National Park Service
U.S. Department of the Interior

Olympic National Park
Washington

Emergency Action to Temporarily Relocate the Enchanted Valley Chalet for the Protection of the East Fork Quinault River Environmental Assessment
May 2014

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to assure that their development is in the best interests of all. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Table of Contents

FIGURES

I. PURPOSE AND NEED

The purpose of the proposed action is to protect the East Fork Quinault River and its associated natural resources from imminent environmental harm. The Enchanted Valley Chalet is a 42' x 28' structure whose foundation has been undercut 8 feet by the East Fork Quinault River. The structure is in imminent danger of collapse. The need for the proposed action is to prevent the Enchanted Valley Chalet from collapsing into the East Fork Quinault River and adversely impacting the streambed, hydrology, water quality, fisheries, other associated natural resources, and local wilderness character. As the building becomes further undercut, its stability becomes further compromised.

Background

The Enchanted Valley Chalet is located 13 miles up the East Fork Quinault River from the Graves Creek Trailhead (see Appendix A), at an approximate elevation of 2030 feet (619 meters) (see Appendix B), within the Congressionally-designated Olympic Wilderness (designated in 1988). The two and a half story, 42' x 28' structure (see Appendix C) was built in 1930-31 by the Olympic Recreation Company (see Appendix D), operated as a commercial business until the early 1940s, and was purchased by the National Park Service (NPS) in 1951. In 2007 the chalet was added to the National Register of Historic Places (NRHP) due to its local significance.

The chalet is located on the active floodplain of the East Fork Quinault River. The floodplain is comprised of unconsolidated sediment and channel migration across the floodplain is frequent and unpredictable (see Appendix E). Air photos from the 1990s show the river about 400 feet from the chalet. In 2003, river avulsion (i.e., catastrophic channel shifting) began due to massive sediment loading up valley following heavy rains. By 2005, the river was within 10 feet of the chalet. Minor channel work and vegetation manipulation was done by park staff in fall 2005, this work included moving downed logs into more strategic positions, moving gravel cobble material into banks or dispersing some material to create a more level surface, cutting of some larger downed trees in the river bed into smaller sections enabling their movement with high flows, cabling of a couple downed logs together to slow current and encourage gravel deposition, and removal of some small trees. The channel had migrated away from the chalet by 2006.

In October 2013, park staff on-site noted that the river channel was 9 feet from the northwest corner of the chalet. In early January 2014, photographs and visitor reports revealed that the East Fork Quinault River had migrated to within 18 inches of the building. Subsequent monitoring and aerial photos show that the river has undercut the chalet by approximately six to eight feet (see Appendix F) and a small portion of the foundation had fallen into the river. In winter of 2013/2014, the area experienced rainfall that was above average, storm events, and high flows that resulted in the Quinault River's main channel shifting by at least 15 feet since the initial report of river movement in October 2013. Expert analysis shows that the cause of the recent river channel movement is different than what occurred in 2005 (river incision rather than river aggradation). River incision typically causes significantly less bank erosion.

Park staff hiked to the chalet in mid-March 2014 to assess and document the chalet's condition and remove equipment, supplies, hazardous materials (i.e., fuel) that were considered a threat to environmental conditions should they fall into the river. The crew also removed the building's windows to prevent glass from impacting the river and downstream natural resources and to preserve elements of the historic building in case the structure was to collapse and fall into the river.

The imminent threat of the chalet collapsing has created a situation that could harm important natural, cultural, and historic resources and that requires an urgent response. Therefore, this environmental

assessment (EA) is being prepared for an emergency response action pursuant to 43 CFR 46.150(c). Although there is a need to act as soon as possible to mitigate the impacts of an imminent collapse of the chalet, there is time to complete a concise, focused EA consistent with the Council on Environmental Quality guidance, *Emergencies and the Environmental Policy Act* (2010). This EA satisfies the requirements for EA contents found at 43 CFR 46.310. A no-action alternative is not included in the EA because there are no unresolved conflicts about the proposed action with respect to alternative uses of available resources, meaning there is no disagreement that the NPS should act to keep the chalet from falling into the river. The proposed action under consideration in this EA would temporarily move the chalet, in order to eliminate the emergency situation. After the chalet is removed, the NPS will embark on a separate planning process to assess options for final disposition of the chalet.

II. DESCRIPTION OF THE PROPOSED ACTION

The proposed action is to temporarily move the chalet approximately 50-100 feet from the bank of the Quinault River and dismantle and remove the remaining non-historic foundation. The proposed action would eliminate the threat of an imminent collapse of the chalet into the river due to channel migration, and would allow time to conduct an additional planning process, to determine the final disposition of the chalet. That planning process would comply with National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA).

The proposed action would require approximately 1 week and a team of skilled professionals (such as a professional house mover, and a team of four to six skilled labors), pack stock and type 3 helicopter support for up to 4 hours per day for less than a week, and sufficient personnel to provide for visitor and resource protection in the approximately 1 acre project area during the project period. The equipment required will likely include a hydraulic power pack pump driven by a small (less than 10 hp) motor to lift the approximately 90 ton structure using multiple hydraulic crib jacks, steel rails to support the structure, additional steel rails slide the structure using an inert lubricant, and an assortment of hand tools. A set of beams would be moved in a leap-frog manner to continue moving the structure to the 50-100 foot distance from its current location. Bunch Field, which is located outside of wilderness, would be utilized as the helicopter staging area. Helicopters would be used to transport equipment in and materials out of the project site. A minimum requirement analysis has been completed for the action of moving the structure (see Appendix I).

Mitigation and Monitoring

Mitigation measures are specific actions that when implemented reduce impacts, protect park resources, and protect visitors. The following mitigation would be implemented under the proposed action and their implementation is assumed in the analysis of effects.

Soils and Vegetation

- Project activities will be limited to the immediate project area and other areas (such as helicopter staging) as identified within the scope of the project, unless necessary to ensure human safety in meeting the objectives of the project.
- No trees will be removed.
- Equipment will be cleaned of any debris that has the potential to transfer exotic plant species prior to entering the park.
- Stock feed will be weed seed free.
- Erosion control measures and best management practices would be implemented as necessary. Some site restoration would be performed to mitigate any erosion concerns and the establishment of non-native plant species. Erosion control measures will include site restoration as needed, such as raking in ruts left behind by the steel beams, applying native mulch from the surrounding area on bare areas and seeding the old chalet site with seeds gathered from the immediate vicinity.
- Newly exposed soils under the current chalet location would be monitored for establishment of non-native exotic plant species and a revegetation plan would be developed.
- Native mulch (grasses, forest liter) would be gathered from the surrounding area and applied to all newly exposed soils following relocation of the chalet.

Fish and Wildlife

- In-stream work will be avoided.
- Bald eagles may be nesting, especially in the lower river. Impacts to all species will be mitigated by having helicopter flights stay at least 120 m above or away from habitat at all times, and greater distances when practicable.
- Enchanted Valley and Bunch Field are both frequented by black bears in the spring. Crews must follow park regulations for proper food storage.

Threatened and Endangered Species

- From the effects tables (in the 2008 GMP and Biological Opinion), use of a Type III helicopter (i.e., Bell Jet Ranger), or similar sized helicopter, is *not likely to adversely affect* either of the threatened and endangered species (marbled murrelets and spotted owls), if it is >120 yards from suitable habitat (late seral coniferous forest; for murrelets coniferous trees with large flat limbs suitable for nest platforms). If a larger helicopter is necessary, formal consultation with the U.S. Fish and Wildlife Service, per Section 7 of the Endangered Species Act, will be required and additional NEPA review may be required.
- The breeding season for spotted owls is divided into early and late periods. The early breeding season of northern spotted owls is March 1 through July 15; while the late breeding season is July 16 through September 30. Similar to spotted owls, the breeding season for murrelets is divided into early and late periods. The early breeding season is April 1 through August 5; while the late breeding season is August 6 through September 15.
- To mitigate impacts to murrelets, which fly to and from the sea at dawn and dusk during early nesting season (April 1 through August 5) helicopter operations would be restricted to > 2 hours after sunrise to < 2 hours before sunset.
- ***Bunch Field:*** The primary grassy opening in Bunch Field is approximately 536 by 109 yards wide, and is surrounded by deciduous trees, with a few conifers that are not suitable murrelet or spotted owl habitat, with the Quinault River immediately to the south (see figure 1). There is suitable murrelet habitat, on the northern edge of the field. However, in the middle of the widest part of the meadow, the closest patch of suitable murrelet habitat is over 131 yards away. The helicopter will land and stage at the spot indicated, and gain elevation by heading south, overflying the meadow, alder stand, and the river, and therefore will be able to maintain sufficient distance to *not likely to adversely affect* either murrelets or spotted owls.
- ***Enchanted Valley:*** At Enchanted Valley the suitable habitat is on the valley walls, with the most substantial and closest patch on the east side of the valley. The helicopter will gain (and lose) elevation up-valley, and towards the western wall (over gravel bars and deciduous forest) which will allow sufficient room to stay > 120 yards from the habitat on the valley wall (see figure 2). If the helicopter needs to land, there are open areas near the river, on the gravel bars, that are > 120 yards from murrelet and spotted owl habitat.

Figure 1: Bunch Field

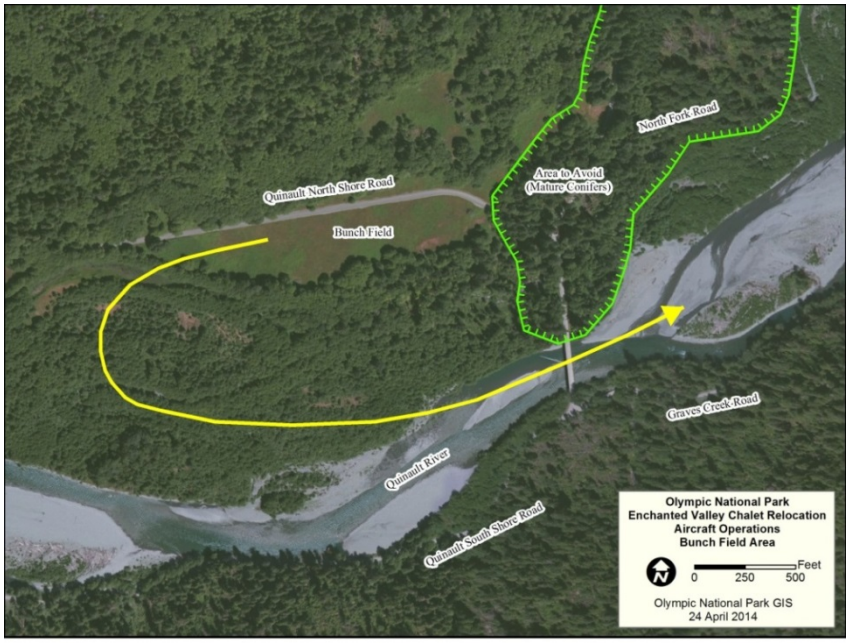
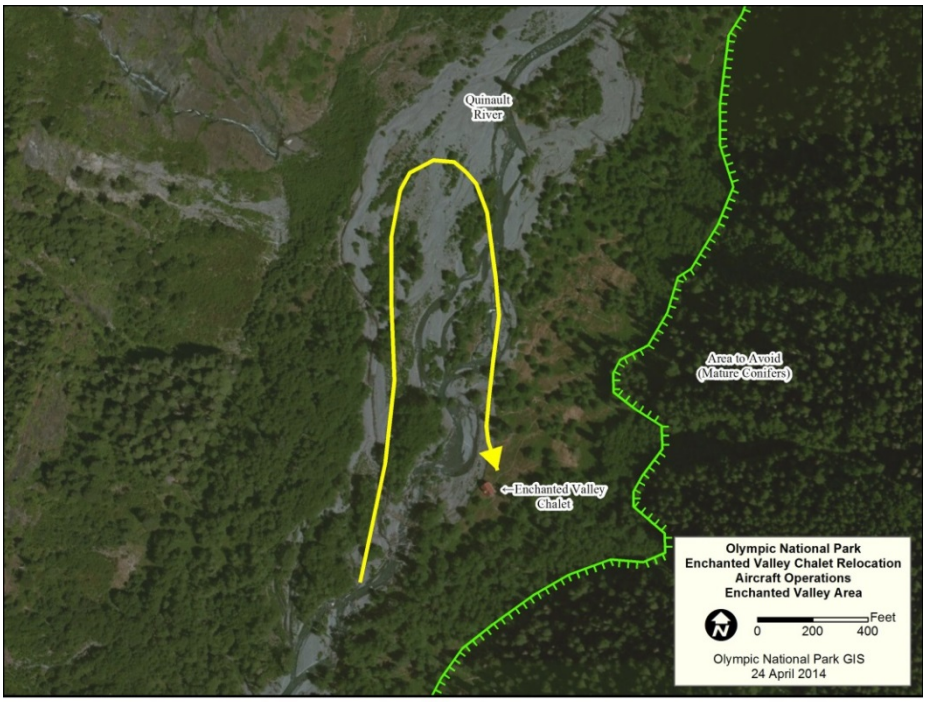


Figure 2: Enchanted Valley



Water Resources (Water Quality, Floodplains, and Wetlands)

- In-stream work will not occur.
- Work within the wetlands will not occur.
- The application and use of an inert lubricant material will be monitored to ensure it is not spilled into the river.
- (Also see mitigation measures for soil and vegetation in regard to erosion.)

Soundscapes

Best management practices will be used to minimize noise disturbance to wildlife and visitors.

Historic Structures

- Mitigation for the temporary relocation will be documentation of the historic structure as a result of the consultation process initiated under Section 106 of the NHPA.

Archeological and Ethnographic Resources

- The Quinault Indian Nation will be notified in advance of any project-related temporary closures that may affect traditional use and access.
- Ground disturbance associated with the proposed undertaking will be monitored by NPS archeologists as conditions allow.

Visitor Use and Experience

- Temporary closures will be put in place for visitor safety.
- Project work will be conducted as quickly and safely as possible so as to reduce impacts to visitors.
- Project area will be identified to protect visitors.

Wilderness Resources

- A minimum requirement analysis has been completed to ensure minimal impacts to wilderness character (see Appendix I).

Park Operations

- Appropriate park staff will be notified of project commencement prior to implementation activities. This includes the superintendent and deputy superintendent, and management team. The division chiefs on the management team will be responsible for notifying appropriate staff in their respective divisions.
- A Job Hazard Analysis (JHA) will be developed prior to project implementation. A Green-Amber-Red (GAR) or Severity-Probability-Exposure (SPE) risk calculation model will be utilized for each day of project activity.
- Safety and necessary personal protective equipment (PPE) will be utilized at all times.

Alternatives Considered but Not Analyzed Further

The following alternatives have been analyzed and found to be outside the scope of the project because they do not meet the purpose and need of the project, were technically or economically infeasible, or not within law and NPS policy.

- Allow the natural processes (natural river migration and erosion) to occur and remove chalet upon failure or irreparable damage; no reconstruction of an administrative facility at Enchanted Valley

- Minimal river manipulation (including the use of downed trees, removal and use of standing trees, bio-engineering of bank, the removal or replacement of cobbles and gravel materials, instream work, use of rip rap)
- More extensive river channel manipulation/bank stabilization (the removal and use of standing trees, removal or replacement of cobbles and gravel materials, instream work, use of gabion baskets filled with large or imported rock, pilings, actions would require prohibited uses such as chainsaws and helicopters, along with hand-powered winches, small diameter cables, and wrenches)
- Permanently move the chalet to another location within Enchanted Valley
- Raze the building by controlled burning of the chalet in its current location
- Dismantle the chalet and stage it in sorted piles for removal and disposal
- Disassemble the chalet and move it to a front-country location

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section summarizes the natural and human environment that may be affected by the proposed action. It also describes the environmental consequences associated with the proposed action. Impacts are evaluated based on context, duration, intensity, and whether they are direct, indirect, or cumulative.

Methodology

Assumptions for Impact Analysis

Each impact topic includes a discussion of impacts, including the intensity, duration, and whether the impact is beneficial or adverse. Intensity of impact describes the degree, level, or strength of an impact as negligible, minor, moderate, or major. Because definitions of intensity vary by resource topic, separate intensity definitions are provided for each impact topic. Intensity definitions are included for adverse impacts only. Beneficial impacts are generally addressed qualitatively. Duration of impact considers whether the impact would occur over the short term or long term. Unless otherwise noted, short-term impacts are those that, within a short period of time (generally less than one year) would no longer be detectable as the resource or value returns to its pre-disturbance condition or appearance. Long-term impacts refer to a change in a resource or value that is expected to persist for one or more years. The type of impact refers to whether the impact on the resource or value would be beneficial (positive) or adverse (negative).

The analysis is based on the assumption that the mitigations identified in the *Mitigation* section of this environmental assessment would be implemented under the proposed action.

Cumulative impacts are analyzed to consider the incremental impacts to the environment resulting from adding the impacts of the proposed action to other past, present, and reasonably foreseeable future actions. The cumulative impacts relate primarily to: ongoing and annual trail maintenance; previous maintenance and administrative use of the chalet; Quinault Nation access for downstream fisheries management; and annual/recurring research and resource management activities such as spotted owl research staff conducting surveys on foot, and administrative flights to conduct elk counts, and repeater repairs.

Natural Resources

Soils

The soils in the project area are generally unconsolidated and weakly developed. Most of the surface geology at the project site consists of thick, recent alluvial deposits typical of an active floodplain. Within the East Fork Quinault River, the streambed is composed mostly of gravel to cobble-sized material, with some sand and silt.

Impacts on Soils

Methods and Assumptions

	Intensity
Negligible	The effects to soils would be below or at the lower levels of detection. Any effects on productivity or erosion potential would be slight.
Minor	An action's effects on soils would be detectable. It would change a soil's profile in a

	relatively small area, but it would not appreciably increase the potential for erosion of additional soil. If mitigation were needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.
Moderate	An action would result in a change in quantity or alteration of the topsoil, overall biological productivity, or the potential for erosion to remove small quantities of additional soil. Changes to localized ecological processes would be of limited extent. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.
Major	An action would result in a change in the potential for erosion to remove large quantities of additional soil or in alterations to topsoil and overall biological productivity in a relatively large area. Key ecological processes would be altered, and landscape-level changes would be expected. Mitigation measures to offset adverse effects would be necessary, extensive, and their success could not be guaranteed.

Analysis. Some impacts on soils would be expected as a result of this action. The short-term use of steel beams to relocate the structure to within approximately 50-100 feet of its current location, and potential long-term (potentially more than one year) placement of a portion of the steel beams (or other material) to provide a temporary structural foundation after relocation would likely result in long-term, minor to moderate, adverse impacts due to the alteration of topsoil, soil compaction, and potential for erosion. Increased human foot-traffic and stock use from implementing the proposed action, would result in some soil disturbance and compaction though given the unconsolidated nature of this soil on the active floodplain, impacts would likely be short-term (two-weeks or less), negligible to minor, and adverse. The dismantling and removal of the non-historic foundation would likely result in long-term, beneficial impacts on soils due to the ability for the soil to return to natural conditions and be affected by natural processes.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, have resulted and would continue to result in soil disturbance and compaction. These uses and activities would continue to result in long-term, negligible to minor, adverse impacts to soils. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in long-term, minor to moderate, adverse cumulative effects on soils in the project area; as well as long-term, beneficial impacts due to the removal of the non-historic foundation. The proposed action would contribute a large increment to the cumulative effects.

Conclusion. Implementing the proposed action would have a long-term, minor to moderate, adverse effect; as well as long-term, beneficial impacts on soils. Cumulative effects would be long-term, minor to moderate, and adverse, with some beneficial impacts as well

Vegetation

The Enchanted Valley area is within the lowland/montane vegetation zones. The dividing line between these zones is 2000 feet elevation above sea level. This corresponds to the elevation of the chalet. The valley was formed by moraine deposits. The flat topography is a result of a shallow lake which formed when the moraine dammed the Quinault River.

The grassy meadow vegetation is comprised of both native and non-native grasses and herbs with scattered red alder (*Alnus rubra*) and bigleaf maple (*Acer macrophyllum*). The surrounding forest contains Douglas-fir (*Pseudotsuga menziesii*), western red-cedar (*Thuja plicata*), and western hemlock (*Tsuga heterophylla*) along with scattered Sitka spruce (*Picea sitchensis*). The valley walls have Alaska yellow

cedar (*Chamaecyparis nootkatensis*) on the cliff bands. Understory is comprised of moist-site shrubs and ferns including evergreen huckleberry (*Vaccinium* sp.), vine maple (*Acer circinatum*), devil's club (*Oplopanax horridus*), sword fern (*Polystichum munitum*), deer fern (*Blechnum spicant*), and lady fern (*Athyrium filix-femina*). There are numerous moss, lichen, and liverwort species.

There are no known occurrences of federal- or state-listed rare, sensitive, or threatened plants

Impacts on Vegetation

Methods and Assumptions

Intensity	
Negligible	The impact on vegetation (individuals or communities) would not be measurable. The abundance or distribution of individuals would not be affected or would be slightly affected. Ecological processes and biological productivity would not be affected.
Minor	An action would not necessarily decrease or increase the area's overall biological productivity. An action would affect the abundance or distribution of individuals in a localized area but would not affect the viability of local or regional populations or communities.
Moderate	An action would result in a change in overall biological productivity in a small area. An action would affect a local population sufficiently to cause a change in abundance or distribution, but it would not affect the viability of the regional population or communities. Changes to ecological processes would be of limited extent.
Major	An action would result in a change in overall biological productivity in a relatively large area. An action would affect a regional or local population of a species sufficiently to cause a change in abundance or in distribution to the extent that the population or communities would not be likely to return to its/their former level. Key ecological processes would be altered.

Analysis. Some impacts on vegetation would be expected as a result of this action. The short-term use of steel beams to relocate the structure to within approximately 50-100 feet of its current location, and potential long-term (more than one year) placement of a portion of the steel beams (or other material) to provide a temporary structural foundation after relocation, along with the increased human foot-traffic and stock use from implementing the proposed action, would likely result in short- and long-term, negligible to minor, adverse impacts to vegetation due to the removal and trampling of vegetation (given the resilience of vegetation resources in this location).. The dismantling and removal of the non-historic foundation along with the successful implementation of the mitigation and revegetation plan would likely result in long-term, beneficial impacts on vegetation due to the vegetation returning to natural conditions affected by natural processes.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, have resulted and would continue to result in disturbance to vegetation. These uses and activities would continue to result in short- and long-term, negligible to minor, adverse impacts to vegetation. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in short- and long-term, negligible to minor, adverse cumulative effects; as well as long-term, beneficial impacts on vegetation in the project area due to the dismantling and removal of the non-historic foundation. The proposed action would contribute a small increment to these cumulative adverse effects, and a large increment to the beneficial cumulative effects.

Conclusion. Implementing the proposed action would have a short- and long-term, negligible to minor, adverse effects; as well as a long-term, beneficial effect on vegetation. Cumulative effects would be short- and long-term, negligible to minor, and adverse, with some beneficial effects.

Fish and Wildlife

Fish

The mainstem Quinault River, as well as numerous side channels and tributaries, provide excellent spawning and rearing areas for salmonids and other native fish. Fish species known to inhabit the East Fork Quinault River in Enchanted Valley include rainbow/steelhead trout, bull trout (ESA listed), and Dolly Varden. This is one of the few locations in their range where bull trout and Dolly Varden are observed together. Numerous other fish species inhabit the river below Enchanted Valley, including Chinook Salmon (both spring and fall populations), coho salmon, sockeye salmon, and cutthroat trout. A complete list of fish species observed in the river is maintained by the Olympic National Park fisheries staff and can be obtained by contacting park headquarters.

Wildlife

Mammals commonly seen in the Quinault area include Roosevelt elk, black-tailed deer, black bear, raccoon, spotted skunk, Douglas squirrel, beaver and snowshoe hare. Less common, but regularly present, are coyote, mountain lion, and bobcat. Smaller, less conspicuous or nocturnal mammals are numerous. Conspicuous birds in the area include great blue heron, osprey, Steller's jay, kingfisher, water ouzel (dipper), crow, raven, varied thrush, robin, winter wren and several warblers, woodpeckers, kinglets, and sparrows.

Impacts on Fish and Wildlife

Methods and Assumptions

Intensity	
Negligible	Effects on fish and wildlife would be at or below the level of detection, and the changes would be so slight that they would not be of any measurable or perceptible consequence to the species' population.
Minor	Effects on fish or wildlife would be detectable, but localized, small, and of little consequence to the species' population. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
Moderate	Effects on fish or wildlife would be readily detectable but localized, with consequences at the population level. Mitigation measures, if needed to offset adverse effects would be extensive and likely successful.
Major	Effects would be obvious and would have substantial consequences to fish or wildlife populations at the regional level. The change could result possible permanent consequence upon the species. Extensive mitigation measures would be needed to offset any adverse effects, and their success would not be guaranteed.

Analysis. Some impacts on fish and wildlife would be expected as a result of this action. The short-term use of steel beams to relocate the structure to within approximately 50-100 feet of its current location, and potential long-term (more than one year) placement of a portion of the steel beams (or other material) to provide a temporary structural foundation after relocation, along with the increased human foot-traffic and stock use from implementing the proposed action, would likely result in some negligible habitat modification such as fine river bank sediments being displaced into the river. These actions would result

in short-term, negligible to minor, and adverse impacts due to wildlife displacement from the area due to increased presence of people and pack stock. The use of helicopters to transport equipment to and from the project site, as well as to remove the dismantled foundation from the project site, would likely result in short-term, minor, adverse impacts on wildlife due to temporary displacement from noise disturbance. Moving the structure from the stream bank would also likely result in a long-term, beneficial impact to fish species due to eliminating the potential for the structure to fall into the river and adversely affecting fish habitat. The dismantling and removal of the non-historic foundation would also likely result in long-term, beneficial impacts on fish and wildlife due to the potential for habitat regeneration.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, have resulted and would continue to result in disturbance to fish and wildlife. These uses and activities would continue to result in short-term and long-term, negligible to minor, adverse impacts to fish and wildlife. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in short- and long-term, negligible to minor, adverse cumulative effects on fish and wildlife in the project area, as well as long-term, beneficial effects due to eliminating the potential for the structure to fall into the river and due to the removal of the non-historic foundation. The proposed action would contribute a small increment to these cumulative adverse effects, and a large increment to the beneficial cumulative effects.

Conclusion. Implementing the proposed action would have short-term, negligible to minor, adverse effects on fish and wildlife along with some beneficial effects. Cumulative effects would be short- and long-term, negligible to minor, and adverse, with some beneficial effects.

Threatened and Endangered Wildlife Species

Federally-listed threatened species that are potentially located within or near the project area include bull trout (*Salvelinus confluentus*), marbled murrelet (*Brachyramphus marmoratus*), and northern spotted owl (*Strix occidentalis caurina*).

Bull Trout

Bull trout occur year-round in the Quinault River Basin. In November 1999, the U.S. Fish and Wildlife Service designated threatened status for bull trout, and, in 2005, designated the Quinault, East Fork Quinault, and North Fork Quinault as critical habitat for bull trout.

The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices, and the introduction of non-native species.

Spotted Owls

Suitable habitat for northern spotted owl must provide for the nesting, roosting, and foraging needs of the bird as well as for dispersal. Suitable habitat is characterized by moderate to high canopy closures (60-80%); a multi-layered, multi-species canopy with large (>30" dbh) overstory trees; a high incidence of large trees with various deformities, cavities, broken tops, or mistletoe infestation; large snags; large accumulations of down trees and other woody debris on the ground; and sufficient open space below the canopy for owls to fly (Thomas et al. 1990).

Because of extensive habitat loss throughout much of western Washington, the Olympic Peninsula population of spotted owls is effectively isolated from birds occurring in the Cascades and the Oregon

Coast Range. Spotted owls are resident throughout ONP. The spotted owl sites most affected by barred owl expansion have been those positioned on lower elevation slopes and river terraces.

The potential staging area for the helicopter, Bunch Field, is an unlikely area for spotted owls to occur based on landscape position as well as habitat. Westside floodplain areas at low elevations typically are occupied by barred owls, which exclude spotted owls from these sites. Barred owls have been documented in the forest adjacent to Bunch Field. The forest type within several hundred meters of Bunch Field is alder with scattered large conifers which is not a suitable nesting or roosting habitat for spotted owls in this area.

The breeding season for spotted owls is divided into early and late periods. The early breeding season of northern spotted owls is March 1 through July 15; while the late breeding season is July 16 through September 30.

Marbled Murrelet

The murrelet is a seabird that nests in old growth forests. Murrelets nest on large limbs (greater than six inches in diameter) at heights 50 feet or greater above the ground. They may also nest in smaller trees if thick moss or deformity creates a platform that is effectively large enough. Suitable nesting habitat for the marbled murrelet is generally thought of as typical old growth coniferous stands (multi-storied with moderate to high canopy closure) within approximately 50 miles of saltwater feeding areas. In the Pacific Northwest, most nests are located on a large branch with a moss substrate and canopy cover over the nest. Murrelets will nest in younger stands with remnant large trees or deformities that provide nesting opportunities.

Olympic National Park contains the largest contiguous area of marbled murrelet nesting habitat remaining in the lower 48 states. There are approximately 402,785 acres of forested area below 3,000 feet elevation within the park. Based on surveys conducted within the park (1997-1999), it is possible that up to 100% of that habitat could have murrelets present during nesting season, with about 83% of nesting habitat classified as occupied.

Suitable habitat in the area of Bunch Field has not been surveyed, however it has been determined that both the Graves Creek and the North Fork campgrounds were occupied by murrelets in the late 1990s.

Similar to spotted owls, the breeding season for murrelets is divided into early and late periods. The early breeding season is April 1 through August 5; while the late breeding season is August 6 through September 15.

Impacts on Threatened and Endangered Species

Methods and Assumptions

Intensity	
Negligible	The action would have no measurable effect to a listed species, suitable, potential, or critical habitat, resulting in a *no effect* determination
Minor	The effects of the action would be discountable (extremely unlikely to occur), insignificant (not able to be meaningfully measured, detected, or evaluated), or completely beneficial. Any change would be small and localized and of little consequence, and result in a *not likely to adversely affect* determination which would require informal consultation with the U.S. Fish and Wildlife Service.
Moderate	An action that would result in some change to a population or individuals of a species or

	designated critical habitat. The change would be measurable and of consequence but would most likely result in a *not likely to adversely affect* determination which would require informal consultation with the U.S. Fish and Wildlife Service.
Major	An action that would result in a noticeable change to a population or individuals of a species or designated critical habitat. Any adverse affect to the species that may occur as a direct or indirect result of the action and the effect is not discountable, insignificant, or completely beneficial. Incidental take is anticipated to occur as a result of the action. The change would result in a *likely to adversely affect* determination and would require formal consultation with the U.S. Fish and Wildlife Service.

Analysis. Some impacts on threatened and endangered species would be expected as a result of this action. The increased human foot-traffic and stock use from implementing the proposed action, during the relocation of the structure may result in some minor habitat modification such as river bank fines releasing into the river or trampling of vegetation. These actions would result in short-term, negligible adverse impacts to threatened and endangered species due to temporary displacement from habitat modifications and the increased presence of people and pack stock in the area where the chalet is located. The use of helicopters to transport equipment to and from the project site, as well as to remove the dismantled foundation from the project site, would likely result in short-term, minor, adverse impacts on threatened and endangered species due to temporary displacement from noise disturbance. Moving the structure from the streambank, along with the removal of the non-historic foundation, would also likely result in a long-term, beneficial impact to threatened fish species due to eliminating the potential for the structure to fall into the river and adversely affecting threatened fish species critical habitat.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, have resulted and would continue to result in disturbance to threatened and endangered species. These uses and activities would continue to result in short- and long-term, negligible to minor, adverse impacts to threatened and endangered species. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in negligible to minor, adverse cumulative effects on threatened and endangered species in the project area and beneficial impacts from eliminating the potential for the structure to fall into the river. The proposed action would contribute a small increment to these adverse cumulative effects, and a large increment to the beneficial cumulative effects on threatened fish species in particular.

Conclusion. Implementing the proposed action would have short- and long-term, negligible to minor, adverse effects on fish and wildlife and also some beneficial effects. Cumulative effects would be short- and long-term, negligible to minor, and adverse, with some beneficial effects as well

Water Resources

The Quinault River drains from the glaciated Olympic Mountains in northwest Washington State, with a total drainage area above the outlet of Lake Quinault of 264 square miles. About 11 miles upstream from the inlet to Lake Quinault, the North Fork and East Fork Quinault rivers join together to form the Quinault River. Enchanted Valley is located on the East Fork Quinault River, approximately 18 miles upstream of the fork, and has a drainage area of approximately 90 square miles.

In the Quinault drainage, precipitation amounts increase with elevation. Near sea level, average annual precipitation is over 130 inches. At the Graves Creek Ranger Station, the average annual precipitation is

146 inches. In the lower elevations, precipitation typically comes in the form of rain. Winter storms can average three inches of rain in a 24-hour period.

Water Quality

Water quality in the Quinault River drainage within ONP is excellent, with virtually no human-induced water pollution. The Quinault River and its tributaries are classified by the Washington Department of Ecology as Class AA waters, signifying "extraordinary" quality.

Overall, the Quinault River has relatively low concentrations of dissolved and suspended sediment loads, nutrients and organics. However, the East Fork Quinault River near the headwaters of the basin is strongly influenced by snow melt and glacial run-off. Upstream of the Enchanted Valley, summer flows may be clouded by glacial silt. During low flow periods, the river immediately upstream of the valley runs sub-surface for nearly 500 meters through the run-out of a historic debris torrent before reemerging free of sediment.

Suspended sediment concentrations throughout the Quinault River Basin may be periodically elevated during high flow events due to bedload mobilization and bank erosion associated with natural shifts in the river channel. Below Graves Creek, the natural water quality regime may be further affected by stream bank alterations intended to protect infrastructure, residential development, logging, and agricultural practices.

The western side of the Olympic Peninsula is notorious for its steep, unstable slopes and heavy winter precipitation, resulting in winter and spring high water events that cause high amounts of natural siltation in streams. During the wet season, water quality suffers only from naturally occurring processes such as erosion or streambank avulsions.

Natural fluvial processes within the channel migration zone create river bars and sloughs on an annual basis. The upper watershed is steep and deeply eroded. It carries high sediment loads from the natural mass wasting that occurs in the upper watershed.

Floodplains

Although the 100-year floodplain has not been mapped in the upper Quinault Valley, it is evident that the Enchanted Valley is within the active floodplain of the Quinault River. The Quinault River is continually reworking the floodplain within Enchanted Valley. Recent flows have been unpredictable and shifting through the valley. The catastrophic channel shifting (avulsion) of the East Fork Quinault River in the vicinity of the chalet is the result of extreme sediment loading in the upper basin, and not from a single, catastrophic event (such as a debris flow). For reasons not yet understood, the entire upper watershed has "unraveled," with loss of most of the previous in-channel vegetation and its ability to store sediment, and associated recruitment of huge amounts of large trees from eroded stream banks.

As a result, there is an "outwash plain" of sediment and downed trees from upriver of the chalet to above the confluence of Anderson Creek and the upper Quinault River. The presence of large, downed wood in the channel creates areas susceptible to sudden channel shifting during high stream flows, and a plethora of sediment (forming terraces in excess of 20 feet in places) provide ideal conditions for new channels to be excavated. When the channel suddenly shifts during high flows, and a new channel is created, copious amounts of sediment are released downstream, propagating further channel instability and movement down valley.

Wetlands

There are three upper perennial riverine wetlands on unconsolidated shore that are seasonally flooded; two palustrine wetlands on unconsolidated bottom that are semipermanently flooded; and one palustrine freshwater forested/shrub wetland. (See Appendix G)

Impacts on Water Resources

Methods and Assumptions

Intensity	
Negligible	An action that would result in a change to a hydrologic resource or system, but the change would be so small that it would not be of any measurable or perceptible consequence.
Minor	An action that would result in a change to a singular hydrologic resource, but the change would be small and localized and of little consequence.
Moderate	An action that would result in a change to a hydrologic resource or system; the change would be measurable and of consequence.
Major	An action that would result in a noticeable change to a hydrologic resource or system; the change would be measurable and result in impacts with regional consequences.

Analysis. Some impacts on water resources would be expected as a result of this action. The short-term use of steel beams to relocate the structure to within approximately 50-100 feet of its current location, and potential long-term (more than one year) placement of a portion of the steel beams (or other material) to provide a temporary structural foundation after relocation, along with the increased human foot-traffic and stock use from implementing the proposed action, would likely result in some short- and long-term, negligible to minor, and adverse impacts mainly due to some modification of the floodplain, though little to no modifications to wetlands. The use of an environmentally-safe lubricant (such as soap) would be utilized to assist in reducing friction from the structure while being pulled onto the steel beams during the relocation activities and would likely result in no effect or a short-term, negligible, adverse effect on water resources. Moving the structure from the stream bank, along with the removal of the remaining non-historic foundation, would also likely result in a long-term, beneficial impact to water resources due to eliminating the potential for the structure to fall into the river and adversely affecting water quality, hydrology, and natural flows.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, have resulted and would continue to result in some disturbance to the floodplain and wetlands. These uses and activities would continue to result in short- and long-term, negligible, adverse impacts to the floodplain and wetlands. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in short- and long-term, negligible to minor, adverse cumulative effects on water resources, mainly on the floodplain in the project area; as well as long-term, beneficial effects from moving the structure from the stream bank and the removal of the non-historic foundation. The proposed action would contribute a large increment to the cumulative effects.

Conclusion. Implementing the proposed action would have short- and long-term, negligible to minor, adverse effects on water resources, mainly on the floodplain and some beneficial impacts. Cumulative effects would be short- and long-term, negligible to minor, and adverse with some beneficial impacts as well.

Soundscapes

Soundscape is defined as the natural ambient sound conditions. Natural ambient sound is sound absent human presence. Ambient sound in general would include those sounds expected from nature plus sounds due to the presence of humans. Ambient sound, including natural sounds, as found in Enchanted Valley include the noise of visitors on trails and camping, wildlife sounds, including birds and elk, and the sounds of wind, snow, and rain.

Natural quiet is the absence of any discernable noise source (especially manmade). It is important to the feeling of solitude. Natural ambient quiet allows visitors to enjoy the intermittent sounds of nature. Based on the location's susceptibility to wind, proximity to vegetation and water sources, the ambient sound levels can vary drastically throughout the valley. In general, 10-20 decibels is the average level of noise experiences by visitors in the wilderness regions of Olympic National Park. The sound of human voices, creaking packs, pots and pans, and crunching of gravel can raise the noise level to peak levels of 50 or 60 decibels on a very intermittent basis. Extremely low ambient levels of sound means that visitors to remote sections of the park are likely to hear aircraft, even if aircraft sound levels are low.

Impacts on Soundscapes

Methods and Assumptions

Intensity	
Negligible	Natural sounds would prevail; human-caused noise would be absent or very infrequent mostly immeasurable, and inaudible.
Minor	Natural sounds would predominate, with human-caused noise infrequent at low levels.
Moderate	Natural sounds would predominate, but human-caused noise could occasionally be present at low to moderate levels, or at greater levels for short periods of time.
Major	Natural sounds would be impacted by human-caused noise sources frequently or for extended periods of time, at greater than low to moderate levels.

Analysis. There would be impacts on the natural soundscapes as a result of this action. Actions involved with moving the structure, such as the use of a gas-powered motor that drives the power-pack pump, getting the steel beams into the correct positions, and loud talking necessary to ensure that commands during moving operations are heard by all necessary personnel, as well as air horns utilized in the event of an immediate safety related cease of works. These activities along with the increased human presence from implementing the proposed action, would likely result in increased noise disturbance in the project area. These actions would result in short-term, minor, and adverse impacts. The use of helicopters for approximately 4 hours per day for up to a week, to transport equipment to and from the project site, as well as to remove the dismantled foundation from the project site, would result in short-term, moderate, adverse impacts on the natural soundscape due to increased noise disturbance from motorized use.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, have resulted and would continue to result in disturbance to the natural soundscape. These uses and activities would continue to result in short-term, negligible to minor, adverse impacts on the natural soundscape. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in short-term, minor to moderate, adverse cumulative effects on the natural soundscape. The proposed action would contribute a large increment to these adverse cumulative effects.

Conclusion. Implementing the proposed action would have short-term, minor to moderate, adverse effects on the natural soundscape. Cumulative effects would be short-term, negligible to minor, and adverse.

Visitor Use and Experience

The Quinault Valley of ONP is open to year-round public use. Annual visitation to the Quinault District was estimated at 216,671 visitors in 2012 and 211,750 in 2013 (https://irma.nps.gov, accessed 4/17/14). A full range of visitor activities, including hiking, fishing, wildlife viewing, camping, and access to the wilderness, is available in the area. Facilities at Graves Creek include an administrative cabin, campground, roads, trailhead, and numerous access points to the river.

According to Olympic National Park 2010 Backcountry Permit Data (the most current permit data compiled), there were 1,739 overnight visitors including 28 stock users to the Enchanted Valley. The average time these visitors stayed in the valley was between one and two nights (1.6 nights). The 2,832 visitor use nights for the area (# of visitors multiplied by # of nights stayed) represent 3.1% of all Olympic National Park overnight backcountry use. The average party size for overnight visitors to the Enchanted Valley was 2.9 visitors, with 5% of the parties visiting in groups of 7-12 individuals.

Visitor overnight parties in 2010 that began at the Graves Creek Trailhead were predominantly from western Washington (65%), with 10% from the Olympic Peninsula and about 28% from the greater Seattle area. About 12% of the visitors were from Oregon.

The East Fork of the Quinault Trail is one of the more popular trails on the southern portion of the park. There are numerous campsites located along the trail between the trailhead and Enchanted Valley that are used primarily during the summer months.

Impacts on Visitor Use and Experience

Methods and Assumptions

Intensity	
Negligible	Impacts would be barely detectable, would not occur in primary visitor destination areas, and would affect few visitors.
Minor	Impacts would be slight but detectable, would not occur in primary visitor destination areas, and would affect few visitors.
Moderate	Impacts would be readily apparent, would occur in primary visitor destination areas, and would affect many visitors.
Major	Impacts would be severely adverse or exceptionally beneficial, would occur in primary visitor destination areas, and would affect the majority of visitors.

Analysis. Some impacts on visitor use and experience would be expected as a result of this action. The short-term use of steel beams to relocate the structure to within approximately 50-100 feet of its current location, and potential long-term (more than one year) placement of a portion of the steel beams (or other material) to provide a temporary structural foundation after relocation would likely result in short-term, minor, adverse impacts on visitor use and experience due to the temporary closure of a non-primary visitor use area, including temporary traffic delays on North Shore Road, to conduct project activities, from noise disturbance resulting from helicopter use for transporting equipment and materials to and from

the project area. The relocation of the historic structure from the river bank may also likely result in a long-term, beneficial effect on visitor use and experience as the action would keep the structure from falling into the river.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, may have resulted and might continue to result in some beneficial impacts on visitor use and experience. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in short-term, minor, adverse cumulative effects on visitor use and experience in the project area; as well as long-term, beneficial effects on visitor use and experience due to relocation of the historic structure from the river bank. The proposed action would contribute a large increment to these cumulative effects.

Conclusion. Implementing the proposed action would have short-term, minor, adverse effects on visitor use and experience; as well as long-term, , beneficial effects on visitor experience. Cumulative effects would be short-term minor, adverse impacts along with some beneficial impacts.

Wilderness Character

A total of 876,669 acres, or about 95% of the park, was designated by Congress and signed into law as the "Olympic Wilderness" on November 16, 1988. The Olympic Wilderness is exceptionally diverse with glacier-covered mountains, subalpine lakes and meadows, heavily forested river valleys, and ocean coastline.

The Graves Creek Trailhead is a wilderness entry point and provides access to the Enchanted Valley, which is located approximately 13 miles up the East Fork Quinault River from the trailhead.

Impacts on the Qualities of Wilderness Character

Methods and Assumptions

Intensity	
Negligible	• The action would have no discernable effect on opportunities for solitude. • Opportunities for primitive and unconfined forms of recreation would essentially remain unchanged. • The action would have no effect on prevalence of natural conditions, and the wilderness area would continue to be primarily affected by forces of nature.
Minor	• The action would have a small effect on opportunities for solitude in a limited area of wilderness, such as along a single trail or an area of less than 100 acres. • The action would slightly reduce opportunities for primitive and unconfined forms of recreation in limited areas of the wilderness. • The action would result in slightly detectable human-caused impacts to the natural environment in limited areas of the wilderness; natural conditions would continue to predominate.
Moderate	• The action would result in readily apparent effects on opportunities for solitude in limited areas of wilderness. • The action would noticeably reduce opportunities for primitive and unconfined forms of recreation in limited areas of the wilderness.

	• The action would result in readily apparent human-caused impacts in limited areas of the wilderness; natural conditions would continue to predominate.
Major	• The action would have readily apparent beneficial or adverse impacts on opportunities for solitude throughout one or more wilderness units. • The action would substantially improve or reduce opportunities for primitive and unconfined forms of recreation throughout one or more wilderness units. • The action would result in readily apparent human-caused impacts (either beneficial or adverse) to the natural environment throughout one or more wilderness units.

Analysis. There would be impacts on wilderness character as a result of this action. The activities involved with the temporary relocation of the structure to within approximately 50-100 feet of its current location would result in short-term, minor, adverse impacts on visitor use and experience due to the temporary closure of the area to conduct project activities, and an increased human-presence (increased encounter rates and noise) from implementing the proposed action, affecting the opportunity for solitude or a primitive and unconfined type of recreation quality of wilderness character. The use of a gas-driven motor to drive the power-pack pump, and the use of helicopters to transport equipment as well as to remove the remaining foundation from the project site would result in a short-term, moderate, adverse effect on the opportunities for solitude and undeveloped qualities of wilderness character. The removal of the non-historic foundation, would likely result in a long-term, beneficial effect on the natural and untrammeled qualities of wilderness character as the action would keep the structure from falling into the river and potentially disrupting natural flow regimes, disturbing fish habitat, and negatively affecting water quality.

A minimum requirement analysis has been completed for the proposed action (see Appendix I).

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, have resulted and might continue to result in some impacts on wilderness character. These uses and activities, and presence of the structure, would continue to result in short- and long-term, minor to moderate, adverse impacts to the natural, undeveloped, and opportunities for solitude qualities of wilderness character. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in short- and long-term, minor to moderate, adverse cumulative effects on wilderness character; as well as long-term, beneficial effects on wilderness character due to the removal of the non-historic foundation. The proposed action would contribute a large increment to these cumulative effects.

Conclusion. Implementing the proposed action would have short-term, minor to moderate, adverse effects on wilderness character; as well as long-term, beneficial effects. Cumulative effects would be short- and long-term, minor to moderate, and adverse, with some beneficial effects as well.

Cultural Resources

Historic Structure

The Enchanted Valley Chalet is located 13 miles up the East Fork Quinault River from Graves Creek Trailhead (see Appendix A), at approximately 2030 feet (619 meters) elevation (see Appendix B), within the Congressionally-designated Olympic Wilderness (designated in 1988). The two and a half story, 42’ x 28’ structure (see Appendix C) was built in 1930-31 by the Olympic Recreation Company (see Appendix D), operated as a commercial business until 1943, and was used briefly as an Aircraft Warning Station for World War II. The chalet was purchased by the National Park Service in 1951, and had formerly been

used for administrative purposes. In 2007 the chalet was added to the National Register of Historic Places due to its local significance.

Impacts on the Historic Structure

Methods and Assumptions

Intensity	
Negligible	The effects on cultural resources would be at the lowest levels of detection, barely measureable without any perceptible consequences, either beneficial or adverse to historic structures. For purposes of Section 106 and the National Historic Preservation Act, the determination of effect would be *no adverse effect*.
Minor	The effects on cultural resources would be perceptible or measurable, but would be slight and localized within a relatively small area. The action would not affect the character or diminish the features of a NRHP eligible or listed historic structure, and it would not have a permanent effect on the integrity of any such resources. For the purposes of Section 106 and the National Historic Preservation Act, the determination of effect would be *no adverse effect*.
Moderate	The effects would be perceptible and measurable. The action would change one or more character-defining features of a cultural resource, but would not diminish the integrity of the resource to the extent that its NRHP eligibility would be lost. For the purposes of Section 106 and the National Historic Preservation Act, the cultural resources' NRHP eligibility would be threatened and the determination of effect would be *adverse effect*.
Major	The effects on cultural resources would be substantial, discernible, measurable, and permanent. For NRHP eligible or listed historic structures, the action would change one or more character-defining features, diminishing the integrity of the resource to the extent that it would no longer be eligible for listing in the national register. For purposes of Section 106, national register eligibility would be lost and the determination of effect would be *adverse effect*.

Analysis. There would be impacts on the historic structure as a result of this action. The temporary relocation of the structure to within approximately 50-100 feet of its current, original, location would result in long-term, moderate, *adverse effect* due to the change in location of the national register listed historic structure, however SHPO advised that the action would not diminish the integrity of the resource to the point NRHP listing would be lost. Without a move, the entire structure would be lost and thus delisted

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, have resulted in some impacts from use and maintenance of the structure. These actions have resulted in long-term, negligible to minor, adverse impacts to the structure due to general and intermittent use of the structure. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in long-term, minor to moderate, adverse cumulative effects on the national register listed historic structure. The proposed action would contribute a large increment to these cumulative effects.

Conclusion. Implementing the proposed action would have a long-term, moderate, *adverse effect* on the historic structure. Cumulative effects would be long-term, negligible to minor, and adverse; the proposed action would contribute a greater increment to these effects.

Determination of Adverse Effect

Olympic National Park (ONP) initiated consultation with the State Historic Preservation Officer (SHPO) within the Washington Department of Archeology and Historic Preservation (DAHP) in mid-January regarding the Enchanted Valley Chalet, a threatened historic property 13 miles up the East Fork Quinault River from the Graves Creek trailhead.

At that time the East Fork Quinault River channel had migrated to within two feet of the Chalet. In consultation with the SHPO it was determined that there was imminent threat to the building and that this threat constituted an adverse effect to the chalet, a listed historic property. Because of the high degree of uncertainty with the situation, ONP is treating this as an emergency Section 106 action as per 36 CFR 800.12. Under this authority the superintendent authorized park staff to remove certain historic elements of the chalet while it was still safe for workers to be in the building. Window sashes were removed and stored safely on site. Additionally the park has begun compiling Historic American Buildings Survey (HABS) level II documentation on the chalet.

Since January 2014 the river channel has continued to migrate and has undercut the building by approximately 6-7 feet in some places. It is unsafe for personnel to be inside the building. Options for stabilizing the structure *in situ* have been discussed with SHPO staff and with NPS staff. Due to a number of factors, such as the property's location within designated wilderness, critical habitat for the federally threatened bull trout within the Quinault River, and the unstable and highly dynamic surface geology and river system, it has been determined that there are no feasible options for preserving the chalet in its current location and that moving it is the only option to keep the chalet from falling into the river.

The park is currently working with structure moving experts and is gearing up to temporarily move the building 50-100 feet from its current location until additional NEPA/NHPA analysis can be completed on the final disposition of the structure. A memorandum of agreement (MOA) has been drafted that describes the proposed action and mitigations. A final MOA will be signed before a finding of no significant impact for this EA is approved.

While leaving the chalet in its current location is an *adverse effect*, moving it 50-100 feet is also an *adverse effect*. According to 36 CFR 800.5 and *adverse effect* is found "…when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the Nation Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." Temporarily moving the chalet will directly and indirectly alter the property's location, feeling, and association.

Archeological Resources

In the fall of 2002 OLYM archeologists recorded an archeological site directly associated with the historic Enchanted Valley Chalet. The site area as defined in 2002 encompasses the chalet and three archeological features identified at that time.

The features, labeled loci 1-3 (see Appendix H) include two possible structure locations and a historical debris scatter. A metal detector was used to define the location and extent of these loci. Excavation or evaluation was not completed.

Loci 1 and 2 are thought to be related to two historic structures noted in early photos of the area. These may have been shelters, storage buildings, or living quarters associated with construction of the chalet. Locus 3 was recorded as two adjacent rock-lined depressions located about 50 feet southwest of the

chalet. A metal detector indicated the presence of numerous metal artifacts within the depression. This is thought to have been used as a trash dump for the chalet.

Channel migration of the East Fork Quinault River since 2002 has completely eroded all three of these features. The documentation associated with the archeological site form is all that remains. Locus 3, the possible refuse dump, was visited in 2012 by the park archeologist. At that time a number of historic period artifacts were observed along with more recent debris. It is thought that the refuse pit includes artifacts dating from the use of the chalet as a lodge along with material deposited through the years by campers and NPS employees. A small, unsystematic sample of material from the refuse dump was collected by backcountry rangers as the feature began to erode into the river. This collection has not been formally analyzed.

What remains of the archeological site today includes the chalet and a small part of the meadow to the east and southeast of the building. It is unlikely that additional intact archeological remains exist at the site. There may be artifacts that are currently beneath the structure but it seems unlikely that intact, buried deposits exist.

Because of the dynamic nature of the East Fork Quinault River there appears to be very little potential for intact, pre-contact archeological resources in the valley. Small scale archeological survey projects associated with park operations in the area have not turned up pre-contact materials. While ethnographic and oral history data clearly speak to the use of the Quinault Valley throughout the pre-contact period, it is unlikely that sites in the Enchanted Valley would be preserved, though possible that isolated pre-contact artifacts could be located in the valley.

Impacts on Archeological Resources

Methods and Assumptions

Intensity	
Negligible	The effects on cultural resources would be at the lowest levels of detection, barely measureable without any perceptible consequences to archeological resources. For purposes of Section 106 and the National Historic Preservation Act, the determination of effect would be *no adverse effect*.
Minor	The effects on cultural resources would be perceptible or measurable, but would be slight and localized within a relatively small area. The action would not affect the character or diminish the features of a NRHP eligible or listed historic structure, and it would not have a permanent effect on the integrity of any such resources. For the purposes of Section 106 and the National Historic Preservation Act, the determination of effect would be *no adverse effect*.
Moderate	The effects would be perceptible and measurable. The action would change one or more character-defining features of a cultural resource, but would not diminish the integrity of the resource to the extent that its NRHP eligibility would be lost. For the purposes of Section 106 and the National Historic Preservation Act, the cultural resources' NRHP eligibility would be threatened and the determination of effect would be *adverse effect*.
Major	The effects on cultural resources would be substantial, discernible, measurable, and permanent. For NRHP eligible or listed historic structures, the action would change one or more character-defining features, diminishing the integrity of the resource to the extent that it would no longer be eligible for listing in the national register. For purposes of Section 106, national register eligibility would be lost and the determination of effect would be *adverse effect*.

Analysis. There could be impacts on archeological resources as a result of this action. Moving the structure may expose unknown archeological resources from underneath the structure, resulting in long-term, beneficial effects due to the ability to evaluate and document previously unknown archeological resources before they are washed away by the shifting river.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, have resulted in some beneficial impacts on archeological resources. These uses and activities may continue to result in long-term, beneficial impacts to archeological resources due to inadvertent discoveries that would provide further documentation of the history of the area. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, could result in long-term, negligible to minor, beneficial cumulative effects on archeological resources. The proposed action would contribute a small increment to these cumulative effects.

Conclusion. Implementing the proposed action would have a long-term, beneficial effect on archeological resources. Cumulative effects would be long-term, and beneficial

Ethnographic Resources

The Queets and Quinault Indian tribes first inhabited the Lake Quinault area. The tribes established fishing and hunting villages on the shores of the lake and river that were in place for thousands of years. In the 1859 treaty, the Quinault Indian Reservation was created. The Quinault Indian Nation currently monitors for the health of the drainage, which supports their downstream fisheries.

Impacts on Ethnographic Resources

Methods and Assumptions

Intensity	
Negligible	Impacts would be barely perceptible and would neither alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs.
Minor	Impacts would be slight but noticeable but would neither appreciably alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs.
Moderate	Impacts would be apparent and would alter resource conditions. Some aspect of the action would interfere with traditional access, site preservation, or the relationship between the resource and then affiliated group's body of practices and beliefs, even though the group's practices and beliefs would survive.
Major	Impact would alter resource conditions. Some aspect of the action would block or greatly affect traditional access, site preservation, or the relationship between the resource and the affiliated group's body of practices and beliefs, to the extent that the survival of a group's practices and/or beliefs would be jeopardized.

Analysis. Some impacts on ethnographic resources, mainly in regard to traditional use and access, may be expected as a result of this action. Actions involved with relocating the structure to within approximately 50-100 feet of its current location would likely result in short-term, minor, adverse impacts on traditional

use and access due to the temporary closure of the area to conduct project activities. The relocation of the historic structure, and removal of the remaining non-historic foundation, from the river bank would likely result in long-term, beneficial effects on traditional use and access as the action would keep the structure from falling into the river affecting water quality and fisheries important to traditional use.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, may have resulted and might continue to result in some impacts on traditional use and access. These uses and activities may continue to result in short- and long-term, negligible to minor, adverse impacts to traditional use and access. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in minor, adverse cumulative effects on traditional use and access in the project area and some beneficial impacts due to keeping the structure from falling into the river. The proposed action would contribute a small increment to these adverse cumulative effectsand a large increment to the beneficial cumulative effects.

Conclusion. Implementing the proposed action would have a short-term, minor, adverse effect on traditional use and access; as well as long-term, beneficial effects on traditional use and access. Cumulative effects would be short- and long-term, negligible to minor, and adverse, with some beneficial effects as well.

Park Operations

ONP is mainly served by an exterior circulation system with only short spur roads entering the park. This often creates significant transportation, communication, and logistical challenges for the administration of the wilderness area and for emergency operations.

Impacts on Park Operations

Methods and Assumptions

Intensity	
Negligible	No effects would occur, or the effects on park management and operations are below or at the level of detection.
Minor	The effect would be detectable, but would be of a magnitude that it would not have an appreciable effect on park management and operations.
Moderate	Impacts would be readily apparent and would result in a substantial change in park management and operations in a manner noticeable to staff and the public, but would not be markedly different from existing operations.
Major	Impacts would be readily apparent and would result in a substantial change in park management and operations in a manner noticeable to staff and the public and would be markedly different from existing operations.

Analysis. Some impacts on park operations would be expected as a result of this action. The activities involved with relocating the structure to an area within approximately 50-100 feet of its current location, and the removal of the non-historic foundation, would result in short-term, minor to moderate, adverse impacts on park operations due to the enforcement of a temporary closure of the area to conduct project activities and staff time to assist in the relocation activities. The relocation of the historic structure from the river bank, along with the removal of the non-historic foundation, may also result in a short- or long-

term, minor to moderate, beneficial effect on park operations as the action would keep the structure and foundation from falling into the river and requiring emergency removal operations.

Cumulative Impacts. Activities such as previous maintenance and administrative use of the chalet; current and on-going trail maintenance and visitor use; and, to a lesser extent, on-going research activities, may have resulted and might continue to result in some impacts on park operations. These uses and activities may continue to result in short- and long-term, negligible to minor, adverse impacts to park operations. The proposed action, in combination with the impacts of other past, present, and foreseeable actions, would result in short-term, negligible to minor, adverse cumulative effects on park operations; as well as short- or long-term, beneficial effects on park operations. The proposed action would contribute a large increment to these cumulative effects.

Conclusion. Implementing the proposed action would have a short- and long-term, negligible to minor, adverse effect on park operations; as well as short- or long-term, beneficial effects on park operations. Cumulative effects would be short- and long-term, minor to moderate, and adverse, with some beneficial effects as well.

IV. CONSULTATION AND COORDINATION

Under Section 7 of the Endangered Species Act (ESA), the park will initiate informal consultation with the U.S. Fish and Wildlife Service about the proposed actions being considered under this emergency compliance specific to bull trout and its critical habitat. The proposed action of temporarily relocating the chalet under this immediate action would mitigate potential impacts and is not likely to affect any listed species in the project area.

The Quinault Indian Nation, one of eight federally recognized tribes on the Olympic Peninsula, is located downstream of the park boundary within the Quinault River drainage. During a recent Government to Government Consultation meeting with the Quinault Indian Nation for the Preliminary Draft Alternatives for the Wilderness Stewardship Plan, the Park provided an update on the current condition of the Enchanted Valley Chalet, eroding stream bank and the need to implement emergency actions. Tribal members present at this meeting expressed concern that the Chalet not fall into the river and that the park should not be taking any actions that would harden the stream bank which would lead to a loss of critical fish habitat. The Quinault Indian Nation is concerned about fisheries and implementing ecologically appropriate restoration efforts.

On January 17, 2014, when the park became aware of the imminent erosional threat to the chalet, the park notified the Cultural Resource Staff in the Pacific West Regional Office and initiated consultation with the State Historic Preservation Office (SHPO). Additional phone consultations with SHPO occurred on February 26 and March 28, 2014. Periodic updates have been provided to SHPO via email and phone, and at the biennial meeting with the State Historic Preservation Office on April 9, 2014. The alternatives that were analyzed and found to be out of scope due to either being ineffective at meeting the purpose and need, were technically and/or economically infeasible, or are infeasible within law and policy were also vetted with the SHPO. These alternatives included the following:

- Allow the natural processes (natural river migration and erosion) to occur and remove chalet upon failure or irreparable damage; no reconstruction of an administrative facility at Enchanted Valley
- Minimal river manipulation (including the use of downed trees, removal and use of standing trees, bio-engineering of bank, the removal or replacement of cobbles and gravel materials, instream work, use of rip rap)
- More extensive river channel manipulation/bank stabilization (the removal and use of standing trees, removal or replacement of cobbles and gravel materials, instream work, use of gabion baskets filled with large or imported rock, pilings, actions would require prohibited uses such as chainsaws and helicopters, along with hand-powered winches, small diameter cables, and wrenches)
- Permanently move the chalet to another location within Enchanted Valley
- Raze the building by controlled burning of the chalet in its current location
- Dismantle the chalet and stage it in sorted piles for removal and disposal
- Disassemble the chalet and move it to a front-country location

A final Memorandum of Agreement (MOA) is currently being developed to fulfill the NHPA Section 106 requirements.

In addition to agency coordination described above, the park has conducted outreach to the general public through news releases, public meetings, visitor center contacts, and a Facebook based photo and memory book. In late March and early April, park staff held six public meetings for the Wilderness Stewardship Plan. At these meetings, questions regarding the status of the Enchanted Valley Chalet were not discouraged and people were directed to the superintendent for further discussion. Ongoing outreach to

the public will include news releases, web and social media communication, and distribution of other informational materials. Informational materials are intended to keep the public apprised of updates to the project, alternative selection, and agency actions.

V. SELECTED REFERENCES

National Park Service, U.S. Department of the Interior

2008 General Management Plan, Olympic National Park

2008 Biological Opinion for the Olympic National Park General Management Plan and ongoing Programmatic Park Management Activities, U.S. Fish and Wildlife Service, June 2008

2010 Backcountry Permit Data, Enchanted Valley Overnight Wilderness Use Data

2014 NPS Park Visitor Use Statistics. Available at: http://irma.nps.gov

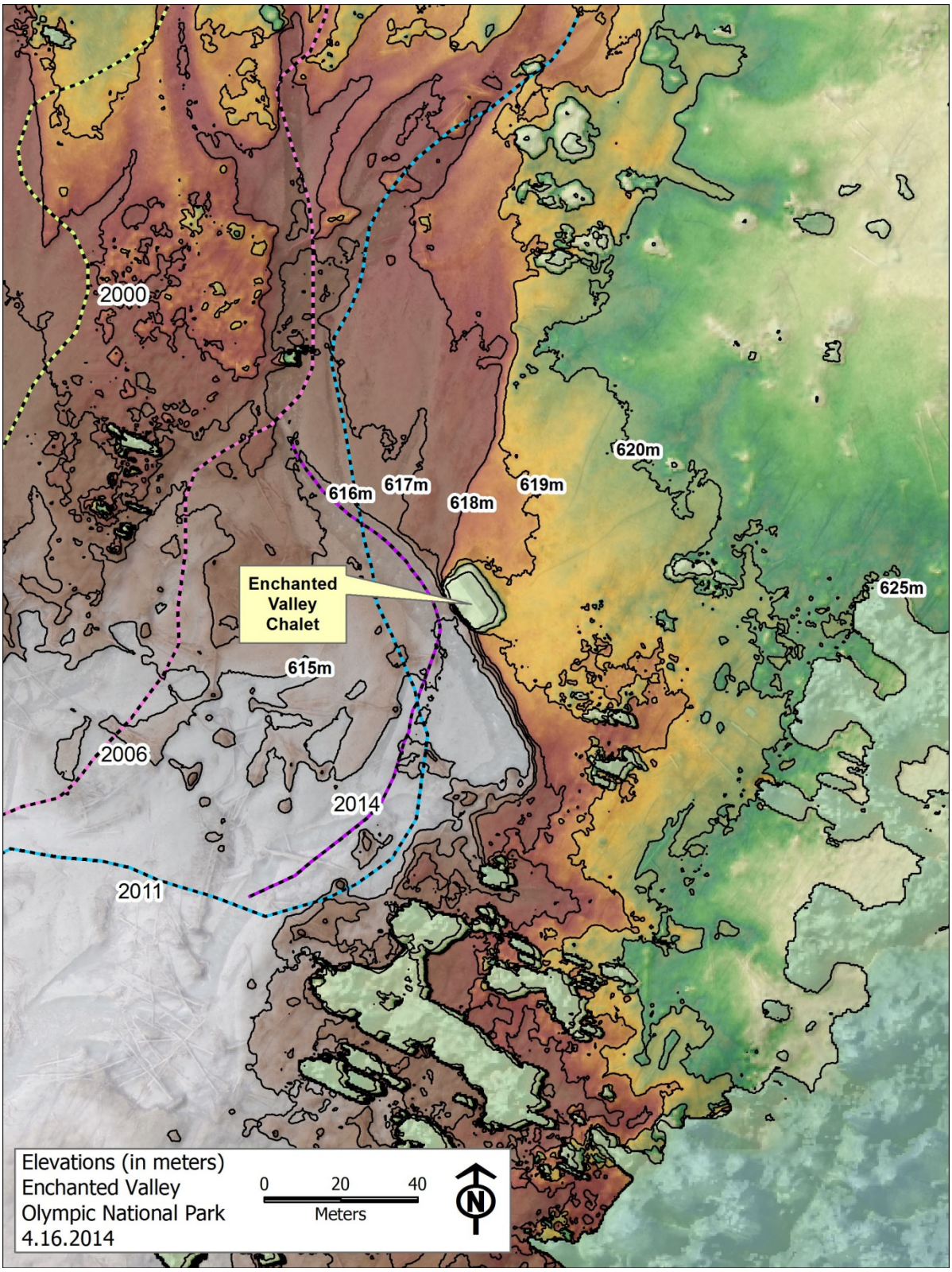
Thomas, J.W., E.D. Forsman, J.B. Lint, E.C. Meslow, B.R. Noon, and J. Verner

1990 A conservation strategy for the northern spotted owl. Report of the Interagency Scientific Committee to address the conservation of the northern spotted owl. Portland, OR. 427 pp.

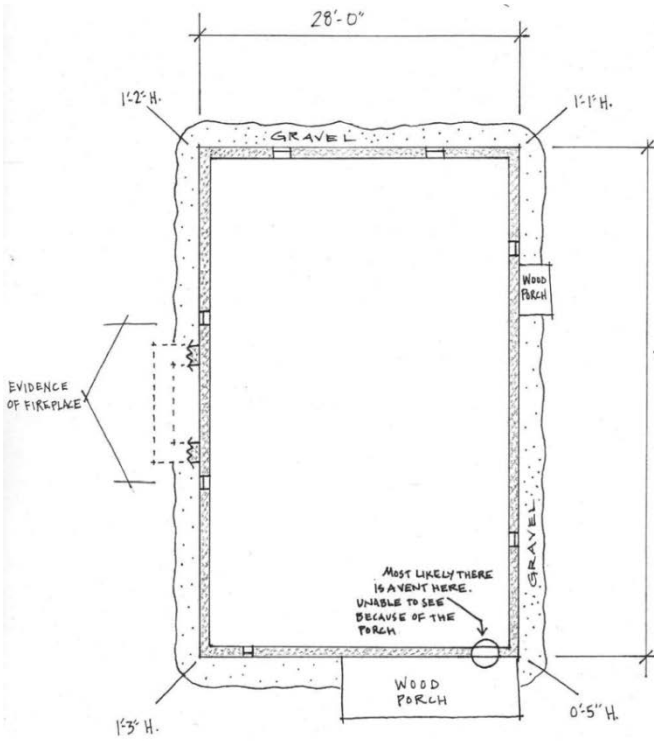
VI. APPENDICES

Appendix A: Location of Proposed Action

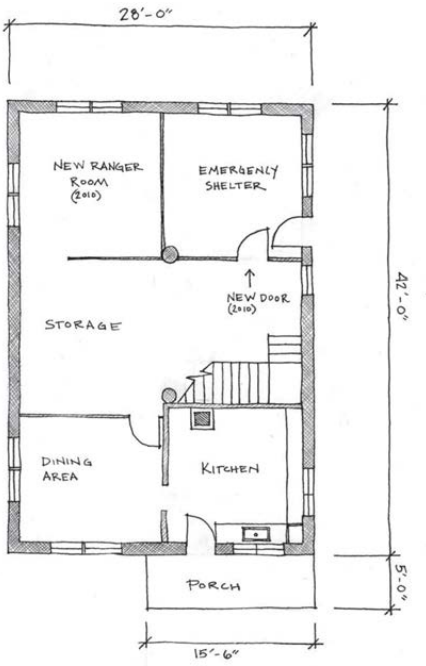
Appendix B: Area Elevation



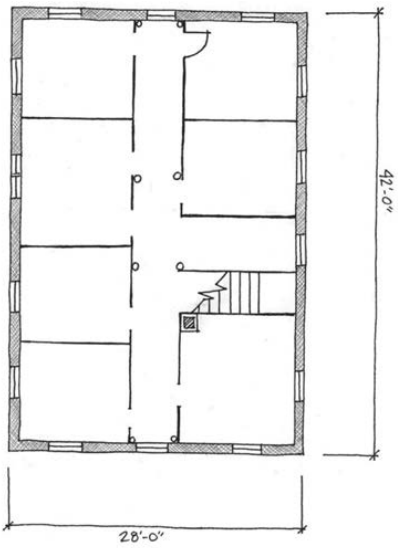
Appendix C: Enchanted Valley Floor Plans



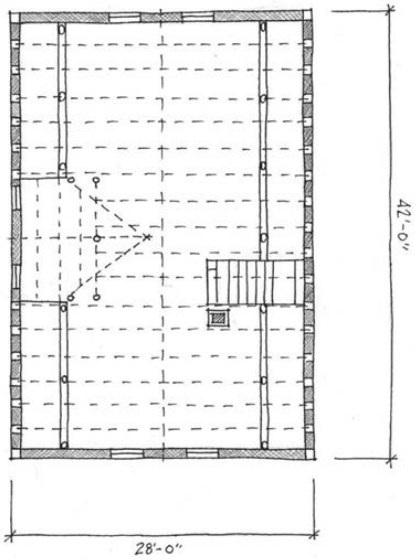
ENCHANTED VALLEY CHALET
FOUNDATION
SCALE 1/8" = 1'-0"
SUMMER 2010



ENCHANTED VALLEY CHALET
FIRST LEVEL FLOOR PLAN
SCALE 1/8" = 1'-0"
SUMMER 2010



ENCHANTED VALLEY CHALET
SECOND LEVEL FLOOR PLAN - BEDROOMS
SCALE 1/8" = 1'-0"
SUMMER 2010

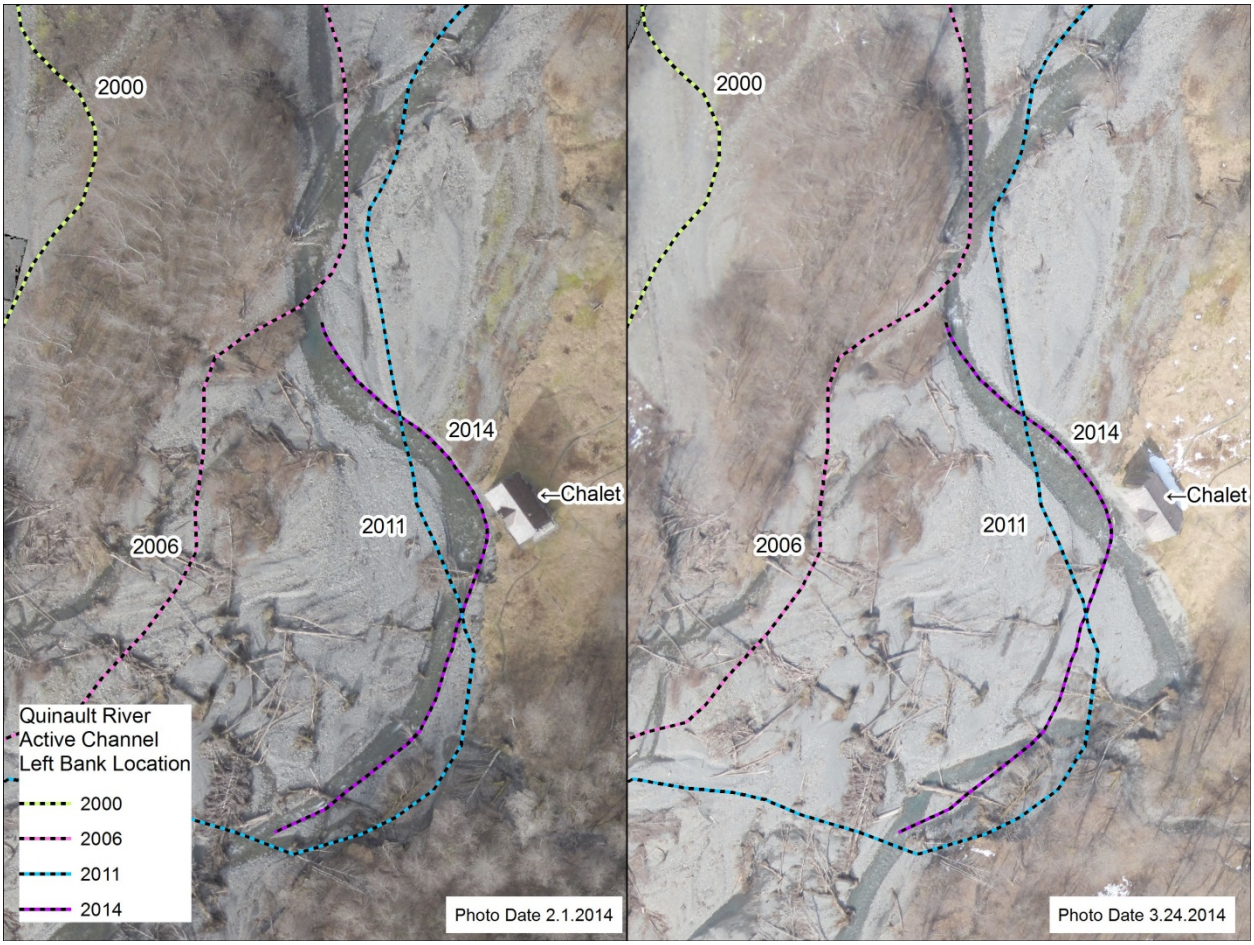


ENCHANTED VALLEY CHALET
THIRD LEVEL FLOOR PLAN - ATTIC 1/2 STORY - EXPOSED ROOF STRUCTURE
SCALE 1/8" = 1'-0"
SUMMER 2010

Appendix D: Historic Site Photos

Appendix E: East Fork Quinault River Channel Migration

The numbers, along with the colored dashed lines, in the images represent the location of the river channel by year as indicated.



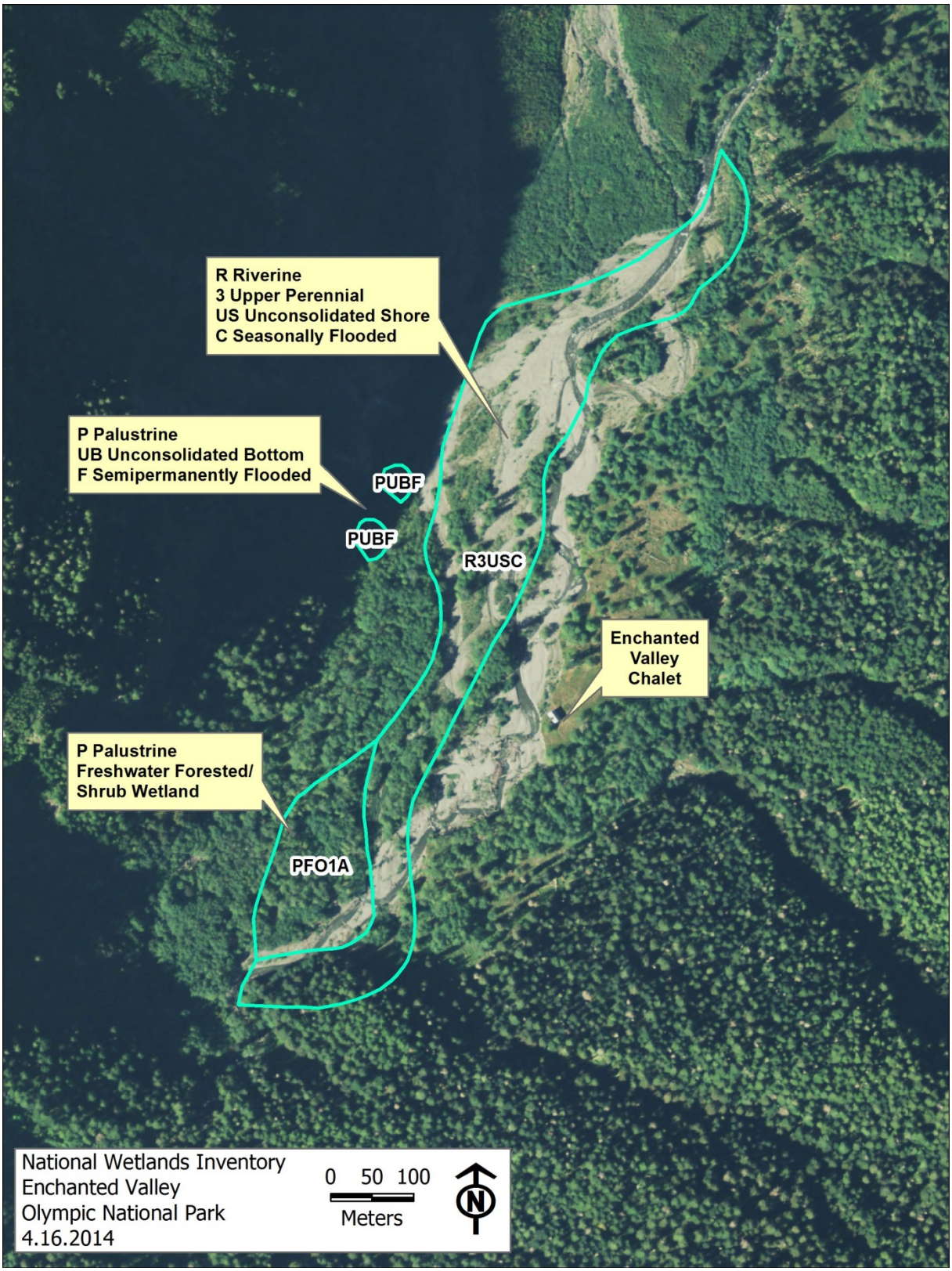
Appendix F: Recent Site Photos

Enchanted Valley Chalet, March 22, 2014

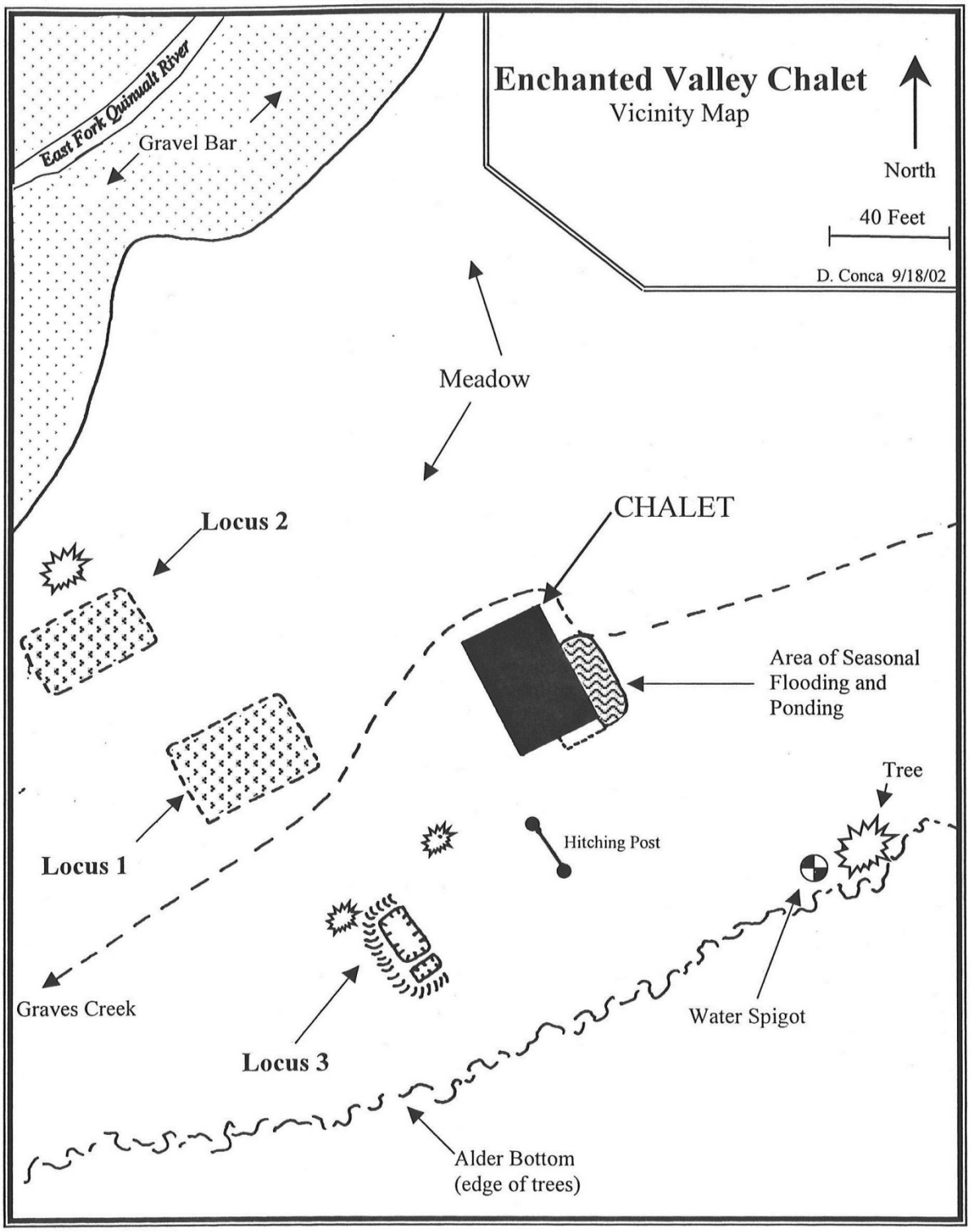
Enchanted Valley Chalet, March 22, 2014

Enchanted Valley Chalet, March 22, 2014

Appendix G: Area Wetlands



Appendix H: Archeological Sites



Appendix I: Minimum Requirement Analysis

Olympic National Park
Wilderness Project Proposal Form/Minimum Requirements Worksheet

PART ONE: Wilderness Project Proposal Information	
Project Originator(s):	Enchanted Valley Chalet IDT
Division:	Superintendent's Office
Date:	4/30/14
What is the <u>issue</u> or <u>problem</u> to be solved?	The East Fork Quinault River channel has migrated to the east and is undercutting the Enchanted Valley Chalet, which is listed on the National Register of Historic Places. As the building becomes further undercut, its stability becomes compromised. The problem to be solved is keeping the chalet from falling into the river and adversely impacting the streambed, hydrology, water quality, fisheries, other associated natural resources, and wilderness character.
What is the underlying need for the project?	The purpose of the proposed action is to protect the East Fork Quinault River and its associated natural resources from imminent environmental harm. The need for the proposed action is the immediate risk of the Enchanted Valley Chalet falling into the East Fork Quinault River and adversely impacting the streambed, hydrology, water quality, fisheries, other associated natural resources, and local wilderness character.
Location (attach map and/or photos):	See related documentation, photos, and maps in the Appendix of the attached environmental assessment (EA).
Is resolution of this issue addressed in an approved NEPA document: Categorical Exclusion (CE); Environmental Assessment, Finding of No Significant Impact (FONSI); or Environmental Impact Statement, Record of Decision (ROD)? If so, please name:	No. An EA is being done concurrently.
What would happen if the need were not met? **(NO ACTION)**	The chalet would fall into the river and would likely adversely impact the streambed, hydrology, water quality, fisheries, other associated natural resources, and wilderness character.

Wilderness Minimum Requirement Analysis (MRA) STEP ONE: Determine if action is necessary or appropriate		
1	Is the resolution of this issue covered by an existing Wilderness Plan or other NEPA decision document that includes wilderness minimum requirement considerations?	Answer: Yes____ No__X___

Yes ↓ Implement action as approved No ↓ Continue PPF/MRA		If "Yes" provide name of document and approval date:
2	Has Superintendent determined this is an emergency in accordance with law & policy?	Answer: Yes____ No __X__ While DOI has not characterized this action as an emergency action, it, as well as the Pacific West Regional Office of the National Park Service, and the National Park Service Environmental Quality Division have approved a "concise" environmental assessment to address the imminent environmental harm. Immediate action is dependent on funding. The EA is being conducted under a waiver of NPS DO-12, and instead utilizing DOI NEPA regulations 46.310 a and b.
No ↓		Yes, Follow approved emergency SOPs/management plans. If they do not exist or have not gone through MRA, continue MRA.
3	List guidance provided in law and policy for resolution of the issue	See Management Policies Chapter 6, Director's Order #41 and other applicable laws, policies and directives. Add additional policy guidance as appropriate.

WILDERNESS MINIMUM REQUIREMENT

Wilderness Act of 1964 - Prohibition Of Certain Uses Section 4(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

Management Policies § 6.3.5 Minimum Requirement - All management decisions affecting wilderness must be consistent with the minimum requirement concept. This concept is a documented process used to determine if administrative actions, projects, or programs undertaken by the Service or its agents and affecting wilderness character, resources, or the visitor experience are necessary, and if so how to minimize impacts. The minimum requirement concept will be applied as a two-step process that determines whether the proposed management action is appropriate or necessary for administration of the area as wilderness and does not cause a significant impact to wilderness resources and character, in accordance with the Wilderness Act; and the techniques and types of equipment needed to ensure that impacts on wilderness resources and character are minimized.

When determining minimum requirements, the potential disruption of wilderness character and resources

will be considered before, and given significantly more weight than, economic efficiency and convenience. If a compromise of wilderness resources or character is unavoidable, only those actions that preserve wilderness character and/or have localized, short-term adverse impacts will be acceptable.

Although park managers have flexibility in identifying the method used to determine minimum requirement, the method used must clearly weigh the benefits and impacts of the proposal, document the decision-making process, and be supported by an appropriate environmental compliance document. Parks must develop a process to determine minimum requirement until the plan is finally approved. Parks will complete a minimum requirement analysis on those administrative practices and equipment uses that have the potential to impact wilderness resources or values. The minimum requirement concept cannot be used to rationalize permanent roads or inappropriate or unlawful uses in wilderness.

Administrative use of motorized equipment or mechanical transport will be authorized only

- if determined by the superintendent to be the minimum requirement needed by management to achieve the purposes of the area, including the preservation of wilderness character and values, in accordance with the Wilderness Act; or
- in emergency situations (for example, search and rescue, homeland security, law enforcement) involving the health or safety of persons actually within the area.

Such management activities will also be conducted in accordance with all applicable regulations, policies, and guidelines and, where practicable, will be scheduled to avoid creating adverse resource impacts or conflicts with visitor use.

While actions taken to address search and rescue, homeland security and law enforcement issues are subject to the minimum requirement concept, preplanning or programmatic planning should be undertaken whenever possible to facilitate a fast and effective response and reduce paperwork.

For more detailed guidance, see Director's Order #41 and the National Wilderness Steering Committee Guidance Paper #3: "What Constitutes the Minimum Requirements in Wilderness?"

Director's Order #41: Wilderness Preservation and Management

C. Management Issues

2. Application of the Minimum Requirement Concept

Planned administrative actions that may result in an exception to a prohibited use (i.e., chainsaws, aircraft use, radio repeater sites, rock drills, patrol structures, weather stations) or have the potential to impact wilderness resources and values must be consistent with an approved wilderness management plan and be documented in accordance with the park's minimum requirements process. The minimum requirements process will be conducted through appropriate environmental analysis (e.g., categorical exclusions, environmental assessment/FONSI, or an environmental impact statement/Record of Decision).

When determining the minimum requirement for a proposed action, the manager will strive to minimize the extent of adverse impact associated with accomplishing the necessary wilderness objective. The determination as to whether or not an action has an adverse impact on wilderness must consider both the physical resources within wilderness, and wilderness characteristics and values. These characteristics and values include: the wilderness's primeval character and influence; the preservation of natural conditions (including the lack of man-made noises); cultural resource values, the assurance of outstanding opportunities for solitude; the assurance that the public will be provided with a primitive and unconfined type of recreational experience; and the assurance that wilderness will be preserved and used in an unimpaired condition.

Managers must give appropriate consideration to the aesthetic values of wilderness as well as the physical resource. These factors take precedence over cost or convenience in determining minimum requirement.

4	Is resolution of this issue necessary or appropriate to meet wilderness management objectives or the requirements of other laws, policies and directives? Yes → No → Do not proceed with action	Answer: Yes__X__ No____ Explain: If the structure was allowed to fall into the river this would degrade wilderness character. It would also likely have an adverse effect on critical habitat for the federally threatened bull trout, as well as on the streambed, hydrology, water quality, fisheries, and other associated natural resources.
5	Can the issue be resolved through visitor education? Yes → Carry out visitor education No →	Answer: Yes____ No__X__ Explain: The issue cannot be resolved through visitor education as the issue is related to a natural process affecting a structure that if not addressed would threaten wilderness character.
6	Can the issue be resolved through actions outside of wilderness? Yes → Conduct actions outside wilderness N →	Answer: Yes____ No__X__ Explain: The structure and the river are both located within designated wilderness.

I have reviewed this project proposal and have determined that it meets the overall goals of Olympic National Park and can be included in my divisional work plan. I have designated a project coordinator below to represent my division and present the proposal to the Compliance Council.

Project Manager:		
Division Chief Signature:		Date:

Next step:
Contact the Planning & Compliance Office to schedule the issue for discussion by the Olympic National Park Compliance Council.

I have reviewed this project proposal and have determined that the proposed management action is appropriate or necessary for administration of the park, if in wilderness it is appropriate and necessary

for the administration of the area as wilderness, in accordance with the Wilderness Act. I recommend that alternatives be developed to ensure that actions taken would not cause a significant impact to wilderness resources or character, and to develop techniques and types of equipment needed to ensure that impacts on park resources and values, and wilderness resources and character are avoided or minimized. Complete Part Two (next page).

Deputy Superintendent:		Date:

PART TWO: Evaluate Alternatives, as appropriate determine the minimum tools, techniques and actions that would effectively resolve the issue while avoiding or minimizing adverse effects.

8	Describe in detail alternative ways to resolve the issue (include use of minimum tools as appropriate) Note: Alternatives described in other compliance documents that address this issue may be referenced. If minimum requirement considerations were not included, develop below for projects affecting wilderness.	Questions to answer for each alternative: • What is proposed? • Does the proposed action involve new construction or repair/rehab to existing structures/utilities/assets? • Does the project take place in the same location/footprint/trench used before, or in a previously undisturbed area? • Would the project involve ground disturbance (cut or fill)? If so, how many cubic yards and where will materials be deposited (both temporarily and permanently)? If fill materials are taken, identify the specific site fill taken from and if the materials are native to the park. How would fill be "stored"? • How much excavation would be necessary (quantify by width, length, depth, cubic feet, number or lines, etc.) • Would the proposal involve work in or near a known archeological site or other historic property? • Would a staging area be required? If so, identify staging area(s), include map, what type of materials and/or equipment and for how long? What would be the estimated square footage of the staging are? • How/where would construction debris be disposed of? • How much surface area would be disturbed, cleared, or denuded of vegetation (quantify by square footage, # of trees removed, etc.) • Would the project involve any geologic or hydrologic features/alter stream courses, surface or ground water flow? • Would the proposal involve structures, fill, or discharge into water (example: bridge crossing, boardwalk, gravel, culverts, etc.)? • Would the proposal affect water quality or quantity? • What changes would occur in land/facility use? • What changes would occur to traffic flow or visitor

		circulation? • Would the proposal require aerial operations? • Would the proposal alter visitor services, activities, or experiences? • Where would the action take place? • When would the action take place? • What design and standards would apply? • What methods, tools and techniques would be used? • How long would it take to complete the action? • What mitigation would be taken to minimize action impacts on park resources and values, and wilderness resources and character (where applicable)?

Alternative 1: No action

- What is proposed?
  - Under the no action alternative, the structure would be left where it is currently situated on the undercutting bank of the East Fork Quinault River.
- Does the proposed action involve new construction or repair/rehab to existing structures/utilities/assets?
  - No
- Does the project take place in the same location/footprint/trench used before, or in a previously undisturbed area?
  - Yes
- Would the project involve ground disturbance (cut or fill)? If so, how many cubic yards and where will materials be deposited (both temporarily and permanently)? If fill materials are taken, identify the specific site fill taken from and if the materials are native to the park. How would fill be "stored"?
  - No
- How much excavation would be necessary (quantify by width, length, depth, cubic feet, number or lines, etc.)
  - None
- Would the proposal involve work in or near a known archeological site or other historic property?
  - Yes, though there would be no work involved. The structure is a historic property and there may be archeological resources beneath it.
- Would a staging area be required? If so, identify staging area(s), include map, what type of materials and/or equipment and for how long? What would be the estimated square footage of the staging are?
  - No
- How/where would construction debris be disposed of?
  - N/A
- How much surface area would be disturbed, cleared, or denuded of vegetation (quantify by square footage, # of trees removed, etc.)
  - None; unless the presence of the structure on the bank contributes to bank erosion due to its weight – if so, this alternative would result in surface area disturbance though not through connection to any direct action.
- Would the project involve any geologic or hydrologic features/alter stream courses, surface or ground water flow?
  - Possibly. In leaving the structure in its current location, it could fall into the river which

would then have an adverse effect on the hydrologic features and could alter the streamflow.

- Would the proposal involve structures, fill, or discharge into water (example: bridge crossing, boardwalk, gravel, culverts, etc.)?
  - Possibly. In leaving the structure in its current location, it could fall into the river.
- Would the proposal affect water quality or quantity?
  - Possibly. In leaving the structure in its current location, it could fall into the river which could then have an adverse effect on water quality (increased turbidity, lead-based paint, non-wood materials).
- What changes would occur in land/facility use?
  - None
- What changes would occur to traffic flow or visitor circulation?
  - Temporary closures may possibly be put into effect for visitor safety.
- Would the proposal require aerial operations?
  - No
- Would the proposal alter visitor services, activities, or experiences?
  - Possibly. Temporary closures may possibly be put into effect for visitor safety.
- Where would the action take place?
  - In the Enchanted Valley in Congressionally-designated wilderness
- When would the action take place?
  - N/A; on-going; however, if the structure were to fall into the river, that may trigger an emergency action for removal from the river (potentially requiring immediate action).
- What design and standards would apply?
  - N/A
- What methods, tools and techniques would be used?
  - N/A
- How long would it take to complete the action?
  - N/A
- What mitigation would be taken to minimize action impacts on park resources and values, and wilderness resources and character (where applicable)?
  - The old trail on the riverside of the chalet has been lost due to river migration and a new trail section has not been established. One mitigation related to resources would be constructing a new trail section so that we don't get social trailing impacts across the entire meadow.

Alternative 2:

- What is proposed?
  - The proposed action is to temporarily move the chalet approximately 50-100 feet from the bank of the East Fork Quinault River and dismantle and remove the remaining non-historic foundation.
- Does the proposed action involve new construction or repair/rehab to existing structures/utilities/assets?
  - No
- Does the project take place in the same location/footprint/trench used before, or in a previously undisturbed area?
  - No; the project would take place in the same general vicinity but would not occur within the same footprint.
- Would the project involve ground disturbance (cut or fill)? If so, how many cubic yards and where will materials be deposited (both temporarily and permanently)? If fill materials are taken, identify the specific site fill taken from and if the materials are native to the park. How would fill be "stored"?
  - Yes – no cut and fill, but general ground disturbance – there would be some removal and

compaction of soils.

- How much excavation would be necessary (quantify by width, length, depth, cubic feet, number or lines, etc.)
    - None
- Would the proposal involve work in or near a known archeological site or other historic property?
    - Yes; the project involves moving a National Register listed historic structure and there may be archeological resources in the ground beneath it.
- Would a staging area be required? If so, identify staging area(s), include map, what type of materials and/or equipment and for how long? What would be the estimated square footage of the staging are?
    - Yes. The proposed action would require a team of skilled professionals (such as a professional house mover, and a team of four to six skilled labors), pack stock and type 3 helicopter support, and sufficient personnel to secure the area during the project period. The equipment required will likely include a hydraulic power pack pump driven by a small (less than 10 hp) motor, multiple hydraulic crib jacks, steel rails to support the structure, additional steel rails, an inert lubricant on which to slide the structure, and an assortment of hand tools. Bunch Field, off the North Shore Road in the Quinault valley, would be utilized as the frontcountry helicopter staging area. The other equipment and materials would be staged within the project area.
- How/where would construction debris be disposed of?
    - There would be no construction debris.
- How much surface area would be disturbed, cleared, or denuded of vegetation (quantify by square footage, # of trees removed, etc.)
    - The area of disturbance would be confined to approximately an acre. No trees would be removed.
- Would the project involve any geologic or hydrologic features/alter stream courses, surface or ground water flow?
    - No
- Would the proposal involve structures, fill, or discharge into water (example: bridge crossing, boardwalk, gravel, culverts, etc.)?
    - No
- Would the proposal affect water quality or quantity?
    - The proposed action would mostly have a beneficial impact on water quality by keeping the structure from falling into the river. However, any work on the streamside of the structure could cause some increase in erosion/sediment loading. There is also a small possibility that the bank could further erode as a direct result of the set-up/moving, though no great amount of further bank erosion is expected that would be directly related to project activities.
- What changes would occur in land/facility use?
    - None
- What changes would occur to traffic flow or visitor circulation?
    - There would be temporary closures to the area, as well as temporary traffic delays on the North Shore Road (due to aerial operations and overhead sling loads) during project activities.
- Would the proposal require aerial operations?
    - Yes
- Would the proposal alter visitor services, activities, or experiences?
    - Yes. There would be temporary closures to the area, as well as temporary traffic delays on the North Shore Road (due to aerial operations and overhead sling loads) during project activities.
- Where would the action take place?

- In the Enchanted Valley on the east side of the East Fork of the Quinault River. This is about 13 miles from the Graves Creek Trailhead.

- When would the action take place?
  - Immediately, once funding and staffing are secured
- What design and standards would apply?
  - Standard house-moving processes would be used. Steel beams would be placed in line with the structures, an inert lubricant would be applied to the beams, and the structure would be lifted and placed onto the beams and slid down the beams. The beams would be moved in a leap-frog manner to continue moving the structure to the 50-100 foot distance of its current location.
- What methods, tools and techniques would be used?
  - Steel beams would be placed in line with the structures, an inert lubricant would be applied to the beams, and the structure would be lifted and placed onto the beams and slid down the beams. The beams would be moved in a leap-frog manner to continue moving the structure to the 50-100 foot distance from its current location. The proposed action would require a team of skilled professionals (such as a professional house mover, and a team of four to six skilled labors), pack stock and type 3 helicopter support, and sufficient personnel to secure the area during the project period. The equipment required will likely include a hydraulic power pack pump driven by a small (less than 10 hp) motor, multiple hydraulic crib jacks, steel rails to support the structure, additional steel rails, an inert lubricant on which to slide the structure, and an assortment of hand tools.
- How long would it take to complete the action?
  - It is anticipated that the action would take one week to complete.
- What mitigation would be taken to minimize action impacts on park resources and values, and wilderness resources and character (where applicable)?
  - Mitigation measures are identified in the Mitigation and Monitoring section of Chapter 2 in the "concise" environmental assessment (EA). These include, but are not limited to, no instream work would be conducted, the smallest and quietest helicopter would be used to avoid disturbance to threatened bird species and reduce impacts on the natural soundscape and visitor experience, erosion control measures would be utilized, park staff and visitors would be notified of temporary closures, and food storage requirements would be followed. Please see Chapter 2 of the "concise" EA for the complete listing of mitigation measures.

9	Evaluate the impacts of each alternative	Potential impacts to evaluate under <u>each</u> alternative: • Wilderness character effects • Effects on natural resources • Cultural resources considerations • Social/recreational/experiential effects • Societal/political effects • Health/safety concerns • Economic/timing/sustainability considerations

Alternative 1: No Action

Wilderness character effects (untrammeled, natural, undeveloped, solitude or a primitive & unconfined type of recreation)

Positive effects:

- Untrammeled: None
- Natural: None
- Undeveloped: None
- Solitude or a Primitive & Unconfined Type of Recreation: None

Negative effects:

- Untrammeled: The structure could fall into the river and hinder natural flows and river migration/processes.
- Natural: The structure could fall into the river and adversely affect critical habitat for the federally-threatened bull trout, as well as habitat for other fish and aquatic species; it could also affect natural flows and natural river processes.
- Undeveloped: The structure still remains in designated wilderness; even if it falls into the river and gets broken into several pieces, these pieces would still retain their man-made appearance and other man-made items such as nails.
- Solitude or a Primitive & Unconfined Type of Recreation: Given the safety hazard of the status of the structure, especially as the river continues to cut into the bank, there could be area closures to visitors for safety purposes.

Effects on natural resources
Positive effects: Leaving the structure where it currently sits would keep the floodplain soils and vegetation 50-100 feet away and in the moving path from being impacted (compaction, trampling, and removal).

Negative effects: The structure could fall into the river and adversely affect critical habitat for the federally-threatened bull trout and other fish habitat and aquatic species; it could disrupt the natural streamflow and channel migration; the structure could also create an unnatural dam in the river at the canyon downstream.

Cultural resources considerations
Positive effects: If the structure does not fall into the river it would maintain its National Register listing.

Negative effects: The structure could fall into the river and lose its National Register listing. Any potential archeological resources beneath the structure could also get washed away before they are evaluated and documented.

Social/recreational/experiential effects
Positive effects: None

Negative effects: There could be area closures for visitor safety; if the structure falls into the river this would be a negative experience for visitors who are familiar with the structure and the setting.

Societal/political effects
Positive effects: None

Negative effects: Leaving the structure in place has already raised many concerns from local/area residents to congressional staff due to the potential for the structure to fall into the river and cause environmental impacts as well as the potential for the National Register listed structure to be lost entirely.

Health/safety concerns
Positive effects: None

Negative effects: Leaving the structure in place creates an attractive nuisance that could pose a safety threat to visitors. It could also be a safety threat for park staff if there's a need for an emergency rescue operation if someone Illegally enters the structure and it collapses on them or it falls into the river while

they're inside.

Economic/timing/sustainability considerations
Positive effects: Leaving the structure in place saves money as there would not be a need to utilize helicopters and staff hours in the field.

Negative effects: Leaving the structure in place is not a sustainable solution as it would likely fall into the river and require an emergency (immediate) action for its removal which would include helicopter use, staff, and fiscal resources.

Alternative 2:

Wilderness character effects (untrammeled, natural, undeveloped, solitude or a primitive & unconfined type of recreation)
Positive effects:

- Untrammeled: Temporarily relocating the structure reduces the potential for it to fall into the river hindering natural flows and river processes.
- Natural: Temporarily relocating the structure would allow the river to maintain its current course of action without disruption of the structure falling into the river and disrupting natural flows and river processes; and removes the immediate threat to bull trout critical habitat and other fish and aquatic species habitat.
- Undeveloped: None
- Solitude or a Primitive & Unconfined Type of Recreation: None

Negative effects:

- Untrammeled: None
- Natural: Temporarily relocating the structure would affect wildlife habitat in its new location on the floodplain as the relocation would affect vegetation through trampling or removal. The use of helicopters and other tools, along with noise from increased human presence during project activities would impact the natural soundscape and affect species sensitive to noise disturbances. Given that this would be an immediate action, the use of helicopters would take place within the federally threatened bird species (i.e., the marbled murrelet and spotted owl) nesting and breeding period, and the impacts are likely to be greater during this timeframe than if the project were to occur outside the nesting and breeding season.
- Undeveloped: The man-made structure would still exist within Congressional-designated wilderness. The use of helicopters and other motorized or mechanized tools would also have a negative effect on the undeveloped quality.
- Solitude or a Primitive & Unconfined Type of Recreation: Actions involved with moving the structure, such as the use of a gas-powered motor that drives the power-pack pump, getting the steel beams into the correct positions, and yelling necessary to ensure that commands during moving operations are heard by all necessary personnel, as well as air horns utilized in the event of an immediate safety-related cease of works would affect the solitude quality of wilderness character. The use of helicopters to transport equipment to and from the project site, as well as to remove the dismantled foundation and cache boxes filled with hazardous materials from the project site would also affect solitude. Increased human and stock presence would also affect opportunities for solitude. Temporary closure of the area during project activities would affect the unconfined type of recreation. And increased human foot-traffic and pack stock would have an effect on primitive recreation.

Effects on natural resources

Positive effects: Temporarily relocating the structure would allow the river to maintain its current course of action without disruption of the structure falling into the river and disrupting natural flows and river processes; and removes the immediate threat to bull trout critical habitat and other fish and aquatic species habitat.

Negative effects: Temporarily relocating the structure would affect wildlife habitat in its new location on the floodplain as the relocation would affect vegetation through trampling or removal. The use of helicopters and other tools, along with noise from increased human presence during project activities would impact the natural soundscape and affect species sensitive to noise disturbances. Given that this would be an immediate action, the use of helicopters would take place within the federally threatened bird species (i.e., the marbled murrelet and spotted owl) nesting and breeding period, and the impacts are likely to be greater during this timeframe than if the project were to occur outside the nesting and breeding season.

Cultural resources considerations
Positive effects: Temporarily relocating the National Register listed structure would keep it from losing its listing status since there would no longer be an immediate threat of the structure falling into the river.

Negative effects: Temporarily relocating the National Register listed structure would cause it to lose some of its significance and according to the ACHP (Advisory Council on Historic Properties) regulations this would be considered an "*adverse effect*" by the definition within Section 106 of the National Historic Preservation Act.

Social/recreational/experiential effects
Positive effects: Temporarily relocating the structure would provide the public an opportunity to see the structure before a final determination is made on the disposition of the structure.

Negative effects: Actions involved with moving the structure, such as the use of a gas-powered motor that drives the power-pack pump, getting the steel beams into the correct positions, and yelling necessary to ensure that commands during moving operations are heard by all necessary personnel, as well as air horns utilized in the event of an immediate safety related cease of works would have an impact on the recreational and wilderness experience of the visitors. The use of helicopters to transport equipment to and from the project site, as well as to remove the dismantled foundation and cache boxes filled with hazardous materials from the project site would also affect visitor experience. Increased human and stock presence would also affect visitor experience. Temporary closure of the area during project activities would affect visitor experience. And increased human foot-traffic and pack stock during project activities may also affect visitor experience.

Societal/political effects
Positive effects: The park is taking an action to keep the structure from falling into the river and causing environmental harm and degrading qualities of wilderness character.

Negative effects: The park still has to make a subsequent determination on the disposition of the structure.

Health/safety concerns
Positive effects: Temporarily relocating the structure away from the river bank reduces the potential for safety threats to visitors and subsequently to park staff if there's a need for an emergency rescue operation if someone Illegally enters the structure and it were to fall into the river while they're inside.

Negative effects: The potential safety risk of visitors illegally entering the structure and it collapses on them after the structure is temporarily relocated.

Economic/timing/sustainability considerations
Positive effects: Temporarily relocating the structure now reduces the potential for it to fall into the river when the next season of heavy rains and high flows returns.

Negative effects: There are many costs involved in temporarily relocating the structure which include, but are not limited to, helicopter use and staff time.

10	**After approval by the Deputy Superintendent to proceed, update the PPF/MRA with input provided by the Compliance Council and/or the Interdisciplinary Planning Team (IDP) and provide an electronic copy to the Planning and Compliance Office to initiate park internal review and comment.** **Comments due by:_____**		

Wilderness Specialist Comments:

Ruth Scott's comments have been incorporated throughout the document.

Reviewed by: __Ruth Scott_____ Date__May 1, 2104_____

Comments:

Comments by: _____ Date_____

After the established review period, contact the Planning and Compliance Office to schedule a discussion of your issue at a park Compliance Council meeting to recommend a preferred alternative and complete the review process.

11	Select the alternative that will most effectively resolve the issue while having the <u>least</u> overall adverse impact on park resources & values and wilderness resources, character and the visitor experience		*Note:* When selecting the preferred alternative for actions in wilderness, the potential disruption of wilderness character and resources will be considered before, and given significantly more weight than, economic efficiency and convenience. If a compromise of wilderness resources or character is unavoidable, only those actions that preserve wilderness character and/or have localized, short-term adverse impacts will be acceptable.

Preferred alternative: __2___

Describe rationale for selecting this alternative including how it meets minimum requirement guidelines and how impacts to wilderness will be minimized and mitigated (if applicable). Also, describe the safety risks and the preventive/mitigation measures that would be implemented:

Alternative 2, while it requires the use of helicopters and other motorized or mechanized tools, would have a greater amount of positive impacts on wilderness character than the no action alternative. Also,

while both alternatives have negative impacts on wilderness character, if the no action alternative were implemented and the structure did fall into the river (triggering a subsequent minimum requirement analysis of removing the structure from the river), the negative impacts from the immediate need to remove the structure from the river would rise to the same level of negative impacts of the implementation of alternative 2. In addition, there would be even greater long-term negative impacts due to the effects the structure falling into the river could have on natural river processes, aquatic species, and especially to critical habitat for the federally-threatened bull trout.

Mitigation measures are identified in the Mitigation and Monitoring section of Chapter 2 in the environmental assessment (EA). These include, but are not limited to, no instream work would be conducted, the smallest and quietest helicopter that would successfully meet the project's objective would be used to avoid disturbance to threatened bird species and reduce impacts on the natural soundscape and visitor experience, erosion control measures would be utilized, park staff and visitors would be notified of temporary closures and traffic delays (related to frontcountry helicopter operations), and food storage requirements would be followed. Please see Chapter 2 of the EA for the complete listing of mitigation measures.

Safety risks include the use of helicopters; potential physical injuries from the use of equipment or exertion; potential collapse of the structure; and storm, flooding, or avalanche danger, and the inherent safety risk of hiking and working in a wilderness setting. As noted in the mitigation measures in Chapter 2 of the "concise" EA, a Job Hazard Analysis (JHA) will be developed prior to project implementation. A Green-Amber-Red (GAR) or Severity-Probability-Exposure (SPE) risk calculation model will be utilized for each day of project activity; and safety and necessary personal protective equipment (PPE) will be utilized at all times.

Wilderness Specialist comments have been incorporated in the above justification.

Reviewed by: **_Ruth Scott_____** **Date__May 1, 2014_____**
Wilderness Specialist

Leadership Team Comments on Preferred Alternative (recommendation to Superintendent for final review and approval)

Administration Division comments/recommended mitigations:

Reviewed by Administrative Officer: _____ Date_____

Interpretation Division comments/recommended mitigations:

Reviewed by Chief of Interpretation: _____ Date_____

Cultural Resources Division comments/recommended mitigations (include next steps for compliance with NHPA, other applicable cultural resource law/policy):

Reviewed by Chief of CRM: _____ Date_____

Visitor and Resource Protection Division comments/recommended mitigations:

Reviewed by Chief Ranger: _____ Date_____

Facilities Management Division comments/recommended mitigations:

Reviewed by Chief of Facilities Mgmt: _____ Date_____

Natural Resources Division comments/recommended mitigations:

T & E Species Determination of Effect (No Effect (NE), Not Likely to Adversely Affect (NLAA), Likely to Adversely Affect (LAA):

- **Bull Trout:_____**
- **Marbled Murrelet:_____**
- **Northern spotted owl:_____**
- **Other:_____**

Reviewed by Chief of NRM: _____ Date_____

Compliance Pathway Determination:

Categorical Exclusion: _____ EA: ____X_____ EIS: _____

A "concise" environmental assessment (EA) has been drafted by permission from the Department of the Interior, the NPS Pacific West Regional Director, and the NPS Environmental Quality Division. A waiver has been approved for the drafting of the "concise" EA under the DOI NEPA regulations as opposed to the standard NPS NEPA process as detailed in Director's Order 12.

Recommended by Env. Protection Specialist:___/s/ Christina Miller_ Date:__5/2/14_____

Approved by:

_____ _____

Superintendent **Date**