FINDING OF NO SIGNIFICANT IMPACT

Upper Hoh River Road Project
Jefferson County, Washington

Prepared for:
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
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Upper Hoh River Road Project
Jefferson County, Washington
Decision Document and Finding of No Significant Impact

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Acronyms and Abbreviations

BMP(s)	best management practice(s)
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DAHP	Department of Archaeological and Historic Preservation (Washington State)
dbh	diameter at breast height
EA	Environmental Assessment
Ecology	Washington State Department of Ecology
ELJ(s)	engineered log jam(s)
ESA	Endangered Species Act
FHWA	Federal Highway Administration
LEDPA	Least Environmentally Damaging Practicable Alternative
MP	mile post
NEPA	National Environmental Policy Act
NPCLE	North Pacific Coast Lead Entity Group
NPS	National Park Service
OHWM	ordinary high water mark
ONP	Olympic National Park
ONRC	Olympic Natural Resource Center
ROW	right-of-way
UHRR	Upper Hoh River Road
US 101	U.S. Highway 101
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WFLHD	Western Federal Lands Highway Division

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1 Background

The Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA), in partnership with Jefferson County, proposes constructing bank stabilization and bridge and culvert improvements in six locations along the Upper Hoh River Road (UHRR). Located in western Jefferson County between U.S. Highway 101 (US 101) and the Hoh Rain Forest Visitor Center, the UHRR provides access to the Olympic National Park (ONP) and private properties along the road. The road was built in the 1930s, when ONP was established, and is the primary western access to the park.

The UHRR extends in a generally east-west direction north of, and in many places adjacent to, the Hoh River, an approximately 56-mile-long river originating from Mount Olympus, flowing through the Olympic Mountains and foothills, and emptying into the Pacific Ocean at the Hoh Indian Reservation. The Hoh River valley is relatively flat and broad, with a complex channel-migration zone supporting the braided river channel, gravel bars, side channels, and backwater areas. The Hoh River has a wide range of seasonal flow rates, with recorded annual peak flows more than 60,000 cubic feet per second.

The UHRR is within approximately five feet of the Hoh River in many areas, resulting in unstable banks and slides during high water or storm events. WFLHD and Jefferson County have constructed several emergency projects in recent years along the road, to prevent road closures due to unstable slopes on the river side of the road. Repair projects constructed in an emergency are potentially more expensive, environmentally damaging, and less sustainable in the long run. The locations WFLHD chose for this project have the highest estimated risk of impending failure compared to other locations along the UHRR. Without the proposed project, emergency projects would continue to occur on a regular basis.

2 Purpose and Need

The proposed project's purpose is to develop and implement cost-effective, long-term bank stabilization solutions at three locations along the UHRR in western Jefferson County, Washington. The project will also replace three stream-crossing structures (bridges or culverts). The UHRR at the bank stabilization and stream crossing sites is at risk of washing away in a large flood event. Key design objectives are to protect the UHRR at certain locations between mile post (MP) 3.6 and MP 10.2 from erosion, and to provide safe and consistent access to residents, businesses, and ONP visitors between US 101 and the Hoh Rain Forest Visitor Center.

The UHRR serves as the only access road for the residents and businesses located along this roadway and for visitors entering ONP from US 101 from the west. In 2014, over 82,000 vehicles entered the park using the UHRR. In August of 2015 alone, 24,000 vehicles entered the park using the UHRR. Visitor data for recent years indicate that an annual average of 3 million people visit the park. The UHRR leads to the Hoh Rain Forest Visitor Center, which is one of four year-round ranger stations in ONP and the only year-round ranger station with access to the western side of the park (NPS 2015).

Maintaining safe and consistent access along the UHRR has been increasingly difficult due to the dynamic character of the adjacent Hoh River, a low-gradient river with frequenting-shifting braided channels. Additional challenges have recently exacerbated the character of the river

corridor. For example, vegetation removal in the Hoh River drainage combined with recent changes in weather patterns (warmer temperatures and less snow) have contributed to the magnitude and extent of the river's channel migration. Often, this has caused flows to be directed against the road embankment causing significant erosion and instability. Damage to the UHRR due to flooding has resulted in road or lane closures lasting several weeks in 1996, 1998, 2003, 2004, 2006, 2007, and 2014. A continuing trend of more frequent flooding will increase the potential for interrupted access to US 101 and ONP for local residents, business owners/patrons, park users, and other recreationists.

The cost to repeatedly maintain safe access on the UHRR has increased substantially due to the Hoh River's character and its proximity to the UHRR. Over the past decade, the County and WFLHD (through the Emergency Relief Program) have spent over $5 million on 13 projects to maintain safe access on the 12-mile portion of the UHRR between US 101 and ONP.

Built in 1983, the Tower Creek bridge is in need of replacement, and does not meet current seismic and design standards. The Hoh River's migration toward the UHRR has shortened the Tower Creek channel length, which has caused the Tower Creek channel to incise and scour the bridge abutments. In addition to being undersized and requiring frequent maintenance to remove debris and sediment, the MP 4.38 and Canyon Creek culverts are barriers to fish passage at certain flows.

3 Decision

WFLHD, in partnership with Jefferson County, is the lead agency for National Environmental Policy Act (NEPA) compliance. After reviewing the Upper Hoh River Road Draft Environmental Assessment (EA) (issued August 8, 2016); technical reports; Jefferson County input; and tribal, agency, and public comments on the proposed project; WFLHD has selected the Build Alternative. The EA analyzes the Build Alternative and the No Action Alternative.

FHWA has determined that the selected alternative for the construction of bank stabilization at three sites and the replacement of stream-crossing structures at three additional sites will have no significant impact on the environment. The selected alternative, determined to be the Least Environmentally Damaging Practicable Alternative (LEDPA), includes mitigation measures and environmental commitments listed in Section 9 and meets the stated purpose and need of the project while minimizing impacts to the environment.

4 Description of Selected Alternative

The selected alternative involves constructing engineered log jams (ELJs) with dolosse at three locations needing bank stabilization. It also involves replacing the culvert at MP 4.38, the Tower Creek bridge with a new bridge, and the Canyon Creek culvert with a bridge. These improvements would occur along the UHRR, between MP 3.6 and MP 10.2.

ELJs are collections of large woody debris that when placed in a water body, redirect flow and increase stability at a bank or downstream gravel bar. Installation is patterned after stable, naturally-occurring log jams, which are usually formed by large trees, often with attached root wads, that enter a river channel during floods or from bank failure and become anchored

downriver. Over time, this results in a growing accumulation of debris and trees against the ELJ/dolosse units.

Dolosse are concrete jack-like structures with two octagonal and perpendicular appendages. The contractor or assembler will attached the dolos/log bundles to a large tree, and then combine the dolos/log/tree bundle with other similar bundles to form an ELJ/dolosse unit. Site C1 will have six ELJ/dolosse units, Site C2 will have 23 units, and Site C4 will have four units.

Bank stabilization work at these sites is expected to be complete in two consecutive construction seasons, each of which would extend from June 1 through October 31. Construction of the culvert at MP 4.38 will occur over approximately 45 days and will be coordinated with the bank stabilization activities at Site C2.

Construction of the new bridges (at Sites C3, Tower Creek and C5, Canyon Creek) will occur over one construction season, between June 1 and October 31. Alternatively, or in addition to the summer and early fall work, if ONP elects to close both lanes of the UHRR in winter to compress the construction schedule, bridge replacement activities could be limited to a 10-day period in January or February.

The selected alternative includes the following activities:

- Clearing vegetation and grading certain areas to establish staging, work areas, and access to project sites;
- Installing erosion control and stormwater Best Management Practices (BMPs);
- Implementing traffic control measures;
- Mobilizing and stockpiling materials and equipment;
- Installing temporary stream diversions (at stream crossings) and flow deflection at certain locations along the bank of the Hoh River near bank stabilization sites;
- Excavation and fill activities related to culvert demolition and ELJ/dolosse installation;
- Assembling ELJ/dolosse bundles at the primary staging area and installing them at Sites C1, C2, and C4;
- Replacing the culvert at MP 4.38 with a new 16- by 16-foot concrete box culvert;
- Replacing the existing bridge at Tower Creek with a new bridge and the existing culvert at Canyon Creek with a bridge;
- Conducting agency-required mitigation at MP 6.7 and MP 9.8; and
- Restoring disturbed areas, including stream buffers.

5 Rationale for Decision

The selected alternative will decrease the probability of the road washing away at these six locations, and therefore increase the reliability and safety of the UHRR for project area residents, employees, and ONP visitors. It meets the purpose of and need for the project by addressing road

stability in six important locations, while providing fish habitat benefits including fish passage and in-stream habitat.

WFLHD, in partnership with Jefferson County, developed the selected alternative having considered issues raised through the scoping process and comments on the EA from project area residents; federal, state, and local agencies; stakeholder organizations; and the Hoh Tribe. This decision was reached after considering the analysis in the EA, comments received from agency and public/private stakeholders' review of the EA, and responses to these comments.

In addition, WFLHD, in collaboration with FHWA's Turner-Fairbank Highway Research Center and the J. Sterling Jones Hydraulics Research Laboratory, conducted a flume analysis of ELJ stability and local scour and fluid dynamics related to ELJs over time. Results of the flume analysis, which was conducted in May 2017, was considered in the 70% design of this proposed project. WFLHD took into account the results of the flume analysis in its response to public comments and agency concerns regarding project design and hydraulic impacts.

The No Action Alternative, the other alternative analyzed in the EA, would not protect the UHRR between MP 3.6 and MP 10.2 from erosion or provide safe and consistent access to residents, businesses, and ONP visitors between US 101 and the Hoh Rain Forest Visitor Center. Therefore, the No Action Alternative does not meet the purpose and need for the project. It is potentially more expensive and is associated with more short- and long-term risks to the environment when compared to the selected alternative.

6 Other Alternatives Considered

With the No Action Alternative, the project would not be constructed, and maintenance and emergency repairs along the UHRR would continue similar to existing conditions, on an as-needed basis, in response to damage from flood and storm events. This would require ongoing monitoring along various lengths of bank and riprap revetment to prevent potential future road closures. Maintenance at the MP 4.38 and Canyon Creek culverts and the Tower Creek bridge would continue. Typically, emergency repairs to the riverbank, roadway, or related structures would need to begin immediately following incidents causing damage, irrespective of the in-water work window that would normally constrain the timing of construction to protect fish and fish habitat.

Similar to past emergency repair work, future work would likely require temporary one-lane closures on the UHRR for staging vehicles, backhoes, cranes, and other equipment during riprap placement. The amount of riprap would depend on the extent and magnitude of damage resulting from bank erosion or riprap dislodgement. Some or all of this work could occur below the ordinary high water mark (OHWM). To the extent BMPs could be employed on short notice for emergency work, they would minimize water quality impacts from the release of silt and soils during riprap placement.

7 Public Involvement

An integral part of the NEPA environmental review process is to engage the public during project development. The goal of the public involvement process is to develop public awareness

and understanding of the project, gain public input from potentially affected interests, and appropriately consider public issues and concerns. As the lead agency for federal reviews and approvals, WFLHD has consulted with the following agencies or organizations as part of project design, planning, or scoping:

- Washington Department of Archaeology and Historic Preservation (DAHP);
- Olympic National Park (ONP, part of the National Park Service [NPS]);
- Washington Department of Natural Resources (WDNR);
- Hoh Tribe;
- U.S. Army Corps of Engineers (Corps);
- Washington Department of Fish and Wildlife (WDFW);
- Hoh River Trust (HRT);
- The Nature Conservancy;[1]
- Washington State Department of Ecology (Ecology); and
- U.S. Fish and Wildlife Service (USFWS).

Consultations with these agencies and organizations have involved the following:

- On March 10, 2015, WFLHD and Jefferson County hosted a meeting with agency representatives at the project site to introduce to the project, discuss its need, purpose, and background, and receive guidance or direction regarding potential alternative approaches for addressing issues along the UHRR. Representatives from the ONP, WDNR, Hoh Tribe, Corps, WDFW, Hoh River Trust, and Ecology were present. WFLHD also invited USFWS, but USFWS representatives were unable to attend. Meeting notes are provided in Appendix B of the Draft EA;

- In June 2015, WFLHD contacted representatives of the Hoh Tribe, and provided results of the April 2015 cultural resources study of the project area, completed as part of Section 106 compliance. WFLHD's consultant updated the cultural resources study in September and October 2015, and DAHP concurred with the updated study. A representative of the Hoh Tribe attended the October 2015 scoping meeting in Forks, Washington, and provided verbal comments on the project; and

- On July 8, 2015, WFLHD and Jefferson County held a pre-application meeting with the Corps to review the project scope and purpose and need; identify points of coordination between WFLHD and the Corps; and confirm information needs for the Corps Section 404 permit application. Notes from this meeting are in Appendix C of the Draft EA.

Appendix A (Scoping Report) of the Draft EA describes public involvement during scoping, including a public scoping meeting in October, 2015, receipt of comments on the project, and sharing project information.

[1] In May 2017, land within the project area managed by the Hoh River Trust was transferred to The Nature Conservancy ownership and management.

WFLHD issued the Draft EA for public and agency review and comment on August 8, 2016. The comment period was originally scheduled to end September 7, 2016, but because the local community was not able to consistently or easily access the Draft EA online, WFLHD provided two additional paper copies of the Draft EA for viewing at the local library and extended the comment period through September 23, 2016. Additional consultation occurred after the Draft EA was published, summarized below:

- On December 13, 2016, the applicant held an agency pre-application meeting with agencies and organizations. The Corps, the Nature Conservancy, and WDFW attended in person, while additional WDFW representatives, the Hoh Tribe, and the Hoh River Trust attended by videoconference. The purpose of the meeting was to discuss and gain input on the bank stabilization design;

- On January 17, 2017, the applicant presented the project to members of the North Pacific Coast Lead Entity Group (NPCLE) at NPCLE's monthly meeting in Forks. WDFW, USFS, Jefferson County, Clallam County, the Hoh River Trust, the Hoh Tribe, the Quileute Tribe, Washington Coast Sustainable Salmon Partnership, Pacific Coast Salmon Coalition, 10,000 Years Institute, Olympic Natural Resource Center (ONRC) staff, and members of the public attended in person;

- As a follow-up to the December 13, 2016 agency pre-application meeting, WFLHD held a second agency meeting on January 18, 2017 in Forks. The Hoh Tribe, ONRC, USFS, WDFW, Hoh River Trust, Jefferson County, and members of the public were present;

- On February 15, 2017, the WFLHD hydraulics engineer met with WDFW at the site to discuss proposed project plans and impacts;

- On March 1, 2017, WFLHD held a pre-application phone conference with Corps and Ecology primarily related to permits, mitigation, and schedule;

- On April 25, 2017, a pre-application meeting with Jefferson County was held at Jefferson County City Hall in Port Townsend related to the Shoreline Conditional Use Permit and the Stormwater/Grading/Clearing Permit; and

- On June 7, 2017, WFLHD held a meeting at the project sites to discuss impacts, mitigation, and permitting; present were WDFW, Ecology, the Corps, Jefferson County, the Hoh Tribe, USFWS, HRT, and the Nature Conservancy.

Following the 47-day public review and comment period for the Draft EA, the project team reviewed, evaluated, and responded to all comments. **Appendix A** includes formal public comments received on the Draft EA. **Appendix B** is the compilation of responses to individual comments on the Draft EA. Where appropriate, some responses also resulted in revisions to the EA, reflected in the Final EA (**Appendix C**).

8 Environmental Issues Addressed

This section summarizes impacts to environmental resources anticipated to result from the selected alternative, as described in further detail in the Final EA. **Table 1** compares the No Action Alternative to the Selected Alternative.

Table 1. Summary of Impacts: No Action and Build (Selected) Alternative

Environmental Resource	No Action Alternative	Build (Selected) Alternative Direct Impacts	Build (Selected) Alternative Indirect Impacts	Build (Selected) Alternative Cumulative Impacts
Transportation and Access	• Continued delays, access difficulties, and closures related to maintenance and emergency repair of the road and river bank	Construction • 50 construction-related trips/day at each site • 2-week road closure in winter • Lane closures 30 minutes to 4 hours Operation • Improved access and reliability on UHRR	• Increased long-term reliability of UHRR • Fewer emergency repairs affecting access and traffic	• More reliable and consistent access • Fewer traffic delays • Increased safety
Land Use	• No change to land use	Construction • Potential need for easements or ROW acquisition • Temporary use of 157,000 square feet of vegetated areas as staging or access routes Operation • Conversion of small amounts of ROW to transportation use	• No impact	• Potential conversion of small amounts of ROW to transportation use
Recreation	• Continued unplanned, intermittent road closures and traffic delays related to emergency and maintenance work on the UHRR • Temporary solutions during unplanned road closures (1) ONP residents temporarily relocated outside ONP; or (2) ONP vehicle staged on east side of road work	Construction • Temporary, minor disruption to recreationists due to construction traffic • Potential 2% decrease in annual Hoh District visitors during 2-week UHRR closure Operation • Increased long-term travel reliability for recreationalists	• Increased road reliability and safety for recreationists	• Temporary traffic delays for recreationists and possible decrease in use due to construction impacts • Increased road reliability and safety encouraging recreation use
Hydrology and Hydraulics	• Ongoing maintenance and monitoring activities along river banks and at stream-crossings • Continued placement of riprap along river banks as emergency measure, resulting in riverbed scour and diminished habitat value • Risk of more expanded riprap revetment along the riverbank that could increase bank erosion on private property downstream or across from the armored revetments • Continued incising and channel shortening at Tower Creek	Construction • Temporary, localized turbidity releases Operation • Increased local accumulation of woody debris and sediment at sites • Higher water velocities (0.1-3.0 ft^2/s) along the thalweg of the river near and downstream of treatment sites would alter sediment transport conditions by scouring bed materials and redepositing them downriver as gravel bars • Up to 0.5 feet localized increase of 100-year floodplain elevation • Reduced need for maintenance	• Increase in aquatic habitat availability and diversity	• Enhanced shoreline and aquatic habitat
Vegetation	• Continued damage to riparian areas adjacent to the river from riverbank failure and emergency repair work • Potential removal of riparian plants, mature forest, or early and mid-successional forest due to avulsive changes in the river channel	Construction • Removal of riparian vegetation from riverbank and adjacent upland areas involving over 187,000 ft^2 for staging, access, and construction layout • Removal of approximately 325 trees, including 20 conifers Operation • Replanting of riverbank and upland vegetation disturbed from construction	• No impact (vegetation to be restored after construction)	• Minor removal and replanting of riparian bank vegetation • Minor loss of upland vegetation including mature forest
Fish	• Continued emergency riprap placement, with incremental adverse impacts to fish habitat, including increased toe scour, erosion at downstream and upstream edges of riprap, and decreased habitat diversity • Reduced available spawning and foraging habitat quality for fish including Chinook salmon and steelhead	Construction • Temporary displacement or minor reductions of fish populations during in-water construction • Temporary increases in turbidity and suspended sediment could adversely affect foraging efficiency and cause delays or alterations in daily migration patterns • Work area isolation at bridges would temporarily disrupt local fish populations Operation • Approximately 48,000 ft^2 of river bottom would be permanently replaced by ELJ/dolosse units potentially displacing Chinook and steelhead spawning and migration habitat; bull trout migration habitat also would be altered • Creation of improved fish rearing habitat consisting of eddies, pools, and slack water refuge areas; spawning habitat would be redistributed downriver where scoured gravels from treatment sites accumulate	• Potential formation of eddies and pools within and downstream of ELJ/dolosse units which could improve resting and foraging habitat for salmonids	• Decreases in fish habitat at locations where emergency repairs have installed rip rap for bank stabilization • Increases in fish habitat from removal of fish passage barriers and implementation of other future in-water habitat improvement projects

Environmental Resource	No Action Alternative	Build (Selected) Alternative Direct Impacts	Build (Selected) Alternative Indirect Impacts	Build (Selected) Alternative Cumulative Impacts
Wildlife	• Ongoing temporary disturbances to wildlife species, including marbled murrelet and northern spotted owl, at sites where emergency bank failure repairs or storm-related damages occur • Potential individual population decreases to wildlife (especially birds and amphibians) in ongoing maintenance/emergency repair areas	Construction • Pile driving at bridges would temporarily disrupt wildlife populations • Temporary loss of habitat due to construction-related clearing Operation • Disturbed areas re-vegetated to re-establish habitat value in the long run	• Potentially improved mobility of amphibians in streams that feed into Hoh River • Noise created by driving of piles to support proposed bridge foundations at Sites C3 and C5 would cause short-term disturbance to wildlife species occurring in close proximity to project construction.	• Temporary, localized disruption to wildlife during construction
Cultural and Historic Resources	• No impact	Construction • No impact Operation • No impact	• No impact	• No impact
Noise	• Intermittent noise from emergency repair projects would continue to occur and affect human receptors and wildlife	Construction • Temporary increased noise levels would occur at closest sensitive receptors but would be below federally regulated thresholds • Loudest temporary noise source would result from pile driving (at bridge locations) Operation • No impact	• Temporary increased noise levels would extend beyond immediate construction areas	• Potential temporary noise from concurrent construction activities involving the Dismal Pond work (or other sites) and proposed project areas
Visual Quality	• Continued reduction in visual quality along the Hoh River and UHRR resulting from an ongoing expansion of riprap revetment and further vegetation loss	Construction • Temporary reduction in visual quality from construction equipment and vegetation removal Operation • Introduction of new contrasting forms and materials (dolosse) to the visual environment	• No impact	• Visual quality changes resulting from alterations of the landscape caused by past and future bank stabilization projects
Utilities	• Continued temporary service interruptions or facility relocations due to storm damage and emergency repairs • Continued potential service interruptions due to storm damage or emergency work	Construction • Potential temporary service interruptions • Potential need for relocation or replacement of utilities Operation • No impact	• Potential decreases in service interruptions or conflicts	• Fewer future utility service interruptions as the frequency of emergency repair work along the UHRR decreases
Social and Community	• Continued sudden and temporary disruptions to community due to loss of access, unexpected traffic delays, and other temporary construction-related impacts related to emergency roadwork	Construction • Temporary traffic delays, increased noise, access changes, and other construction-related disruptions to residents, ONP staff/visitors, local businesses, emergency vehicles, and school bus traffic traveling along UHRR east of proposed construction sites Operation • Increased long-term reliability of UHHR	• Better quality of life for local residents, business owners, employees, and ONP users due to improved road reliability and safety and fewer road washouts and traffic delays from emergency repair work	• The frequency of cumulative temporary disruptions, noise, and traffic delays would decrease as proposed bank stabilization and bridge/culvert improvements more effectively abate bank failure and storm damage along UHRR
Economy	• Emergency repairs would continue to result in unexpected delays and other temporary disruptions to businesses • Continued intermittent and temporary demand for labor and materials for emergency projects	Construction • Proposed construction would provide temporary income for local or regional workers and businesses • Potential temporary decrease in patronage of local businesses affected by traffic delays and 2-week road closure Operation • Increased long-term reliability of UHHR which would support the economic character of the local community, ONP, and regional tourism	• Indirect temporary economic benefits related to construction, including supplier and worker spending • Potential economic benefits related to increased use of area, resulting from increased road reliability	• Potential stronger economic base provided by more reliable travel along UHRR (increased spending from visitor trips and tourism)

8.1 Transportation and Access

The selected alternative will result in 50 additional daily truck trips at each of the six locations during construction. Minor adverse impacts to the UHRR project area will result from 30-minute to 4-hour lane closures and a potential closure for two weeks in January or February. Long-term benefits to transportation and access in the project area will result from increased reliability and safety, fewer delays, and a decrease in the extent and frequency of future emergency road repairs.

8.2 Recreation

Construction will cause travel delays for recreationists, potentially resulting in a minor and temporary decrease in recreational activity in and near the project area. The two-week winter UHRR closure, if it occurs, will result in an estimated 2 percent decrease in annual Hoh District visitors, based on NPS traffic counts for the Hoh District park entrance. Long-term benefits will include more reliable and safer access to recreational activities. The ELJ/dolosse units will be visible to recreationists along the river; therefore; direct contact with the structures is not expected. In addition, the units would be monitored to ensure they remain secured to the riverbank, to avoid creating potential hazardous conditions for passing recreationists.

It is expected that Morgan's Crossing will remain in use as a local boat launch within the project area. WFLHD will evaluate locations within project boundaries for potential boat launches to be created concurrent with project construction.

8.3 Hydrology and Hydraulics

Construction will result in minor temporary turbidity releases into the Hoh River drainage, downriver and in the vicinity of bank stabilization activities or where other in-water work will occur. In the long run, thalweg velocities near the stabilized banks will increase, as the thalweg becomes redirected away from shore. This could encourage development of gravel bars and side channels as bed materials are scoured and subsequently redeposited downriver. A minor, local increase of up to 0.5 feet is expected in the 100-year floodplain elevation near the bank stabilization sites.

With the selected alternative, the extent of degradation of shoreline habitat along the north bank of the Hoh River will slow as the bank becomes more stabilized. This will decrease the need for future maintenance in the project area along the north bank. Downstream of the ELJ/dolosse units, the water velocity in near-shore areas likely will be reduced, which will increase sediment deposition in these areas. Woody debris and sediment will also accumulate in response to the bank stabilization structures.

The new culvert at MP 4.38 would provide water depth and velocity conditions more suitable to successful fish passage and is not expected to increase downstream flooding effects to the Hoh River floodplain. The proposed Tower Creek bridge would not cause any backwater conditions or result in higher levels of flow downstream, therefore, no adverse impacts to the floodplain are anticipated. The new bridge would allow unrestricted passage of flood flows.

The new Canyon Creek bridge would allow a larger cross-sectional area for water to pass through, which would eliminate or reduce flow constraints and upstream backwater conditions associated with the existing culvert, thereby avoiding direct discharges of untreated stormwater

to Canyon Creek. Removal of the existing culvert would also eliminate a significant fish passage barrier. With implementation of proposed standard BMPs during construction and operation, potential impacts to hydrology and hydraulics would be negligible for the proposed stream-crossing structures at Sites MP 4.38, C3, and C5.

8.4 Vegetation and Special Status Plant Species

Construction will require the clearing and removal of vegetation along the riverbank and adjacent upland area. Overall, in the project area, approximately 187,000 square feet would be cleared for staging, access, and storage. Up to 20 conifers would be removed, ten conifers at Sites C1, C2, MP 4.38, and C4; and ten conifers at Site C3. Mature trees greater than 21 inches diameter at breast height (dbh) will be removed only if absolutely necessary for project construction. After construction, the contractor will replant the bank and upland area with approximately 325 trees over the areas disturbed during construction. Vegetation would be replaced at a 1:1 ratio. No special status plant species will be affected by the project.

8.5 Fish and Wildlife, Threatened and Endangered Species

Temporary increases in turbidity, suspended sediment, and noise from in-water and shoreline construction activities will reduce fish foraging efficiency and delay daily migration patterns on a local basis. Noise from vibratory and impact pile driving at the bridge installation sites will temporarily disrupt fish and wildlife, to the extent populations remain in the area during construction. In-water or riparian habitat that is physically disturbed during construction will be restored following construction. The project also is anticipated to improve movement of low-mobility amphibians in Hoh River tributaries directly affected by construction.

In the long run, ELJ/dolosse units will permanently modify approximately 48,000 square feet of riverbed along the bank stabilization sites. This will result in a near-term reduction in Chinook and steelhead spawning habitat. The new in-stream structures along the riverbank also will improve nearshore migration habitat for Chinook, steelhead, and bull trout by reducing water velocity and providing increased cover as hydraulic forces interact with the ELJ/dolosse units. Over time, spawning, rearing, and migration habitat quality are expected to improve near and downstream of the bank stabilization sites as new eddies, pools, gravel bars, side channels, and slack water refuges provide greater habitat complexity.

The proposed project would have minor, short-term adverse impacts to wildlife in the form of daily foraging decreases, avoidance of construction areas by birds, and potential disruption of spotted owl and marbled murrelet in occupied habitat due to construction noise. Following completion of construction, long-term impacts to terrestrial wildlife should be limited to a minor reduction in available mature conifer trees that could be used by old-growth adapted species, such as marbled murrelet, northern spotted owl, and banded pigeon. The constructed ELJ/dolosse would provide additional perching and foraging opportunities for aquatic mammals such as otter and mink, as well as raptors such as eagles and osprey who use the river to hunt for food.

8.6 Noise

Approximate maximum noise levels at sensitive human receptors during construction will be below nationally regulated thresholds. The highest noise level expected during construction will result from an impact pile driver, used to proof piles for the new bridge abutments at Tower

Creek and Canyon Creek. During impact pile driving, the magnitude of noise experienced at the closest sensitive receptor would be similar to levels generated from traffic heard 30 miles from a highway. The nature of the local topography and vegetation would generally contain noise levels within the Hoh River valley. Increased noise from project construction would be minor and of a temporary duration. In the long run, noise levels in the project area will not change as a result of the selected alternative.

8.7 Visual Quality

During construction, the visual environment will be altered by construction activities along the affected sections of river and road and bridge crossings of tributaries. These temporary changes would result primarily from staging activities, use of large equipment, clearing and grading, temporary access road construction, and installation of the ELJ/dolosse units, stream culverts, and bridge structures. The ELJ/dolosse units will represent a permanent change in views along the river at Sites C1, C2, and C4. Although the dolosse would introduce contrasting shapes and materials to the visual environment, they will intertwine with logs, whose color will become similar to the dolosse over time.

8.8 Utilities

If construction requires utility relocation, service providers could temporarily suspend electricity, phone, or water service during the relocation. In the long run, interruptions in utility service related to emergency repair work or weather events could decrease as the need for emergency repairs in the project area is reduced and as the roadway and utilities become less susceptible to damage from storms or floods.

8.9 Socioeconomics

Construction will require workers, materials, and equipment, resulting in a temporary increase in economic activity (jobs, income, and spending) in the areas where labor and materials originate. Disruptions to the community due to construction-related noise, traffic, travel delays, and ONP access issues could result in temporarily decreased revenue for the few businesses located within the project area. In the long run, UHRR reliability will increase, benefiting the community and project area businesses with fewer road washouts, traffic delays, and noise from emergency repairs.

9 Mitigation and Environmental Commitments

WFLHD, in partnership with Jefferson County, will construct two complementing mitigation projects designed to improve long-term aquatic habitat conditions in the project area along the mainstem Hoh River.

9.1 Mitigation

9.1.1 Lindner Creek Side Channel Engineered Log Jams at MP 6.7 to 7.3

The primary mitigation project will be constructed in the area between approximately MP 6.7 and MP 7.3 of the UHRR, west of Site C3 (Tower Creek) (see **Figure 1**) and owned or managed by USFS, the Nature Conservancy, and WDNR. In this area, a large side channel meander of the

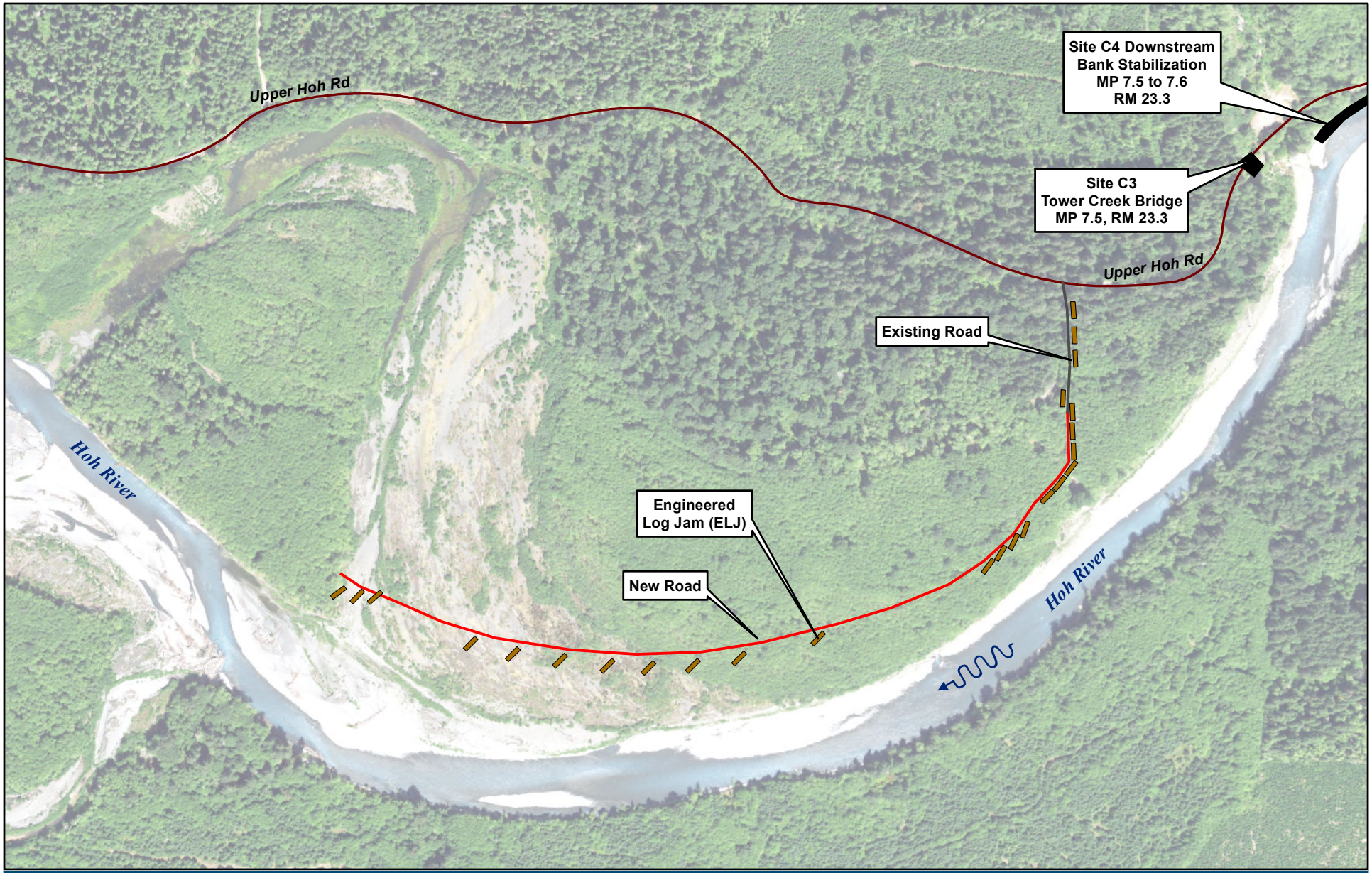
Hoh River has formed where the mainstem was formerly located prior to approximately 2010. This large side channel is adjacent to a stand of mature forest on WDNR and USFS land. Lindner Creek and several other creeks flow into this large side channel.

Tributaries to the Hoh River, such as Lindner Creek, and the high-water channels that cross the 'peninsula' between the Hoh River upstream and the large side channel near MP 6.7 (see **Figure 1**) provide important rearing and high-water refuge habitat for fish species such as steelhead, Chinook salmon, coho, and bull trout. Many of the high-water channels have emerged during relatively minor flood events (e.g., less than 10-year flood flow) since the 1990s, due to the increasingly erratic nature of the Hoh River's migration across the river meander belt. **Figure 2** shows the finger- and overflow-channels that emerge on the 'peninsula' during a two-year flood event.

Lindner Creek, the large main channel, and the high-water channels on the 'peninsula' comprise a side channel complex. Long-term preservation of this side channel complex would result in the following benefits to aquatic and forest resources, which are important to stakeholder resource managers such as WDFW and the Hoh Tribe:

- Preservation and maintenance of vital rearing and high-water refuge habitat for steelhead, Chinook salmon, coho, and bull trout;
- Preservation of nearby priority steelhead spawning areas, which could potentially undergo modification during the next channel migration event;
- Protection of the remaining mature forest stand south of the UHRR;
- Encouragement of riparian forest development in the area surrounding the side channel complex by preventing a future channel migration (this area provides important forage and cover for Roosevelt elk, particularly in the spring); and
- Preservation of the configuration of small overflow channels in the 'peninsula' area that currently exist as small, finger- and overflow-channels, rather than having them develop into larger channels, or join the main channel, if a river migration occurs.

In order to preserve the side channel complex, approximately 24 ELJs would be installed in an arc, extending approximately 0.8 mile south and west from MP 7.3 of the UHRR, crossing the lower section of the side channel complex (see **Figure M-1**). Each ELJ will consist of approximately 10 dolosse/log bundles, each comprised of one dolos connected to two or three logs. Sheet F.8 of **Appendix E**, Design Plan Set (70%) shows details of the dolosse/log bundle design. Between the ELJs, the bank would be planted with cottonwood, bank willow, and emergent willow. In addition, the bank would be stabilized with a mixture of gravel and cobble, as shown on Sheet H.13 (Gravel-Cobble Bank Stabilization Typical Sections of **Appendix E**, Design Plan Set (70%).



Upper Hoh River Road Project

N

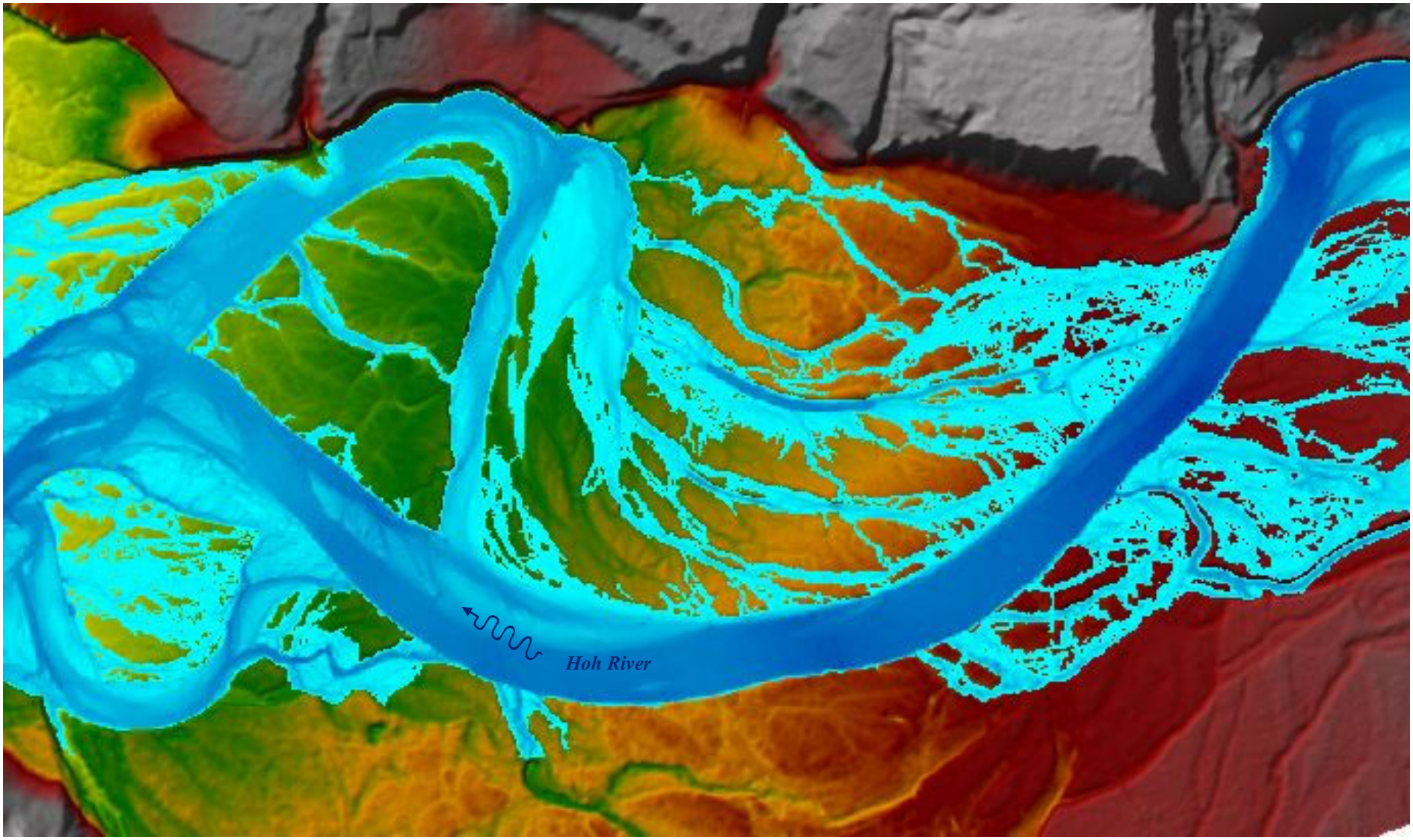
Project Site
New Road
Engineered Log Jam (ELJ)
Upper Hoh Road
Existing Road

Data Sources: USDA 2015 NAIP, Jefferson County

Figure 1
Proposed Aquatic Mitigation Concept - Lindner Creek Side Channel Engineered Log Jams, MP 6.7 to 7.3

0 250 500 Feet

\\Pdxfs1\project\F\FHAX00000242\0600INFO\GS\Maps\Biological Assessment Maps\Fig_1_M1 Lindner Ck Mitigation ELJs.mxd



Upper Hoh River Road Project

N

0 250 500 Feet

Approximate Scale

Data Source: FHWA Turner-Fairbank Highway Research Center flume analysis, June 2017

Figure 2
Lindner Creek Side Channel Finger Channels - Emerging During Two-year Flood Event, MP 6.7 to 7.3

Installation of the ELJs will require limited clearing and temporary improvements to an existing un-graded side road off the UHRR. This unimproved road, which is currently used for drift boat access to the river, will need to be sufficiently improved for construction access. It will need to be temporarily extended beyond its existing terminus with the extended portion replanted with dense native shrubs and trees once ELJ installation is complete. Up to one acre of clearing will be required for the temporary access road. Vegetation clearing for the newly extended access road will be limited to young alders and willows averaging less than 10 inches dbh.

In addition to the side channel benefits listed above, this mitigation project will encourage long-term preservation of rearing and spawning habitat on the mainstem Hoh River by increasing channel stability.

9.1.2 Spruce Creek/Canyon Creek ELJs at MP 9.8

The second proposed mitigation project will involve installing four large ELJs in the Hoh River adjacent to and upstream of the confluence of Spruce Creek to MP 9.8, in an area managed by the Nature Conservancy. The ELJs would be placed in front of the existing riprap that Jefferson County installed as part of emergency repair. They would be similar in design to the ELJ/dolosse units previously described for the proposed project (see **Figure 3** and ELJ details in Sheet F.8 of **Appendix E**), and will provide the following benefits:

- Preserve the existing riparian habitat at this location, where the river is actively scouring upstream of the riprap installation;
- Improve channel roughness and complexity, which has decreased due to nearby riprap;
- Provide additional rearing habitat and cover for salmonids, through decreasing near-shore flow velocity at this important location near the mouth of Spruce Creek and the mouth of Canyon Creek (Canyon Creek flows through a large side channel and joins the mainstem upstream of this location); and
- Provide more favorable habitat for juvenile salmonids through (1) the use of the ELJs itself as cover, and (2) creation of additional channel complexity including scour pools. (Post-construction monitoring studies of similar ELJ structures installed by WSDOT in the lower Hoh River and elsewhere have demonstrated this effect.)

9.2 Environmental Commitments

In addition to the two mitigation projects discussed above, the following mitigation commitments will also be implemented as components of the proposed project:

- Conduct construction activities outside of critical nesting times for sensitive species, where feasible, including critical nesting seasons for marbled murrelet (April 1 to September 23) and Northern spotted owl (March 1 to September 30);
- Conduct construction activities outside of critical spawning times for Chinook and steelhead salmon, where feasible;
- Utilize stream flow diversion, bypass, and fish exclusion methods at Tower Creek and Canyon Creek to minimize downstream sedimentation impacts;

Upper Hoh River Road Project

N

0 150 300 Feet

Approximate Scale

Engineered Log Jam (ELJ)

Data Sources: Google Earth

Figure 3
Proposed Aquatic Mitigation Concept - Spruce Creek/Canyon Creek Engineered Log Jams, MP 9.8

\\Pdxfs1\project\F\FHAX00000242\0600INFO\GS\Maps\Biological Assessment Maps\Fig_3_M-3 Spruce Creek Canyon Creek Mitigation ELJs - NEW2.mxd

- Implement all reasonable and prudent measures and terms and conditions identified during Endangered Species Act (ESA) consultation, and as prescribed by USFWS in the Biological Opinion (see pages 73 and 74 of **Appendix F**); and
- Adhere to all conditions in issued permits and approvals (e.g., Hydraulic Project Approval, Clean Water Act [CWA] Section 404 Permit, CWA Section 401 Water Quality Certification, CWA Section 402 Construction Stormwater General Permit, Shoreline Substantial Development Permit).

Implement stormwater and erosion control BMPs, such as the following, prior to construction, and maintain them throughout construction and until vegetation is established.

- After ELJ/dolosse unit placement, restore disturbed areas, including stream buffers, at a 1:1 impact-to-mitigation ratio; restoration would include re-planting (1) vegetation salvaged from the site, and (2) supplemental plantings from native nursery stock;
- Monitor restored planting sites for at least five years to ensure successful re-vegetation;
- Limit removal of mature trees greater than 21 inches dbh to those whose removal is necessary for construction;
- For the ELJs, source logs from outside the project area;
- Use at least 5-gallon size trees when planting the riparian zone to speed up establishment;
- Stabilize cleared ground as necessary to prevent erosion, particularly on slopes adjacent to the Hoh River or its tributaries;
- Justly compensate property owners for temporary construction easements or permanent property acquisitions, according to the Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs (42 USC Chapter 61);
- Place signage in advance of and during construction to inform the public in advance;
- Coordinate temporary traffic control devices to provide the least impact to motorized users;
- Position equipment to maintain access to local properties along the construction corridor;
- Use flaggers and temporary battery- or solar-powered traffic signals to maintain access during long-term road closures;
- Provide pilot cars to guide residents or parks visitors through construction zones, as appropriate during lane closures;
- Coordinate with ONP so that notice of the UHRR closure is posted on ONP's website;
- Employ standard BMPs at all project sites during construction as required by the project Construction Stormwater General Permit. BMPs would minimize the release of turbid water from the construction site, in order to protect water quality, and would follow current permit requirements for erosion and sediment control;
- Ensure all equipment has muffled exhaust and has sound control devices no less effective than those provided on the original equipment;

- Ensure all equipment complies with pertinent Environmental Protection Agency noise standards and the Jefferson County Code;
- Shut off idling equipment whenever possible;
- If a specific noise complaint is anticipated due to noisy construction, notify nearby residents in advance of such work or install temporary acoustic barriers around stationary noise sources, if possible;
- Develop a Hazardous Material Spill Plan prior to construction; in the event of a hazardous material spill, ensure that the contractor responds in compliance with the spill plan;
- Implement dust control measures (e.g., apply water) as needed during construction;
- Coordinate with utility owners to minimize service interruptions and provide advance notice of service interruptions to affected parties;
- To the extent possible, avoid direct impacts to power and telephone lines, poles, and related structures during construction;
- If avoidance of utilities is not feasible, work with utility providers to temporarily relocate utility infrastructure;
- Ensure outages will not last more than four hours;
- Apply black cottonwood bark-like concrete form-liner texture to dolosse, instead of smooth finish, to help the structures better blend into the environment;
- Revegetate all streambanks and riparian areas temporarily disturbed by bank stabilization activities with native coniferous and deciduous trees;
- Maintain fire and emergency services access during construction;
- Develop specific emergency procedures prior to the potential winter road closure and implement them if emergency vehicle passage is required during road closure;
- Coordinate with residents to the extent practical to ease access during construction; and
- Coordinate with the local school district to ensure students are served during the winter road closure.

After construction, the contractor will implement the following measures during re-vegetation:

- Use an FHWA-approved native seed mixture;
- Place only certified weed-free mulch and straw bales;
- Ensure all equipment used in the project area is free of weed seed;
- Take precautions to prevent introduction and spread of weeds caused by moving weed-infested material;
- Notify and or coordinate vegetation management activities with land owners within or adjacent to the transportation right-of-way (ROW) that is proposed for treatment;

- Design cut-slopes to take advantage of natural rock and soil material characteristics as they are encountered;
- Design cut-slopes in soil or granular materials to be as flat as practicable to minimize ravel, surface erosion, and slope instability, and to promote re-vegetation while maintaining an acceptable level of slope stability;
- Conserve and stockpile topsoil for later use to enhance revegetation success;
- Use locally native plants to improve the revegetation rate; and
- Stake straw wattles where appropriate.

10 Permits, Approvals, and Findings Required by Other Laws and Regulations

The following permits and approvals will be required prior to construction of the Build Alternative, in addition to NEPA compliance:

- State Environmental Policy Act , administered by Jefferson County;
- Section 404 of the CWA, administered by the Corps;
- Section 7 of the ESA, administered by NOAA Fisheries/USFWS;
- Section 401 of the CWA Water Quality Certification, administered by Ecology;
- Section 402 of the CWA National Pollution Discharge Elimination System Construction Stormwater General Permit, administered by Ecology;
- Aquatic Lease Authorization, administered by WDNR;
- Section 106 of the National Historic Preservation Act, administered by DAHP;
- Uniform Relocation Assistance and Real Property Acquisitions Act;
- Coastal Zone Management certification, administered by Ecology;
- Shoreline Substantial Development and Conditional Use Permit, administered by Jefferson County; and
- Stormwater Management/Grading/Clearing Permit, administered by Jefferson County.

11 Contact Information

For additional information concerning this decision, contact to Kirk Loftsgaarden, Project Engineer, Western Federal Lands Highway Division, Federal Highway Administration, 610 E. Fifth Street Vancouver, WA 98661, (360) 619-7512, kirk.loftsgaarden@dot.gov.

12 Conclusion

Pursuant to NEPA of 1969, WFLHD in partnership with Jefferson County has assessed the environmental impacts of the proposed project. This environmental assessment was prepared in

accordance with the Council on Environmental Quality NEPA Regulations set forth in 40 CFR parts 1500 to 1508 and FHWA regulations contained in 23 CFR part 771. The proposed project conforms to all applicable federal statutes and executive orders.

WFLHD finds the Final EA and related documentation adequately and accurately address the need, environmental issues, and impacts of the proposed action, and contains appropriate mitigation measures. Furthermore, in accordance with guidelines for determining the significance of proposed federal actions (40 CFR 1508.27), WFLHD finds that the Final EA, including the information listed above, documents full compliance with NEPA and other related environmental laws, executive orders, and implementing regulations. The Final EA with the supplemental information in this FONSI provides sufficient evidence and analyses for determining that the proposed project will have no significant impact on the environment and that an Environmental Impact Statement is not required by Section 102(2) of NEPA or its implementing regulations. The WFLHD takes full responsibility for the accuracy, scope, and content of the attached Final EA.

APPROVED BY:

Ed Hammontree, Chief of Engineering

7/20/2017
Date

FONSI Appendix A

Comments

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FONSI Appendix B

Response to Comments

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Response to Comments on Upper Hoh River Road Bank Stabilization Project Environmental Assessment
August 8 - September 23, 2016 Comment Period

Comment Number	Category	Commentor	Comment	Response
1a	Public	Dave and Carol Lewis	The link shown on your Notice of Availability, August 8, 2016 will not work for us. Would you send us an email with the EA attached? A map showing the location of the improvements and section details would be most helpful.	WFLHD sent the commentor an electronic link to the Draft EA, which allowed them to access it. Figures 3-1 and 3-3 through 3-6 (Final EA) show the locations of the project improvements. Appendix I of the Final EA, Design Plan Set (70%), includes the section details.
2a	Public	Ben Kashdan	I was wondering what the upcoming work schedule will be for the bridge work on the Upper Hoh River Road. I work for the park and just want to make sure I can avoid the most congested periods when I go to work at the Hoh. Please let me know when active construction is being planned for that bridge that will block passage.	Active construction is set to begin in the summer of 2018. WFLHD will keep the Park informed as specific information about traffic delays is determined. Construction of the three stream crossing structures and three bank stabilization sites will take two construction seasons.
3a	Agency	U.S. Environmental Protection Agency	If you have one available, would you mind sending me a hard copy of this EA?	WFLHD sent the commentor a printed copy of the Draft EA.
4a	Agency	Washington State Department of Natural Resources (WDNR)	Thank you for taking comments on the Upper Hoh River Road Bank Stabilization Project Environmental Assessment. My only comment is to please send me a JARP(A) for any work that will be performed on state-owned aquatic land to start the authorization process.	WFLHD will submit a Joint Aquatic Resource Permit Application (JARPA) to WDNR in pursuit of a WDNR Aquatic Use Permit.
5a	Agency	Washington Department of Fish and Wildlife (WDFW)	I have attempted many times to download the zipped Draft Environmental Assessment for the Upper Hoh project and have not been successful (utilizing https://flh.fhwa.dot.gov/projects /wa/upper-hoh/). Is there another link? Or could I have a disc copy sent to the address below?	WFLHD sent a compact disc containing an electronic version of the Draft EA to WDFW.
6a	Tribe	Hoh Tribe	I am writing to request a copy of the proposed project locations as presented in the July 2016 Preliminary Draft EA to be made available in a GIS format (shapefile, personal/file geodatabase, or .kml format). These data will greatly assist our staff in reviewing the proposed project activities and help us formulate comments, suggestions and concerns in a timely manner.	WFLHD provided the Hoh Tribe with the project locations in GIS format.
7a	Agency	U.S. Fish and Wildlife (USFW)	HRT's concerns that I heard today: One of the concerns expressed was that some of the work is proposed on lands owned by HRT and they seek coordination with WFLHD about operations on their lands, particularly as it pertains to the meeting the purpose of the grants they received (protection of habitats for listed species).	Figure CR-1 in the Final EA shows that Sites C4 and C5 are located on HRT-managed lands, and that Site C3 (Tower Creek Bridge) is located within 0.1-mile of HRT-managed lands. HRT manages land purchased with USFWS grant money, with the stipulation that the lands serve to protect habitats for listed species. The applicant designed this project to minimize impacts to habitat, such that after mitigation, impacts would be less than significant. HRT acknowledged in its letter of September 20, 2016, that HRT will concur with the results of the formal USFWS consultation conducted for this project. USFWS administers ESA and will have the opportunity to approve this project with or without conditions, during the ESA consultation process. WFLHD will coordinate with HRT on impacts to their land. Figure CR-1 is included in Section 3.1 of the Final EA (Appendix C of the FONSI). *Note that in June 2017, all HRT land adjacent to the proposed project and shown on Figure CR-1 transferred to The Nature Conservancy (TNC) ownership and management.*
7b	Agency	U.S. Fish and Wildlife	Another concern HRT expressed was that, by their judgment, the ELJs will deflect the river into their land on the Schmidt Bar with significant likelihood of eroding away HRT lands, including likely occupied murrelet habitat.	Schmidt Bar and other sand bars in the Hoh River have eroded or developed dynamically due to the broad river channel and the braided nature of the river. Over recent years, HRT land has eroded due to the river, thus decreasing the landform itself. These changes occur due to natural forces, such as storms and floods, and will continue to occur unrelated to this project. While the ELJ/dolosse units will modify the river dynamics in the long run, hydraulic modeling predicts that downstream impacts will be localized and not extend to Schmidt Bar. Bank areas adjacent to the ELJs will be protected from erosion. Project design minimizes habitat impacts to the extent possible, and where impacts do occur, the applicant and its contractor will mitigate and restore habitat to the extent feasible. Section 4.6 of the Final EA addresses marbled murrelet habitat.

Response to Comments on Upper Hoh River Road Bank Stabilization Project Environmental Assessment
August 8 - September 23, 2016 Comment Period

Comment Number	Category	Commentor	Comment	Response
7c	Agency	U.S. Fish and Wildlife	Finally, HRT mentioned that the community around the project area typically relies on dial-up internet connections, so the NEPA documentation is too large for many people to download, leading to excess demand for the library copies. Separate from my Section 7 consultation, I wanted to pass along to you that it appears the community is having trouble accessing enough copies of the NEPA documents. Hopefully additional copies can be made available. I do not know who or where that is sought.	In response to concerns about local residents' ability to access the Draft EA, WFLHD sent an additional two printed copies of the Draft EA to the Forks Library on August 31, 2016, and extended the end of the comment period from September 7 to September 23, 2016.
7d	Agency	U.S. Fish and Wildlife	My questions: For my work with the grant-acquired lands, could you help me understand exactly what portions of the project are on HRT lands, particularly on those lands acquired through our grant program? How is WFLHD approaching these issues? Is WFLHD coordinating with HRT?	Figure CR-1 in the Final EA shows that Sites C4 and C5 occur on HRT-managed lands, and that Site C3 (Tower Creek Bridge) is located within 0.1 mile of HRT-managed lands. HRT manages land purchased with USFWS grant money, with the stipulation that the lands serve to protect habitats for listed species. This project is designed to minimize impacts to habitat, such that after mitigation, impacts would be less than significant. HRT acknowledges in its letter of September 20, 2016, that HRT will concur with the results of the formal USFWS consultation conducted for this project. USFWS administers the ESA and has an opportunity to approve this project with or without conditions, during the ESA consultation process. WFLHD has coordinated with HRT throughout the NEPA environmental review process, as discussed in more detail in Chapter 7 of the FONSI and Chapter 7 of the Final EA. WFLHD will coordinate with landowners once the FONSI is complete. Section 3.1 of the Final EA (Appendix C of the FONSI) includes Figure CR-1. *Note that in June 2017, all HRT land adjacent to the proposed project and shown on Figure CR-1 transferred to TNC ownership and management.*
7e	Agency	U.S. Fish and Wildlife	For my work on the Section 7 Consultation, can you help me to assess whether there is a likelihood of damage to murrelet habitat as a result of ELJ installation? Does that concern match WFLHD's hydrogeomorphic assessments? If so, my analysis will need to consider this as a significant effect of the project, which is not something I was anticipating.	Estimated areas of suitable marbled murrelet habitat near the project locations including the following: 3.9 acres within 65 yards (195 feet) of Site C1, 4.3 acres within 65 yards (195 feet) of Site C2, 1.5 acres within 65 yards (195 feet) of Site C3 (Tower Creek), and 1.5 acres within 65 yards (195 feet) of Site C4 (east). These areas represent stands of mapped, mature forest that provide either suitable nesting platforms for marbled murrelets or suitable nesting cavities for northern spotted owl. Habitat impacts will be avoided and minimized to the extent practicable. Previously disturbed areas will be used for project equipment staging whenever possible. However, impacts to riparian areas along the Hoh River are unavoidable in order to install the ELJ/dolosse units from the streambanks. Up to 325 trees are conservatively assumed to be removed by the proposed project. The vast majority of these trees are small deciduous trees (mostly red alder). Approximately 20, large (>18-inch diameter) conifer trees may be removed by the project. Vegetation removal, in general, is expected to occur over an estimated area of approximately 187,000 square feet (4.2 acres). Much of this area will be access roads and benches constructed on the stream bank to provide equipment access. Removed large trees will be replaced after construction is complete, at a minimum 1:1 ratio. Restoration plans will be finalized in the applications submitted to support Corps Section 404 compliance, ESA consultations, and Ecology Section 401 certification. These approvals may issue conditions related to restoration. Exposed soil would be revegetated with native vegetation or a native seed mixture prior to project completion. Additional information provided to USFWS will be considered in USFWS' conditions for project approval under ESA.
8a	Public	Dave and Carol Lewis	Please consider the following to be our comments for the above noted project: It appears that the proposed work along the right (north) bank of the Hoh River is not being performed up stream or adjacent to our property located along the left bank of the Hoh River. Please keep in mind that any work which would extend into the river channel will affect the river channel upstream and downstream of such encroachment. Encroachments, constructed in the past, have already caused damage to property along the left bank of the Hoh River.	Hydraulic analysis conducted for this project by the applicant indicates that the proposed bank stabilization will not increase channel velocity upstream or downstream of the project sites. The hydraulic report found that based on the HECRAS modeling, the ELJ/dolosse units are not expected to noticeably increase flooding or bank erosion on private property adjacent to the project sites above current levels.
8b	Public	Dave and Carol Lewis	Please keep us informed of the projects process.	Comment acknowledged. All those who commented on the EA are on the project mailing list and will be informed of project milestones and progress, such as when certain construction activities are scheduled to begin.

Response to Comments on Upper Hoh River Road Bank Stabilization Project Environmental Assessment
August 8 - September 23, 2016 Comment Period

Comment Number	Category	Commentor	Comment	Response
9a	Public	John Richmond	From childhood, was raised on the Hoh River, and have memories back to 1940, where at the age of 4, remember my father loading logs on trucks to haul on the Upper Hoh Road about 10 miles to US Highway 101. I continue to be a landowner of nearly 100 acres along the river. As such, I have used the Upper Hoh Road as access to school along the proposed project areas, via the Huelsdonk Bridge until it was decommissioned in 1966. I feel that I have a reliable basis of historical data and knowledge of past efforts to manage the road infrastructure along the project sites. The river channel location was frequently influenced by a large log jam (which) accumulated on a gravel bar and even by a small, 1-ft. diameter tree toppled to cause the formation of a new long-term channel. Efforts to stabilize a bank of the river consisted of cutting key logs of a jam at the downstream and waterside to allow flotation by the next seasonal flood. Landowners without significant financial resources would resort to tying logs to trees along the bank, or by caballing the tree prior to felling it into the stream. Infrequently, a bulldozer was available to manipulate a gravel bar or deepen a channel to divert flow in a desired direction.	Comment acknowledged.
9b	Public	John Richmond	When quarried rock was available, it was tried with varying success to stabilize the banks near roads. Drifting logs and trees or undermining would impact the stability of even the carefully placed rip-rap. The greater problem is the undercutting of the toe of the riprap. The rock is often simply dumped until it quits rolling and yet not back-filling from below the depth of the thalweg. The deposits on the channel bottom need to be excavated to a width of not less than 20 feet and depth of about twice the size of the large dimension of the rip-rap to be placed.	Comment acknowledged. No riprap will be placed as part of project bank stabilization activities. WFLHD conducted a hydraulic scour analysis, results of which led to designing the project such that the contractor will place riprap below the OHMW near the Tower Creek bridge and the Canyon Creek bridge, to be overlaid with substrate and bed material to shape and form the creek beds. (Note that WFLHD has conducted an analysis of potential mitigation opportunities for this project, and has chosen measures as discussed in Chapter 9 of the FONSI).
9c	Public	John Richmond	The stability of rip-rap containing logs with the roots attached is affected whether the logs are cabled to piling or dead-man anchors on shore, leverage from flotation effect, vibration from water flow, and snagging of, and impact from floating drift logs. The length along the shoreline and shape of upstream and downstream termini needs to ensure avoiding back-eddies. Use of dolosse may aid in stabilizing the infrastructure, if carefully placed.	Comment acknowledged. The project has been designed such that the upstream end of the each ELJ/dolosse unit will be secured to the riverbank, and the rest of the ELJ/dolosse unit will remain unsecured. The smaller "bundles" of logs and dolosse will be chained together. The ELJ/dolosse units are designed to be somewhat flexible and settle into the riverbed over time, similar to natural log jams. The flume test WFLHD conducted in April, 2017 indicated this design would effectively stabilize the ELJ/dolosse units. HECRAS 2D modeling was used to design the project so that the back eddy effect is minimized.
9d	Public	John Richmond	Due to severe erosion of the Tower Creek (H-14) channel bottom, it would appear that Class 4 rip-rap treatment should be extended below and across the channel.	Erosion along the bottom of the Tower Creek channel and channel shortening due to migration of the Hoh River toward the UHRR have caused the Tower Creek channel to incise and scour the bridge abutments. The proposed project will involve removing existing riprap, which is meant to provide scour protection to the existing bridge, in order to allow room for stream channel widening and bank reshaping. Then, new riprap revetments approximately 5 feet in depth will be installed on both streambanks, upstream and downstream of the new bridge. Streambed material will then be placed to cover the riprap and isolate the heavy rock from the channel. The contractor will shape the streambed material to form a new low-flow channel. Approximately 100 lineal feet of Tower Creek will have streambed improvements, and approximately 50 feet of the stream channel bed will be restored. The improved creek design will reduce erosion potential. Riprap will be used on the banks, but not the bottom, of the channel.
9e	Public	John Richmond	Do the calculations include the 2016 mandate for increased flow?	The applicant is not aware of a mandate for increased flow on the Hoh River.
9f	Public	John Richmond	Would the fish be impacted? Yes, as a result of planned construction or repeated emergency repair activity. The fish will find a place to spawn away from the activity. They have done in the past. Should the project be done? Yes, the Upper Hoh River Road is important to residents, visitors, resource utilization and protection and the economy far beyond the river drainage. Please proceed with the project as intended, allowing for effects of natural events.	Comment acknowledged. Section 4.6 of the Final EA addressees impacts to fish and wildlife.
10a	Agency	Hoh River Trust	HRT is impacted as much as anybody else by the frequent washouts of the County road, as well as the repairs which follow. We are in favor of a one-time fix which could end this yearly waste of time, resources and money.	Comment acknowledged.

Comment Number	Category	Commentor	Comment	Response
10b	Agency	Hoh River Trust	Many of the practices proposed in this draft – especially the extensive pile driving- would require our consultation with U. S. Fish and Wildlife Service if we had proposed them. We will concur with the results of the formal consultation conducted by the project proponents.	Comment acknowledged. WFLHD is formally consulting with the USFWS on this project, under ESA. The use of the land, especially USFWS-granted land with critical habitat protection conditions, will be considered during consultation.
10c	Agency	Hoh River Trust	We are also limited by many Washington DNR Riparian Open Space Conservation Easements (each covering different areas) which limit development of new roads, structures, new easements, operation of rock pits, new subdivision and even aged stand management beyond that allowed in our management plan. We cannot sell our land or allow its purpose to change, without repayment of funds. Major changes to existing easements or new easements will have to be negotiated with our funding agencies and may require condemnation.	No new permanent roads will be developed as part of this project, nor will any new structures be constructed, although three stream crossing structures will be demolished and replaced in generally the same location. A sale, change in purpose, or change in use of land will not occur with this project, with the exception that small amounts of right-of-way could be acquired for conversion to transportation right-of-way. Neither major changes to existing easements nor major new easements are expected to be required. WFLHD will coordinate with landowners and land managers throughout the final design, right-of-way identification, and construction process.
10d	Agency	Hoh River Trust	HRT, along with the Hoh Tribe, was an early participant in this planning process and attended the sessions at the Olympic National Park Headquarters. Much valuable input was made and is now seemingly forgotten. HRT feels that this plan is much better than earlier proposals which featured extensive bank armoring using large riprap. However, as an affected (l)andowner at least two and possibly three work sites (depending on verification of property lines and final plans), HRT has some concerns and comments about this version of the project.	Comment acknowledged. See responses to individual comments 10a through 10u.
10e	Agency	Hoh River Trust	The colored exhibit showing work sites does not show the “large wood debris jam” (lwd jam) installation at the upper end of site c4 (page 241 of the Plan). While this is an ideal location for a very substantial jam, this is on HRT ownership and will necessitate removing some large trees, some of which look like suitable murrelet nesting habitat and bald eagle roosts. Shifting the location a bit may spare the largest trees. Any trees taken should be added to the lwd jam or left free to float in the river. The cleared site should be revegetated with large stock and have appropriate surface and slope restoration.	Figure CR-1 in the Final EA shows HRT-owned or -managed land in relation to Site C4. Several large spruce and alder snags are present near the upstream portion of Site C4, but LWD is limited. Forest adjacent to the east end of Site C4 is mostly large conifer trees with a deciduous understory. Installing the ELJ/dolosse unit at the upstream portion of C4 will require 5,000 square feet (0.12 acre) of land to be cleared for site-specific access, staging, and storage. The project will also require removal of 10 trees, 4 of which are large conifers. These large conifers are potential marbled murrelet habitat. The tree removal impact would be offset by bank revegetation efforts, which when combined with the long-term improved likelihood of vegetation development along the bank due to protection from the ELJ/dolosse at Sites C1, C2, and C4, would minimize any potential incremental negative impact from the proposed project. Trees removed from the site for the purposes of project staging, clearing, or storage will be returned to the river or to Canyon Creek or Tower Creek to serve as LWD. FHWA chose the locations for the proposed project because they were estimated to have the highest risk of impending failure when compared with other locations along the UHRR. Section 4.6 of the EA addresses project impacts to terrestrial species, including marbled murrelet and bald eagle. Section 3.1 of the Final EA (Appendix C of the FONSI) contains Figure CR-1. *Note that in June 2017, all HRT land adjacent to the proposed project and shown on Figure CR-1 transferred to TNC ownership and management.*
10f	Agency	Hoh River Trust	Soil, bark, mulch and seed should be certified weed free. We and our partners have spent years, large sums of money and much physical effort to control noxious weeds on the Hoh.	BMPs including but not limited to the following will be employed to reduce the potential for introduction or spreading of noxious weeds during construction: (1) inspect materials and equipment for noxious weeds or seed material prior to bringing them on-site; (2) clean equipment as needed; (3) retain shade on imported materials to suppress weeds to the extent practicable; (4) retain native vegetation to the extent possible; (5) use native plants and certified weed-free products for re-vegetation; and (6) incorporate weed prevention into final vegetation restoration plan. These measures are included in Section 4.5.2.2 of the Final EA.
10g	Agency	Hoh River Trust	This site (site C4) is quite likely to have shallow alluvium or glacial till over bedrock. Pile driving using wooden piles may be a problem.	WFLHD conducted a flume analysis in April 2017, which determined that vertical wooden pins will not be necessary for stability of the ELJ/dolosse structures. The upstream end of each ELJ/dolosse unit would be secured to the riverbank, and the rest of the ELJ/dolosse unit will settle into the riverbed over time. Section 3.3.1 of the Final EA, Build Alternative, Bank Stabilization, contains a description of the proposed bank stabilization work. The Final EA is Appendix C of the FONSI.
10h	Agency	Hoh River Trust	The property line with the U. S. Forest Service is nearby. USFS management here is for Late Seral Stage restoration.	Comment acknowledged.

Comment Number	Category	Commentor	Comment	Response
10i	Agency	Hoh River Trust	This site is located adjacent to and across from a well-used Chinook spawning bar which runs from the mouth of Pole Creek down to Tower Creek. The "Koontz" bar, just upstream, is also a regular spawning site. All these bars shift yearly.	Comment acknowledged. WFLHD received additional data from the Hoh River Tribe and WDFW related to areas of salmon spawning in the area of C4. This data was used in responding to comments and updating Section 4.6 in the Final EA, Fish and Wildlife.
10j	Agency	Hoh River Trust	The downstream portion of Site C4 shows three LWD jams which will also protect the mouth of Tower Creek. These lie on former HRT land, which is now under the active channel. This reach is a high stress location during winter flood events. Fish passage into Tower creek (as is true of all the north bank streams entering the Hoh) was dependent on a wide alluvial fan left from debris torrents issuing from Tower Creek. These deposits were washed away last year but can be expected to rebuild (See Bureau of Reclamation Report). These LWD jams should not only protect bridge infrastructure but encourage sediment deposition to rebuild the steep creek entrance.	Comment acknowledged. If the deposits return, these naturally occurring LWD jams will contribute to the beneficial habitat effects of the ELJ/dolosse units.
10k	Agency	Hoh River Trust	Site C3 is located near a common property corner with the U. S. Forest Service, HRT, Jefferson County and the Upper Hoh Road right-of-way. Depending on where construction and clearing may take place, quite a few suitable murrelet trees may be taken. As before, we prefer that these be put into LWD jams or the river.	To the extent practicable, and depending on the size of trees and on the river conditions at the time of construction, trees removed will be placed into the river to contribute to the naturally-occurring LWD. Section 4.6 of the Final EA discusses impacts on fish and wildlife, including marbled murrelet. In addition, the USFWS will issue a BO on the project's potential impacts to marbled murrelet and its suitable habitat, as part of ESA consultation.
10l	Agency	Hoh River Trust	Site C5 at Canyon Creek is, in our opinion, the lowest priority of the work sites. The culvert has a lot of life left in it and restoring fish access to the upper stream will not be much of a gain. It's a small system, steep and gets fine sediment runoff from the nearby rock pit. The lower end of Canyon creek- actually a semi stable side channel system- has supported a very productive juvenile salmon nursery for decades. Anchoring (or enhancing) the natural logjams at the upper end of the river bar would be part of some real mitigation for construction impacts to fish populations in the river and may help to restore fish access to Spruce Creek, just downstream. It should be noted that across the river on the Huelsdonk/ Fletcher ranch side, there is an old embedded riprap wall which protects the ranch.	Comment acknowledged. The culvert at Canyon Creek has approximately 20 years of life left. Restoring fish passage at Canyon Creek could provide additional rearing habitat for bull trout and steelhead, as well as additional habitat for cutthroat trout. Chapter 9 of the FONSI presents information on mitigation.
10m	Agency	Hoh River Trust	This site (C5) is adjacent to a well-known deep seated slope instability.	Several steep slopes exist in the project area, both on the riverbank and on the north side of the UHRR. The applicant's contractor will implement BMPs during construction to reduce the potential for slope instability and erosion during construction, including at Site C5, Canyon Creek. WFLHD has (1) conducted a literature review of three available geologic maps, (2) reviewed LiDAR data for the area, (3) completed a site reconnaissance, and (4) drilled two borings at the proposed bridge abutment location. Of these four sources of information, only the LiDAR mapping indicates possible slope instability. LiDAR mapping shows an apparent zone of historic instability immediately to the southwest of the site. WFLHD's interpretation of the research findings in their entirety is that at present, the bank is stable. The main channel of the Hoh River is about 1,000 feet from the toe of the stream bank, lessening the potential for stream bank instability related to Hoh River flow. Large-scale erosion at the toe of the stream slope is not occurring, and no evidence of deep-seated instability was observed at the road during the site reconnaissance in October 2015. The proposed bridge alignment would be located slightly north of the existing bridge, which will create distance between the bridge and the river, reducing the potential for stream bank effects related to main channel migration. Future migration of the active channel can be monitored and addressed if stream bank instability becomes a concern.
10n	Agency	Hoh River Trust	If the bridge is built as planned, we would prefer that it not have firm grade controls or riprap set into the streambed. The stream needs to regrade naturally to allow accumulated sediment to pass through and fish to pass up. Bridge footings should be set accordingly.	Existing riprap meant to provide scour protection to the existing bridge will be removed to allow room for stream channel widening and bank reshaping. WFLHD conducted a hydraulic scour analysis, results of which led to designing the project such that the contractor will place riprap revetments approximately 5 feet in depth on both streambanks upstream and downstream of the new bridge. Streambed material would then be placed to cover the riprap, and shaped to form a new low-flow channel. Approximately 100 lineal feet of Tower Creek would have streambed improvements. The new bridge will allow the banks to shape, sediment to accumulate, and fish to pass.

Comment Number	Category	Commentor	Comment	Response
10o	Agency	Hoh River Trust	As at other sites, we would like the conifer wood within the clearing limits to be put into the creek.	Section 4.5.2.2 of the Final EA, Vegetation and Special Status Plants, Build Alternative contains new text stating that to the extent practicable, and depending on the size of trees and on river conditions at the time of construction, trees removed will be placed into the river to contribute to the naturally-occurring LWD.
10p	Agency	Hoh River Trust	Long Term Monitoring (by either WDFW and the Hoh Tribe) needs to be incorporated as part of this project.	In the future, WFLHD is open to serving as a partner in monitoring or studying future conditions along the river. The Section 404 Corps permit and the WDFW Hydraulic Project Approval will contain requirements for future monitoring. Jefferson County will also likely participate in monitoring.
10q	Agency	Hoh River Trust	This variety of LWD jam is experimental but looks promising. We all have a problem securing large enough logs with rootwads to function in LWD projects. HRT is curious (and concerned) about what these structures may become after the small diameter wood involved decomposes and nothing is left but dolosse and steel cable. If these become hazards, who will remove them? What will be the eventual impact on river rafters and drift boats?	The life of the proposed ELJ/dolosse unit is anticipated to be 50 years. Beginning immediately after installation, the flexible ELJ/dolosse unit will gradually settle into a stable position into the sediment on the river bottom. The individual parts of the ELJ/dolosse unit (large trees with attached root wads, concrete dolosse, logs, and collected slash material, cobble, and sediment) will have moved relative to each other and to the riverbed and bank, and are expected to (over time) end up partially buried and relatively stable. Wood and slash material migrating down the river and catching against the ELJ/dolosse unit is expected to continually replace decomposing materials. The CWA Section 404 permit, administered by the Corps, requires that WFLHD or Jefferson County monitor the ELJ/dolosse units and remove potential hazards created by the ELJ/dolosse settling into place. The ELJ/dolosse units will represent an additional feature in the river to recreationists; they are not expected to be hazardous because (1) considerable buoyancy is not expected and (2) the units will be visible to those using the river. Section 4.3 of the Final EA, Recreation, contains updated information.
10r	Agency	Hoh River Trust	Boat launches are in short supply. The community has lost put-ins at Canyon Cr(eek), Spruce Cr(eek), Minnie's (B)ar and Koontz bar.	Comment acknowledged. As the Hoh River changes in shape and direction, and its flow adjusts seasonally, new natural locations for launching small water craft may develop. Morgan's Crossing Boating Site, on USFS land and co-managed by USFS and WDFW, is located approximately 2,200 feet downstream of Site C3 at Canyon Creek and is used for launching both motorized and non-motorized watercraft for fishing and recreating. Although the project does not propose any modifications to the bar that represents Morgan's Crossing, the addition of the ELJ/dolosse units upstream may result in slight modifications to the sand bar. It is expected that Morgan's Crossing will remain in use as a boat launch location. WFLHD will evaluate locations within project boundaries for potential boat launches to be created concurrent with project construction. Section 4.3 of the Final EA, Recreation, contains updated information.
10s	Agency	Hoh River Trust	We are in favor of naturally recruiting log jams which encourage deposition of sediment to form stable, vegetated river bars. Jams should be designed to catch and hold floating LWD and operate without the need for maintenance.	Comment acknowledged. The ELJ/dolosse units are designed to catch and hold LWD and not require maintenance.
10t	Agency	Hoh River Trust	We are opposed to extensive rock armor, especially that which is put in during emergency repairs to road washouts. These are seldom mitigated and even when revegetated do not substitute for forested riparian habitat.	Comment acknowledged. This project does not include installing rock armor, or riprap, at the three bank stabilization sites.
10u	Agency	Hoh River Trust	We are in favor of removal of existing riprap / bank armor in areas where there is undeveloped land in long term open space management.	Comment acknowledged. This project does not include removing existing riprap, except at Tower Creek bridge and Canyon Creek culvert. Chapter 9 of the FONSI includes discussion of mitigation for this project.
11a	Agency	U.S. Department of Agriculture, Forest Service	I am generally supportive of the project and its pro-active approach to deal with these issues before they become an access emergency and a resources issue for fisheries.	Comment acknowledged.
11b	Agency	U.S. Department of Agriculture, Forest Service	The land ownership boundaries are not clearly displayed on the maps and in some cases do not accurately represent USFS ownership. Efforts will need to be made to revolve the correct boundaries so that it is clear which (if any) parts of the activities will occur on National Forest System lands.	Comment acknowledged. Figure CR-1 in Section 3.1 of the Final EA (Appendix C of the FONSI) contains the best available parcel and ownership information available, from the Jefferson County Assessor's office.
11c	Agency	U.S. Department of Agriculture, Forest Service	A small edit is needed on page 1-3, which shows the Olympic National Forest under the US Department of Interior with the Park Service. This should be changed to the US Department of Agriculture for the Forest Service.	Comment acknowledged. Section 1.4 of the Final EA, Agency and Public Involvement, contains updated information.

Comment Number	Category	Commentor	Comment	Response
11d	Agency	U.S. Department of Agriculture, Forest Service	I support the use of wood in combination with the dolosse in regards to benefits for fish habitat.	Comment acknowledged.
11e	Agency	U.S. Department of Agriculture, Forest Service	The downstream end of Site C4 could be assessed for additional numbers of the wood/dolosse units. With the energy of the river along the Tower Creek bank, a small number of wood/dolosse units there could leave the bridge crossing on Tower Creek vulnerable to the force of the mainstem Hoh. Additional units could help protect the investment of the new bridge and allow for improved fish passage into Tower Creek at lower flows with deposition of materials at the mouth. These efforts could have impacts on adjacent National Forest System lands.	The three ELJ/dolosse units currently proposed at the downstream end of C4 will protect the rapidly eroding bank immediately upstream of Tower Creek. The Tower Creek debris fan currently restricts lateral bank migration to the northwest. Shifting the new bridge and road away from river will create an additional bank migration buffer. Soft conglomerate beneath the new road alignment will also restrict lateral bank migration. No additional ELJ/dolosse units are required.
12a	Tribe	Hoh Tribe	Thank you for considering the Hoh Tribe's comments regarding the Upper Hoh Road Project(s) scheduled for the summer of 2017. We can appreciate the difficult erosional issues associated with trying to maintain road infrastructure adjacent to this dynamic and powerful rain-dominated, alluvially-bedded coastal river. We offer these general comments related to the project planning, design and documentation including the draft Environmental Assessment and 30% design detail plan set. We also offer more specific comments and recommendations related to the fishery resources of the Hoh River which will be impacted during the project and forward into perpetuity.	Comment acknowledged. See responses to individual comments 12a through 12aa.
12b	Tribe	Hoh Tribe	The Hoh Tribe is not a stakeholder (as listed p.1-3), the Hoh Tribe is co-manager and owner of the fisheries resources impacted by this project. The Hoh Tribe Department of Natural Resources could be correctly identified and consulted appropriately as the fisheries resource managing agency.	Comment acknowledged. Section 1.4 of the Final EA, Agency and Public Involvement, contains updated information.
12c	Tribe	Hoh Tribe	There is no mention of fish exclusion in the work plans (p.3-5). Plans to remove fish from all work sites and exclude fish during construction must be developed during planning and implemented during construction. We need to discuss specific methods to be applied for fish removal and fish exclusion. Hoh Tribal staff will be available to develop fish removal and exclusion plans to assist. Hoh Tribal staff will be available to help in the fish removal activities throughout construction.	Flow deflection and fish exclusion were considered. Fish exclusion at the 3 bank stabilization sites would result in greater adverse impacts to fish, compared to if fish exclusion were not performed, mainly due to (1) the additional time during which fish would be disturbed, (2) the footprint with fish exclusion will be double the footprint without fish exclusion, and (3) the difficulty of capturing and handling fish, including ESA-listed fish, in order to clear the isolation area. WFLHD coordinated with and discussed options regarding fish exclusion with the Hoh Tribe, the Hoh Trust, WDFW, and other involved agencies. WFLHD proposes implementing flow deflection using sheet piles or bladders where necessary, to be decided by the contractor. The contractor will take into consideration turbidity, flow volume, and flow direction at the time of construction. The flow deflection will push the thalweg away from the bank so that construction work occurs in lower flow areas. Construction work will start at the bank and move out toward the main channel.
12d	Tribe	Hoh Tribe	In Appendix E, "Biological Survey" the fish species list appears incorrect and incomplete. Giant Pacific Lamprey, Southern Green Sturgeon and Eulochon are all ESA-listed fish found in the Hoh River. Western Cutthroat Trout does not occur in the Hoh River, though Coastal Cutthroat Trout do occur.	Section 4.6 of the Final EA, Fish and Wildlife, contained updated fish occurrence information.
12e	Tribe	Hoh Tribe	Property ownership maps are not accurate in the documents provided, namely Hoh River Trust ownership adjacent to Site C4	Comment acknowledged. Figure CR-1 in Section 3.1 of the Final EA (Appendix C of the FONSI) contains the most accurate parcel and ownership information available, based on current (October 2016) information from the Jefferson County Assessor's office.
12f	Tribe	Hoh Tribe	Hoh Tribe was not consulted by either National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (USFWS) during the federal project review. With proposed activities, particularly pile driving, requiring review by USFWS, we anticipated consultation with regards to their biological opinions.	Formal consultation under ESA is underway between USFWS and the applicant and will result in compliance with Section 7 of ESA. No listed species under NMFS jurisdiction are documented to occur in the Hoh River in publicly available information. Additional fisheries information provided by the Hoh Tribe has been incorporated into Section 4.6 of the Final EA, Fish and Wildlife.

Comment Number	Category	Commentor	Comment	Response
12g	Tribe	Hoh Tribe	Hoh Tribe disagrees with "Environmental Baseline" assertions, Table 6. Page 24 regarding Habitat Elements and Watershed Conditions incorrectly characterized as "PF" properly functioning include: "Large Pools", "Off-channel habitat", "Refugia". None of these habitats are properly functioning. Hoh River staff were not consulted as to these subjective opinions and subsequent assertions were generated without Hoh Tribal input. We object to the characterization of the "environmental baseline."	Comment acknowledged. Evaluation of aquatic habitat indicators was conducted for the action area as a whole, and are not indicative of site conditions at a particular project location. These indicators were rated based on information gathered through agency reports, consultation with agency personnel, field observation, and best professional judgment at the time the BA was written. Following receipt of comments on the Draft EA, WFLHD has conducted several meetings with the specific goal of addressing the Hoh Tribe's concerns over fisheries impacts, construction techniques, and appropriate project mitigation. The Tribe has been an integral participant in these meetings. Additional fisheries data provided by the Tribe is part of the updated Section 4.6 of the Final EA, Fish and Wildlife.
12h	Tribe	Hoh Tribe	Strongly disagree with "Analysis of Effects" Table 11, Page 38 of the Biological Assessment. Assertions made in this section appear incorrect and not supported by data, for example: Large Woody Debris will not be improved by bank stabilization. The project will eliminate natural recruitment of wood into the system. Dolosse may recruit wood if installed correctly, but this wood will already be in the system. These projects will reduce natural recruitment of wood where bank stabilization has occurred	The commentor is correct that where the ELJ/dolosse units are installed, new LWD recruitment from the river bank will not occur in the short term. However, in most of the areas where the bank stabilization is proposed, very few large trees currently exist, having been previously removed by river migration. To the extent feasible, trees removed by the project will be placed in the river. As stated in Section 5.1 and Table 11 in the BA, the ELJ/dolosse units will gather woody debris flowing down the river (already in the river system); this debris will catch on the ELJ/dolosse unit, replace lost or decomposing material, and build up the structure. Unlike riprap, these ELJ/dolosse units will be comprised primarily of natural materials, and will have a rough texture that catches and holds other natural materials. Vegetation restoration is part of the project mitigation plan, and is anticipated to restore LWD recruitment potential in the long term. Section 4.5 of the Final EA, Vegetation and Special Status Plants, contains updated information.
12i	Tribe	Hoh Tribe	Large Pools will not be maintained by this project, and this habitat is not functioning properly on the Hoh River.	See response to Comment 12g, above. The project is not anticipated to have a significant effect on large pool formation in the project area as a whole.
12j	Tribe	Hoh Tribe	Off-channel Habitat will not be maintained by this project. We understand that bank armoring and stabilization as proposed in this project will have the effect of entraining the river immediately adjacent to the rip-rap. Particularly at Sites C2 and C4 the effect will be the opposite, off-channel habitat will be reduced, not maintained. Also, this habitat type is not functioning properly.	Comment acknowledged. Off-channel habitat may change locations or may be disturbed in the short-term by construction activities. However, in the long run, the applicant expects the bank stabilization solution at these three sites will maintain or improve the amount of off-channel habitat in the Hoh River. The ELJ/dolosse units will slow flow near the banks, creating potential slackwater areas between the units, and outside of the main channel.
12k	Tribe	Hoh Tribe	Refugia will not be improved, we consider off-channel habitat to be refugia. Access to off-channel refugia will be destroyed by the installation of bank stabilization systems. The dolosse are not Engineered Log Jams (ELJ), and though dolosse may offer more complexity than rip-rap alone, we must remember that the initial, natural complexity in these areas was destroyed when the road was installed. The net result of the upper Hoh road is a loss in near-bank refugia and access to off-channel refugia. This subjective and unsubstantiated "analysis of effects" is flawed at many points.	Comment acknowledged. Similar to off-channel habitat, some refugia may be initially removed due to construction activities. However, after construction, new refugia are expected to form near these three sites. The long-term result is expected to be a similar amount or more off-channel habitat and refugia in the Hoh River. The ELJ/dolosse units will slow flow near the banks; as the units settle into the sediment and the separate pieces lock into each other, refugia are expected to form between and adjacent to units, outside of the main channel. Section 4.6 of the Final EA, Fish and Wildlife, contains updated information.
12l	Tribe	Hoh Tribe	Bull Trout "Subpopulation size" will not be "improved in the long term" by this project. This assertion is unproven. Bank Stabilization destroys habitat by causing the river to become entrained, promoting depth and scouring, reducing the capacity for natural meander. Furthermore, kinetic energy is drastically increased adjacent to bank stabilization, and downstream impacts include scouring of redds, loss of property and further destruction of off-channel spawning habitat and overwintering refugia. We have seen this process occur on multiple occasions. The "analysis of effects" is incorrect.	Comment acknowledged. The applicant expects that this method of bank stabilization (ELJs with dolosse), as opposed to riprap or other bank armoring techniques, will not result in increased kinetic energy between the ELJ/dolosse units or the promotion of scouring. The flow in the main channel will increase, but low flow areas will form near the banks. Lower flow areas near the bank will relieve the bank from scour pressure and in turn, protect the UHRR, while also encouraging areas of refugia. Replacing the Canyon Creek culvert with a bridge may improve fish passage for bull trout, and could result in an increase in the available rearing habitat. However, WFLHD agrees that this is only a potential benefit and may have no long-term effects on bull trout population in the Hoh River.
12m	Tribe	Hoh Tribe	Width to Depth Ratio will be compromised at all sites with bank stabilization, however the analysis only considers the bridges, not the bank stabilization.	Comment acknowledged. The proposed bank stabilization projects are designed to stabilize the banks with minimal intrusion into the main channel of the Hoh River. The average width of the channel of the Hoh River at the bank stabilization sites is approximately 700 feet. The ELJs are not anticipated to create significant enough depth changes across the channel to significantly change the width-depth ratio. WFLHD is conducting additional hydraulic modeling at the FHWA Resource Center to evaluate localized hydraulic effects of the ELJ/dolosse units.

Comment Number	Category	Commentor	Comment	Response
12n	Tribe	Hoh Tribe	Streambank conditions are destroyed, they are not improved when streambanks are "stabilized". Who thinks this? Please see the above comment regarding river entrainment, kinetic energy, scouring, loss of off-channel habitat, loss of natural wood recruitment… This analysis is simply incorrect.	The applicant expects that this method of bank stabilization (ELJs with dolosse) will reduce kinetic energy and scour along the existing banks, thereby improving streambank stability. This in turn will allow for successful reestablishment of vegetation along these areas, as opposed to the current condition, where vegetation and the underlying soil is continuously eroded.
12o	Tribe	Hoh Tribe	Table 12, response and Exposure matrix is also incorrect. For example, the "Potential Stressor" section is incomplete. Installation of ELJ's with any pile-driving will be a stressor on fish in the area. The adjacent gravel will be filled with wild steelhead eggs and alevin in addition to juvenile steelhead, juvenile bull trout, juvenile cutthroat, juvenile chinook, juvenile Coho, sculpin, juvenile giant pacific lamprey, western brook lamprey, whitefish in addition to adult chinook, Coho, cutthroat, bull trout and steelhead.	Section 4.6 of the EA, Fish and Wildlife, contains additional fisheries analysis and data provided by the Hoh Tribe and WDFW. Impact pile driving will not occur at the bank stabilization sites. The project is currently in formal ESA consultation with USFWS, which will prepare a Biological Opinion (BO) for the project.
12p	Tribe	Hoh Tribe	Appendix A of the Biological Assessment is incorrect in the assertion that "Bank stabilization will likely improve habitat functions for these salmonids in the long term". For all the reasons stated above, bank stabilization has negative impacts upon salmon habitat for the long-term. Normal riparian function will be compromised, the river will be entrained, kinetic energy increased and downstream habitat destruction and scouring will be promoted. This constitutes long-term habitat failure.	Comment acknowledged. See responses to individual comments 12h through 12o.
12q	Tribe	Hoh Tribe	Design Comments. We are encouraged that FH(W)A is considering a repair to the road using more than rip-rap exclusively, and though dolosse may offer more complexity and potential to grow log-jams by recruiting wood, they must be located in the water in order to recruit and function properly. Dolosse should be placed below road grade, such that they are able to function properly. It appears on some designs that the dolosse placement is at road grade, they must be lower to facilitate the proposed objective.	The ELJ/dolosse units will be installed so that they will interact with the river at most flows. The bottom layer of the ELJs will be located below the OHWM of the river. This will ensure that the ELJs interact with the river at most flows. The location of the existing road grade on the typical section was schematic only, and does not represent actual road elevations. In reality, elevation of the road in relation to the ELJs will vary considerably. For example, at Site C4 downstream, the ELJs will be far below the road elevation.
12r	Tribe	Hoh Tribe	During previous ELJ projects on Highway 101 there were massive installations with steel pilings driven to 40-foot depth. Your design which calls for wooden pilings to be driven 10 feet will not be sufficient. The wood will shatter upon hitting bed-rock. 10 feet is not deep enough. The road should be relocated in the areas of C2 and C4 as a long term strategy, otherwise much larger ELJ installations similar to those located on highway 101 will be required. Until then we are concerned that more rip-rap will be needed to replace that which will inevitably fall into the river and the deep channel that will be developed adjacent to the rip-rap. The associated increase in kinetic energy is extremely detrimental to fish and habitat stability. Have we learned these lessons along the Hoh already?	Road relocation was considered as an alternative, but dismissed from consideration because road relocation will not meet the purpose and need for the project: to provide safe and reliable access using the UHRR to the ONP and private residences, using the funds available. WFLHD determined through flume analysis conducted in April, 2017 that vertical pins placed in the ELJ/dolosse units are not needed as an initial stabilizer. Each ELJ/dolosse unit will be secured to the riverbank at only the upstream end, a design that will allow flexibility and movement as the ELJ/dolosse unit settles. Section 3.3.1 of the Final EA, Build Alternative, Bank Stabilization, contains updated information. Most of the bank stabilization work will occur in areas that are already experiencing high flows.
12s	Tribe	Hoh Tribe	Species Specific Comments Spring/Summer Chinook • Native Spring/Summer Chinook are a stock of critical concern, with chronic under-escapement this highly prized run of wild fish has been the most constraining to Hoh Tribal Fisheries over the past decade. • The majority of spawning will happen above the worksite, from early September through mid-October. Therefore, almost 1,000 wild Chinook must pass beyond all 5 work sites. It is critical that a fish-passable corridor be maintained adjacent to all work stations. Working should not occur during crepuscular or night-time hours, as this is the time chinook are most likely to be migrating past the work sites.	WFLHD proposes an IWWW of 45 days, from July 15 through August 31. This proposed IWWW is 15 days longer than the agency-prescribed IWWW of 30 days, July 15 through August 15. Construction activities will not likely overlap with spring/summer Chinook spawning times. In-water construction will not occur at night. Section 4.6 of the Final EA, Fish and Wildlife, contains additional fisheries data and explanation of project impacts to Chinook salmon.
12t	Tribe	Hoh Tribe	• Careful consideration of technology or techniques which might reduce the negative impacts of pile driving upon wild chinook would be appreciated.	Piles will not be driven in mainstem Hoh River. Chinook are not present in Canyon Creek or Tower Creek, where impact pile driving to install bridge foundations would occur. WFLHD has conducted a detailed constructability review, and coordinated with WDFW and the Hoh Tribe regarding fisheries impacts in order to minimize project impacts. Chapter 9 of the FONSI contains a discussion of project mitigation.

Response to Comments on Upper Hoh River Road Bank Stabilization Project Environmental Assessment
August 8 - September 23, 2016 Comment Period

Comment Number	Category	Commentor	Comment	Response
12u	Tribe	Hoh Tribe	Fish removal must occur at all locations, and fish exclusion must be maintained throughout the work period. • All locations will be rearing habitat for juvenile chinook, including spring/summer stock. Therefore, fish removal and fish exclusion is important for juvenile Chinook.	See response to Comment 12c above.
12v	Tribe	Hoh Tribe	• Sites C2 and C4 are located where there is a history of wild chinook spawning. Therefore, there may be spawning activity immediately adjacent to these locations at the end of the work window. Must be vigilant to avoid impacting active spawning behavior.	The applicant expects construction to occur from June through October over two seasons, with a proposed window for in-water work from July 15 through August 31. Construction activities will not likely overlap with spring/summer Chinook spawning times, which are typically September through the first part of October. The applicant will coordinate with regulatory agencies and the Hoh Tribe regarding IWWWs.
12w	Tribe	Hoh Tribe	• Site C5, though valuable, is not mitigation for damage to chinook habitat. Therefore alternatives need to be developed as mitigation. The Hoh Tribe has several ideas we would like to discuss.	Comment acknowledged. WFLHD has conducted an analysis of potential mitigation opportunities for this project, and has shared those results with the Hoh Tribe and other agencies. WFLHD has chosen two mitigation projects, as discussed in Chapter 9 of the FONSI.
12x	Tribe	Hoh Tribe	Winter Steelhead • Wild winter steelhead are likely to be impacted to the greatest extent by the proposed projects primarily because there is very dense spawning activity adjacent to Sites C2 and C4, in particular C4 is located on the river the MOST DENSE spawning activity in the entire system (see attached maps of spawning distribution). There may be over 40 wild steelhead redds in the IMMEDIATE VICINITY. There will be fertilized eggs and viable alevin and fry in these redds during the beginning of the work window. Contractors must be vigilant as the in-water work locations may be immediately adjacent to redds, if not super-imposed. In the event that there are viable steelhead redds at the work sites, the Hoh Tribe expects FWHA and the contractors to consult immediately with Hoh Tribal Staff and WDFW staff to develop a strategy in order for the project to move forward.	Based on recent data from WDFW and the Hoh Tribe, shown in Figures CR-4a and CR-4b in the Final EA, steelhead spawning locations were identified near Site C1 in 2015, and near Site C2 in certain locations during the period 2014-2016. The applicant proposes an IWWW beginning July 15 and ending August 31. Prior to in-water work, sheet piles or bladders will be temporarily placed in the river to deflect flow away from work sites. See Response to Comment 12c regarding flow deflection. Section 4.6 of the Final EA, Appendix C of the FONSI, includes Figures CR-4a and CR-4b.
12y	Tribe	Hoh Tribe	Juvenile steelhead will occur at all work sites during the entire duration of the project. There will be young of the year, yearling and two- and three-year old juveniles. Four age cohorts will be represented in the juvenile fish utilizing all 5 work sites. Fish removal and fish exclusion must be better defined and coordinated. We can help.	See response to Comment 12c relative to fish exclusion.
12z	Tribe	Hoh Tribe	Coho • Historically abundant, the Coho population crashed in 2015. The Hoh Tribe was forced to close our Coho fishery in 2015, and again in 2016 as a response the unprecedented low abundance. Returns in 2015 failed to achieve minimum spawning escapement, and our snorkeling surveys in the summer of 2016 revealed all-time low abundance. The Hoh Tribe Coho directed fishery was closed in 2016. Therefore, the juveniles produced by these valuable adult returns will be found during the summer of 2017 at the work site. Again, fish removal and fish exclusion must be defined and coordinated at all work locations. The Hoh Tribe is willing to help with these efforts.	See response to Comment 12c relative to fish exclusion.
12aa	Tribe	Hoh Tribe	Thank you for considering our comments. We have included maps with additional comments and data supporting our assertions regarding spawning fish for your consideration. We look forward to working with you to achieve success managing this difficult situation we all must face.	Comment acknowledged. See Responses to Comment 12a through 12aa.

Comment Number	Category	Commentor	Comment	Response
13a	Agency	North Pacific Coast Lead Entity for Salmon Recovery	Boat access sites on the Upper Hoh Road at MP 4 and MP 9.5 (above Willoughby Creek, and Spruce Creek) have been eliminated by river migration. These had been important access points for treaty fishermen, state recreational fishers, and other users including rafting guides and restoration project sponsors.	As the Hoh River changes in shape and direction, and its flow adjusts seasonally, new natural locations for launching small water craft or accessing the river may develop. Morgan's Crossing Boating Site, on USFS land and co-managed by USFS and WDFW, is located approximately 2,200 feet downstream of Site C3 at Canyon Creek and is used for launching both motorized and non-motorized watercraft for fishing and recreating. Although the project does not propose any modifications to the bar that represents Morgan's Crossing, the addition of the ELJ/dolosse units upstream may result in slight modifications to the sand bar. It is expected that Morgan's Crossing would remain in use as a boat launch location. WFLHD will evaluate locations within project boundaries for potential boat launches to be created concurrent with project construction. Section 4.3 of the Final EA, Recreation, contains updated information.
13b	Agency	North Pacific Coast Lead Entity for Salmon Recovery	Construction and its impacts need to be mindful of private, federal, state, local, and tribal interest and potential direct or indirect impact to same. All affected parties must be given notice at each opportunity.	WFLHD will send notice of construction activities to all parties on the mailing list by mail or email, or both.
13c	Agency	North Pacific Coast Lead Entity for Salmon Recovery	Please collaborate with state or tribal governments to create a map of critical salmon spawning areas to assure their protection during construction, or if impact is unavoidable, harmed as little as possible. Remediation may be necessary.	Based on recent data from WDFW and the Hoh Tribe, as shown in Figures CR-4a and CR-4b in the Final EA, steelhead spawning locations were identified near Site C1 in 2015, and near Site C2 in certain locations during the period 2014-2016. The Hoh Tribe also provided Figure CR-5 in the Final EA, showing general areas (polygons) where Chinook spawning is known to occur. This information is considered the best available data on distribution of spawning salmon in the project area. See Response to Comment 12c relative to flow deflection and fish exclusion. Section 4.6 of the Final EA, Appendix C of the FONSI, includes Figures CR-4a and CR-4b, and Figure CR-5.
13d	Agency	North Pacific Coast Lead Entity for Salmon Recovery	Contact the state and tribal fisheries managers in order to adjust timing of in-river work to correspond to the protection of fish, especially migration and spawning.	WFLHD proposes a 45-day IWWW for the two construction seasons of July 15 through August 31. This proposed IWWW is 15 days longer than the typical agency-prescribed IWWW. WFLHD will coordinate closely with the Hoh Tribe and regulatory agencies to ensure that project construction minimizes impacts to critical in-water spawning and rearing periods.
13e	Agency	North Pacific Coast Lead Entity for Salmon Recovery	Increase roughening along riprap reaches between RM 7.5 and 7.7, with, for example, dolosse, wood, or other construction methods.	Comment acknowledged. WFLHD has conducted an analysis of potential mitigation opportunities for this project, and has shared those results with the Hoh Tribe and other agencies. WFLHD has chosen two mitigation projects, as discussed in Chapter 9 of the FONSI.
13f	Agency	North Pacific Coast Lead Entity for Salmon Recovery	After work is completed, monitoring should be continued for a minimum of five years. It will be necessary to evaluate the return to background conditions for water and gravel quality. Please provide me with all links for updates on the progress of this project so these links can be shared with other NPCLE members.	Project progress updates and information will be updated on WFLHD's website: https://flh.fhwa.dot.gov/projects/wa/upper-hoh/. Construction information may be emailed or mailed to those on the mailing list. Project monitoring will be implemented as required by project permits, and is currently anticipated to include vegetation restoration monitoring, water quality monitoring, and monitoring of the structural integrity of the ELJs.
14a	Agency	Washington State Department of Fish and Wildlife (WDFW)	We intended to provide chinook and steelhead spawner information to illustrate the proximity of spawning activity relative to the project sites but we were unable to acquire the information prior to this letter. We are willing to provide this information at a later date if you wish to have it. We discussed the EA with Hoh Tribal fish management staff since they are co-managers on the Hoh River. It is our understanding that they will be commenting to the EA and will be providing additional biological data, including spawning location information relative to the project sites.	Spawning data was provided to the applicant and is included as Figures CR-4a and CR-4b, and CR-5 in the Final EA (Appendix C of the FONSI).

Response to Comments on Upper Hoh River Road Bank Stabilization Project Environmental Assessment
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Comment Number	Category	Commentor	Comment	Response
14b	Agency	Washington State Department of Fish and Wildlife	Specific project site comments: C2/MP 4.38 Culvert Replacement: WDFW supports this culvert replacement. The habitat gain would be 2,146 linear meters for sea run cutthroat trout, resident cutthroat trout and steelhead (WDFW online fish passage barrier database). We are concerned a culvert may not function properly with changing river elevations over time since it is immediately adjacent to the river.	Comment acknowledged. After MP 4.38 culvert construction, monitoring and inspection for debris blockages during high flows would continue to prevent flooding onto the surrounding area and road and to maintain fish passage. The opening of the new culvert will be approximately 9 times as large as the existing culvert, which will allow greater functionality with changing river elevations. In addition, ELJ/dolosse units at Site C2 will be placed on each side of the new culvert opening, which will slow flow near the culvert and could decrease fluctuation in river elevation.
14c	Agency	Washington State Department of Fish and Wildlife	C3 Tower Creek Bridge: WDFW recognizes the need and supports the bridge replacement concept. WDFW does not support the design proposal of riprap in the stream channel, buried under streambed material as it disrupts natural stream processes.	The riprap toe has been eliminated; the riprap will only be placed on the stream bank, beginning at the channel bottom edge.
14d	Agency	Washington State Department of Fish and Wildlife	C5 Canyon Creek Bridge: During earlier discussions, it was our understanding the final proposed projects were specifically identified to maintain the Upper Hoh River Road. Upon review of the EA, we learned the Canyon Creek project was included as mitigation for other proposed project impacts. We agree the Canyon Creek fish barrier correction is a good project. Replacing the Canyon Creek barrier will open up access to 1,491 linear meters of habitat that may be utilized by sea run cutthroat, resident cutthroat and steelhead (WDFW online fish passage barrier database). Fish passage staff documented an impassable waterfall at 1,491 meters above the Upper Hoh River Road. While certainly commendable, barrier correction at Canyon Creek does not mitigate impacts to adult spring/summer chinook and steelhead that will be present during the instream bank protection work. In particular, the barrier correction does not mitigate the loss of approximately 50,000 square feet of Hoh Riverbed or the loss of approximately 3,200 linear feet of riparian area. It also does not mitigate construction impacts such as disturbance from pile driving or placement of wood and dolosse structures. Appendix C from the Army Corps of Engineers (ACOE) meeting on July 18, 2015 indicated that for Canyon Creek to be considered mitigation, it would have to serve the same fish and habitats impacted by the project. Since the habitat upstream of the road crossing on Canyon Creek would not be utilized by chinook and provides limited use for winter steelhead, this would not be considered mitigation by WDFW, or ACOE based on the meeting notes.	Comment acknowledged. WFLHD has conducted an analysis of potential mitigation opportunities for this project, as discussed in Chapter 9 of the FONSI.
14e	Agency	Washington State Department of Fish and Wildlife	Recommendations: The WDFW offers the following recommendations to minimize and/or mitigate impacts to fish and fish habitat from construction of the proposed projects. 1. The combined use of dolosse and wood structures is a relatively new technique to reducing river bank erosion. We recommend Federal Highways provide funding for long term monitoring and maintenance of the project sites. Climate change and the receding Hoh glacier are contributing to changes in river flow and sediment transport. This should be considered when developing a monitoring and maintenance plan. We also recommend this monitoring and maintenance plan be developed jointly with WDFW, Hoh Tribe and other interested stakeholders. It is imperative that maintenance of the structures be done in an expeditious manner; therefore, Federal Highways should identify funding and responsible parties.	Comment acknowledged. The Section 404 Corps permit and the WDFW Hydraulic Project Approval may contain requirements for future monitoring. WFLHD or Jefferson County monitor the project as required by permits.
14f	Agency	Washington State Department of Fish and Wildlife	2. We are concerned the culvert installation at Site C4 will not function over time as the river moves and bed elevation fluctuates. To improve the likelihood of success for long term fish passage, we recommend a bridge be installed at this location. A bridge is much less likely to require long term maintenance as the river continues to move around and the bed elevation changes.	The Tower Creek bridge is located just west of Site C4 west, and will be replaced with a new bridge. If the commentor is referring to the culvert replacement at MP 4.38, a large 16-foot diameter box culvert is proposed, which will provide ample room for bed elevation changes over time.

Comment Number	Category	Commentor	Comment	Response
14g	Agency	Washington State Department of Fish and Wildlife	3. We may have missed it in the report, but we did not see any mention of fish exclusion for instream work. We recommend adding a plan to exclude fish from the worksites during construction to minimize impacts to fish. Minimizing the impacts to fish also reduces the level of mitigation required for the project.	See Response to Comment 12c relative to fish exclusion.
14h	Agency	Washington State Department of Fish and Wildlife	4. We encourage you to work with WDFW, Hoh Tribe and stakeholders to develop a mitigation plan that appropriately mitigates project impacts to fish and fish habitat. The meeting notes from the US Army Corps of Engineers in Appendix C of the EA, also contain ideas to mitigate project impacts and provide long term benefits for fish. Below are a couple of additional examples of alternative mitigation we believe could provide greater long term benefit to fish.	Comment acknowledged. WFLHD has conducted an analysis of potential mitigation opportunities for this project, as discussed in Chapter 9 of the FONSI.
14i	Agency	Washington State Department of Fish and Wildlife	a. Fund research to evaluate and increase or improve existing off channel habitat. b. Fund research to evaluate and implement alternatives to armoring the river which contributes to loss of habitat. c. Floodplain land acquisitions that protect habitat.	Comment acknowledged. WFLHD has conducted an analysis of potential mitigation opportunities for this project, as discussed in Chapter 9 of the FONSI.
14j	Agency	Washington State Department of Fish and Wildlife	Summary: The WDFW appreciates the opportunity to provide technical assistance early in the design process which will facilitate quicker processing of the Hydraulic Project Application when the project enters the permitting stage. We have been a participant in earlier meetings to discuss options that would be proactive and maintain public access to the upper river. We strongly encourage you to re-examine the earlier alternative of relocating the road away from the river where appropriate. The Hoh River is a very dynamic river and all indications are that the riverbed is aggrading. As bed material continues to aggrade in the river, the road will be under constant threat of erosion necessitating future bank stabilization projects to protect the road. We would also point out that one of the limiting factors for the Hoh River is the loss of large wood which provides stream complexity and fish habitat. As long as the road exists in the riparian area of the river, it is unlikely trees will grow to substantial size and ultimately provide the needed wood. Without a healthy riparian area, the lack of large wood will continue to be a limiting factor. Any tree that falls across the road obviously needs to be removed to provide road access and these trees are cut into smaller pieces to facilitate removal. Another strong point is that the Treaty Tribes of Washington produced a document titled “Treaty Rights at Risk”, and a document titled “State of Our Watersheds”. Both documents share tribal concerns about their ability to continue harvesting fish if we do not do a better job of protecting fish habitat. We have listed quotes below to illustrate their concerns; the first one speaks specifically to the Hoh River.	Road relocation was considered as an alternative, but dismissed from consideration because road relocation will not meet the purpose and need for the project: to provide safe and reliable access using the UHRR to the ONP and private residences, using the funds available. The ELJ/dolosse units will encourage establishment of vegetation on the streambank by reducing bank scour, and they will improve long-term woody debris recruitment of material already in the river by forming a rough surface near the thalweg that will catch and retain debris.
14k	Agency	Washington State Department of Fish and Wildlife	“There is a misconception that the Hoh watershed is relatively pristine and its fish stocks are healthy, but the system has been heavily impacted by timber harvests, road construction, infrastructure protection and other anthropogenic influences.” (2016 State of Our Watersheds Report Hoh River Basin, page 2)	Comment acknowledged. The Hoh River has been influenced by both human activity and natural activity, and environmental resources, such as fish and habitat, have in turn been affected. This project will serve to protect the road in order to maintain access and reliability, while minimizing to the extent practicable adverse effects to environmental resources.

Comment Number	Category	Commentor	Comment	Response
14l	Agency	Washington State Department of Fish and Wildlife	"For more than two decades, harvest rates in all fisheries have been sharply reduced to compensate for the precipitous decline of salmon abundance in Washington state waters, but today harvest cuts can no longer compensate for losses in salmon spawning and rearing habitat." (2016 State of Our Watersheds Report Hoh River Basin, page 14) "We know that we cannot stop the massive population growth anticipated in this region over the coming decades, but we can ensure that the associated development is designed and implemented in ways that will better protect salmon and its habitat." (Treaty Rights At Risk Ongoing Habitat Loss, the Decline of the Salmon Resource, and Recommendations for Change - July 14, 2011, page 7)	Comment acknowledged. This project will serve to protect the road in order to maintain access and reliability, while minimizing to the extent practicable adverse effects to environmental resources.
14m	Agency	Washington State Department of Fish and Wildlife	These few quotes illustrate the concerns of the Hoh Tribe and the Treaty Tribes of Washington. There are many other published documents produced by the restoration community and local stakeholders that voice similar concerns. Healthy and harvestable fish populations are an important social and economic driver in small communities like Forks, Washington.	Comment acknowledged. See Reponses to Comment 14k and 14l.
14n	Agency	Washington State Department of Fish and Wildlife	For future projects, we encourage the USDOT to re-engage WDFW, Hoh Tribe, the local community and the many other stakeholders in new discussions to find solutions that provide long term protection of the river and maintain public access.	In the future, WFLHD may consider partnering with agencies, owners, managers, and other interested parties to study long-term protection of the Hoh River and the resources it provides, while maintaining access along the corridor north of the river. Funding sources and public involvement would likely be at the forefront of issues to be addressed for a long-term solution.
15a	Agency	Federal Emergency Management Administration (FEMA)	FEMA is currently reviewing several completed projects that Jefferson County has requested funding for on the Hoh River downstream of your project. It involved extensive riprap. I wanted you to be aware of this work for your evaluation of the baseline river conditions, particularly as it pertains to cumulative effects, with your proposed project.	Comment acknowledged. Chapter 4.0 of the Final EA addresses cumulative impacts for each environmental resource.
15b	Agency	Federal Emergency Management Administration	Additionally, your draft EA stated that FEMA was involved in the scoping and interagency meeting last summer. Can you provide me with the name of the individual(s) that participated? I need to improve our internal coordination for these types of FHWA sponsored DOT activities to help ensure FEMA has the right participant(s) supporting DOT.	Several agencies have been involved in the project by receiving the scoping and meeting notices, attending project meetings, commenting on the project, or participating in project consultation. FEMA has received scoping and meeting notices and has commented on the project. FEMA representatives were not present at the scoping meeting or other public meetings held for the project. Section 1.4 of the Final EA contains details on agency involvement.
15c	Agency	Federal Emergency Management Administration	Thank you and please add me as the FEMA Region 10 Point of Contact for any future NEPA related requests for comment or participation from your office.	Comment acknowledged. Mark Eberlein has been added to the project mailing list as FEMA Region 10 point of contact.

Acronyms and Abbreviations

BA	Biological Assessment
BO	Biological Opinion
CWA	Clean Water Act
EA	Environmental Assessment
ELJ(s)	engineered log jam(s)
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
HRT	The Hoh River Trust
IWWW	in-water work window
JARPA	Joint Aquatic Resource Permit Application
LWD	large woody debris
NMFS	National Marine Fisheries Service
ONP	Olympic National Park
OHWM	Ordinary high water mark
TNC	The Nature Conservancy
UHRR	Upper Hoh River Road
Corps	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WFLHD	Western Federal Lands Highway Division

FONSI Appendix C

Final Environmental Assessment

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FONSI Appendix D

Hydraulic Report

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FONSI Appendix E

Design Plan Set (70%)

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FONSI Appendix F

Biological Opinion

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