis of which has been determined by regional faulting. The west side of the lake is located adjacent to the fault plane itself with the entire lake located on the down-thrown block, known as the footwall (Mertzman 2011).

Lake of the Woods covers 1,146 acres (4.64 km²) and is approximately 2.75 miles (4.43 km) long and 0.75 miles (1.21 km) wide. The lake has an average depth of 27 feet (8.2 m) with a maximum depth of 55 feet (17 m) near the western shore. The water levels in Lake of the Woods only fluctuate about 2 feet (0.61 m) during a normal year. The surface water normally warms to the low 70s °F (low 20s °C) in the summer and freezes in the winter.

Three tributary creeks flow into Lake of the Woods: Rainbow Creek, a year-round perennial tributary; Billie Creek and Dry Creek have only seasonal flows. Historically, the entire watershed of Billie Creek contributed flows to Lake of the Woods. However, in 1924, with the completion of the construction of the Cascade Canal (RRVID 2016), which transfers water from Four Mile Lake in the Upper Klamath Lake basin to the Fish Lake basin in the Rogue River Watershed, intercepted Billie Creek flows which continues today. As a result, inflow to Lake of the Woods has been reduced and likely reduces the outflow from the lake via Seldom Creek.

Today, most of Lake of the Wood's water comes from groundwater seepage (Johnson et al. 1985). The Lake of the Woods area receives approximately 23-30 inches of groundwater recharge annually (Gannett et al 2012). The lake's only outlet flows into Great Meadow, a wetland at the northeast end of the lake. Great Meadow drains into Seldom Creek, which flows into Upper Klamath Lake. Lake of the Woods only discharges water in the spring. During the drier summer and fall months, lake water is lost only through groundwater seepage and evaporation.

The watershed that drains into Lake of the Woods covers 26 square miles (67 km²) and is covered by a mixed conifer forest that receives an average of 30–44 inches (760–1,120 mm) of precipitation annually. The primary tree species in the watershed are Douglas-fir and white fir. The watershed also has some ponderosa pine, lodgepole pine, and aspen. Much of the watershed is covered by a dense forest canopy.

Lake of the Woods currently has approximately 218 recreations residences, two campgrounds containing a total of 122 campsites, two day use areas for swimming and picnicking, three boat launches, three organizational camps and a resort that is in operation year-round. Most of the residences and facilities likely contain open-bottom onsite pit toilets/outhouses or onsite septic tank/soil absorption systems that allow for the infiltration of domestic wastewater to the shallow groundwater. Onsite treatment of wastewater effluent can lead to health risks to humans and water quality problems if treatment systems are not designed and constructed properly or not maintained. Water quality parameters include fecal coliform bacteria, viruses and nutrients, such as nitrates and phosphorus. For example, nitrate levels in shallow groundwater are increasing in the La Pine, Oregon area due to contamination from residential septic systems (USGS 2007). Past water sampling for bacteria in Lake of the Woods has resulted in positive hits for fecal coliform, however, not at levels that were considered hazardous to human health (Johnson et al. 1985). Positive counts of fecal contamination does indicate untreated wastewater is reaching the lake.

On-shore and water-based recreational activities coupled with high-density residential structures in close proximity to the lake shore can lead to increased erosion of the shoreline and introduction of contaminants to the water body. Ford (2004) has reported significantly increased sedimentation rates since the early 1980s in two deep-water sediment cores from Lake of the Woods. However, the report concluded that anthropogenic activities appear “to be leaving only a small paleolimnological footprint.” In other words, the development around Lake of the Woods is within the bounds of what the lake can tolerate.

Water quality of Lake of the Woods appears to be good, but slowly decreasing through time (RCC 2008). Rogue Community College has monitored water quality from 1992 through at least 2007. Parameters monitored include: depth; temperature; pH; dissolved oxygen; conductivity; transmissivity; turbidity; Secchi depth; red, blue, green, and white light penetration; chlorophyll; 14C productivity; bacteria; phytoplankton assemblages; total phosphorus; orthophosphate; nitrate/nitrite nitrogen; silica; ammonia; alkalinity; and total dissolved solids. Results from these studies indicate that there is slight to moderate variability in the lake’s trophic state, but that the lake is oligotrophic to mesotrophic. Data suggests a slow decrease in water quality through time indicated by a slow but steady increase in total phosphorus concentrations in the lake, the slow decrease in lake clarity as measured by the Secchi disk, and the overall increase in the average trophic state index for the lake.

Best Management Practices (BMPs) are essential to maintaining high water quality and meeting State Water Quality Standards. The USDA Forest Service (2012) BMPs provides a component of the basis for compliance with State Water Quality Standards through a Memorandum of Understanding with the State of Oregon (2014). The 1988 Pacific Northwest Region BMPs provide the grounds for compliance and consistency with the Standards and Guides of the Winema Land Management Plan. See the ‘Project Design Criteria’ section for details as to what BMPs shall be implemented during planning, construction and operation of this project.

Many of the recreation residences (approximately thirty-nine (39) in the vicinity of the subject property) are covered under a blanket Water Right through the State of Oregon Water Resources Division (Certificate #88096; priority date: 9/26/2007) for domestic uses. The subject property is not covered under that Water Right. Some recreation residences in the vicinity of the subject property have groundwater wells for domestic use that range in depth from 80 to 420 feet below land surface according to the State searchable well log database (http://apps.wrd.state.or.us/apps/gw/well_log/Default.aspx). The subject property’s well log was not found in the database. The cabin owner provided information indicating the domestic water supply for this property is located within the residence.

Direct and Indirect Effects of Proposed Action

The cabin on Lot F7 at Lake of the Woods is proposed for replacement in order to bring it up to current standards for setback distance from the lake, safety, and energy efficiency. The existing cabin is within 25 feet of the edge of water. The slope of the site is gradual. There is little vegetation along the edge of water. The existing structure would be demolished with heavy equipment and hauled off-site. The new building would be constructed at the minimum 25 foot setback from the shoreline.

Due to its proximity to the lake shore, hydrology design measures are recommended based on site conditions, discussion of the project with permit administrator, and applicable agency direction including National Best Management Practices (USDA 2012) and the Forest Plan, as amended, with associated Standards and Guidelines, which reference the 1988 Pacific Northwest Region BMPs. Based on implementation of these hydrology design measures (see Project Design Criteria), this project does not present extraordinary or significant circumstances related to water, soil, or riparian values. Based on implementing these recommendations, direct and indirect impacts to shoreline condition are expected to be confined to the actual project site. They would be short-term (1-2 years) and unlikely to contribute to adverse cumulative effects in the lake.

Cumulative Effects of Proposed Action

There are no other projects or activities within Lot F7, adjacent lots, or the lake that would overlap in time and space. Direct or indirect effects are unlikely to contribute to adverse cumulative hydrologic effects in the lake.

Direct and Indirect Effects of No Action Alternative

Under the no-action alternative, the permit holder would not be authorized to replace the existing Cabin F7 at Lake of the Woods with a new recreation residence structure. There would be no additional impacts on hydrologic conditions resulting from development activities. Current conditions as described above would continue, as well as the potential for flooding during high water would continue.

Botany and Invasive Plants

The 2015 Region 6 Sensitive Species Plant List was reviewed for this project. This list was reviewed to determine if there would be any potential impacts to any sensitive plant, fungi, bryophyte and lichen species from project activities (USDA 2016). Currently, there are no sensitive plant populations that have been identified within the project area.

This project has been reviewed for compliance with the *2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines* and the 2014 Survey and Manage List (USDA 2014).

Pre-disturbance surveys for category A & C species are not required, because this project occurs mainly in disturbed, compacted, maintained (litter and woody debris removed) ground in the immediate proximity of the cabins and driveways that are not habitat for fungi. No lichens have been found in this area. The area does not have habitat for any other botany survey and manage species. Large trees would be retained and ground disturbance would not impact any substantial portion of the natural forest. This project will not result in any disturbance likely to have a significant negative impact on the habitat or life cycle requirements for any Survey and Manage species.

The project area has been reviewed for species listed as manage known sites and manage high priority sites (Category B, D, or E). There are no known sites present within the project area. The

project area is exempt from Equivalent Effort fungi surveys, because the project area does not contain habitat for fungi (USDA/USDI 2012).

The project area and the GIS weed layer were reviewed for this project. One species of invasive plant, oxeye daisy (*Leucanthemum vulgare*) is found scattered throughout the project site. This site is part of ongoing invasive plant treatment efforts on the Forest.

Direct and Indirect Effects of Proposed Action

The cabin on Lot F7 at Lake of the Woods is proposed for replacement in order to bring it up to current standards for setback distance from the lake, safety, and energy efficiency. The existing structure would be demolished with heavy equipment and hauled off-site. The new building would be constructed at the minimum 25 foot setback from the shoreline.

Botanical design measures are recommended based on current site conditions, these include cleaning of heavy equipment prior to entering the site to reduce the potential introduction of noxious weeds or invasive plant species, use of “weed free” material and use of native plant materials for revegetation, and keeping ground-disturbing activities within already disturbed areas such as previous structure footprints and driveways.

Based on implementation of these botanical design measures (see Project Design Criteria), this project would not impact to any R6 sensitive species. Direct and indirect impacts are expected to be confined to the actual project site.

Cumulative Effects of Proposed Action

There are no other projects or activities within Lot F7 or in adjacent lots that would overlap in time and space. Direct or indirect effects are unlikely to contribute to adverse cumulative effects for botanical or invasive plant species.

Direct and Indirect Effects of No Action Alternative

Under the no-action alternative, the permit holder would not be authorized to replace the existing Cabin F7 at Lake of the Woods with a new recreation residence structure. There would be no additional impacts on botanical resources or invasive plants.

Wildlife

Lake of the Woods provides habitat for a wide variety of bird species. Grebes, ducks, geese, an occasionally common loons can be observed. The lake also attracts birds of prey including osprey and bald eagles. In the forest around the lake, there are mountain chickadees, western tanagers, red-breasted nuthatch, yellow-rumped warbler, red crossbills, hermit thrush, golden-crowned kinglet, Steller's jays, gray jays, Vaux's swifts, common nighthawk, hairy woodpeckers, downy woodpeckers, and pileated woodpeckers. The forest is also home to a number of owl species including great horned owls, great gray owls, northern spotted owls, northern saw-whet owls, and northern pygmy-owls.

The fir dominated forest around Lake of the Woods is home to numerous mammals, both large and small. The large mammals include mule deer, black-tailed deer, elks, black bears, coyotes, bobcats, and cougars. Some of the small mammals include porcupines, western spotted skunks, striped skunks, martens, minks, long-tailed weasels, snowshoe hares, yellow-bellied marmots, golden-mantled ground squirrels, Douglas squirrels, dusky-footed woodrats, bushy-tailed woodrats, creeping voles, deer mice, and northern pocket gophers.

There is Northern spotted owl dispersal habitat within the project area. There is some nesting, roosting, and foraging (NRF) habitat adjacent to the project area; however, the project is within Critical Habitat. There are no known nest sites or activity centers within or adjacent to the project.

As the Klamath Ranger District falls within the lands covered by the Northwest Forest Plan, known sites of wildlife species listed in the 2001 Record of Decision (ROD) must be protected from disturbing management activities, known as the Survey and Manage provisions. There are no known sites pertaining to listed wildlife species within the project area. Pre-disturbance activities are not required as the planned activities are not “likely to have a significant negative impact on the species’ habitat, its life cycle, microclimate, or life support requirements” (USDA, USDI 2001). Most of the animals listed as in the Survey and Manage category are included in the R6 Sensitive Species List or on other lists already discussed in this report. Other wildlife species are also discussed in the NWFP, primarily animals associated with snags and old growth mixed conifer or ponderosa pine forests.

Direct and Indirect Effects of Proposed Action

The biological evaluation documents this project would have no impact to R6 Sensitive Species and no effect to federally listed species or critical habitat. Although some of the wildlife species may have habitat within the vicinity of the project area, it is highly unlikely they are using the area due to the disturbance associated with the existing homes and recreational activities on the lake. Direct and indirect impacts to habitat conditions are expected to be confined to the actual project site. They would be short-term (1-2 years) and unlikely to contribute to adverse cumulative effects.

Cumulative Effects of Proposed Action

There are no other projects or activities within Lot F7, adjacent lots, or the surrounding area that would overlap in time and space. Direct or indirect effects are unlikely to contribute to adverse cumulative effects on wildlife species or habitat.

Direct and Indirect Effects of No Action Alternative

Under the no-action alternative, the permit holder would not be authorized to replace the existing Cabin F7 at Lake of the Woods with a new recreation residence structure. There would be no additional impacts on wildlife or habitat conditions resulting from development activities.

Fisheries

Lake of the Woods was stocked for the first time in 1913. This introduced hatchery-breed rainbow trout into the lake. This stocking produced a decade of good trout fishing. In 1922, the Oregon State Game Commission (a predecessor to the Oregon Department of Fish and Wildlife) stocked the lake with largemouth bass, black crappie, bluegill, yellow perch, warmouth, pumpkinseed sunfish, brown bullheads, carp, and perhaps suckers. The yellow perch quickly became the lake’s dominant species, out-competing the trout for both food and habitat. Between 1925 and 1935, brook trout, cutthroat trout, Chinook salmon, Coho salmon, and steelhead were also introduced into the lake. No additional rainbow trout were stocked until 1946. The trout population remained relatively stable until about 1938 when the salmonid populations began to decline, probably due to competition from the warm water species combined with limited spawning areas and increasing fishing. Despite the Game Commission’s efforts to control the warm water species, their population continued to proliferate while the salmonid species declined. In 1955, the entire lake was poisoned with rotenone, killing all the fish in the lake. The lake was then restocked with rainbow trout, brook trout, and kokanee salmon.

Today, the Oregon Department of Fish and Wildlife manages the Lake of the Woods fishery. It used both natural production and stocking to maintain and balance of fish populations. Brook trout, black crappie, brown bullheads, yellow perch, largemouth bass, blue chub, and tui chub have self-sustaining populations while the kokanee salmon, brown trout, and rainbow trout populations are supplemented by stocking.

Direct and Indirect Effects of Proposed Action

The cabin on Lot F7 at Lake of the Woods is proposed for replacement in order to bring it up to current standards for setback distance from the lake, safety, and energy efficiency. The existing cabin is within 25 feet of the edge of water. The slope of the site is gradual. There is vegetation along the edge of water except for an access point with no groundcover. The existing structure would be demolished with heavy equipment and hauled off-site. The new building would be constructed at the minimum 25 foot setback from the shoreline.

With this being a ground disturbing activity near the lake shore, silt fencing should be placed along the shoreline near the activity center to prevent any sedimentation from entering the lake due to runoff of any rain events. Any equipment that is used onsite should have the fuel contained and refueling of large equipment should be accomplished away from the lake shore. All equipment should be washed prior to being brought to the lake shore to prevent the spread of any invasive plant or aquatic species.

Due to its proximity to the lake shore, hydrology design measures are also recommended based on site conditions and applicable agency direction including National Best Management Practices (USDA 2012) and the Forest Plan, as amended, with associated Standards and Guidelines, which reference the 1988 Pacific Northwest Region BMPs. Based on implementation of these hydrology design measures (see Project Design Criteria section above), this project does not present extraordinary or significant circumstances related to water, fish, soil, or riparian values. Based on implementing these recommendations, direct and indirect impacts to shoreline condition are expected to be confined to the actual project site.

Cumulative Effects of Proposed Action

There are no other projects or activities within the lake that would overlap in time and space. Direct or indirect effects are unlikely to contribute to adverse cumulative effects on hydrologic conditions or fish resulting from development activities.

Direct and Indirect Effects of No Action Alternative

Under the no-action alternative, the permit holder would not be authorized to replace the existing Cabin F7 at Lake of the Woods with a new recreation residence structure. There would be no additional impacts on hydrologic conditions or fish resulting from development activities.

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