FINAL ENVIRONMENTAL ASSESSMENT

AMENDING LICENSE TO MODIFY RIGHT EMBANKMENT OF THE PRIEST RAPIDS DAM

Priest Rapids Hydroelectric Project—FERC Project No. 2114-303
Washington

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Administration and Compliance
888 First Street, NE
Washington, DC 20426

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LIST OF ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
APE	Area of Potential Effects
AQI	air quality index
Army	U.S. Department of the Army
BMP	best management practice
BOC	Board of Consultants
BPA	Bonneville Power Administration
CFR	Code of Federal Regulations
Commission	Federal Energy Regulatory Commission
D2SI	Division of Dam Safety and Inspections
dB	decibels
dBA	A-weighted decibels
DOE	U.S. Department of Energy
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FWS	U.S. Fish and Wildlife Service
Grant PUD	Public Utility District No. 2 of Grant County, Washington
HPMP	Historic Properties Management Plan
HPA	Hydraulic Project Approval
IPAC	Information for Planning and Consultation
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NWA	Northwest Anthropology, LLC
PM2.5	particulate matter less than 2.5 micrometers in diameter;
PM10	particulate matter less than 10 micrometers in diameter;
Project	Priest Rapids Hydroelectric Project No. 2114
PRREIP	Priest Rapids Right Embankment Improvement Project
Reclamation	U.S. Bureau of Reclamation
RCC	roller-compacted concrete
RM	river mile
Washington SHPO	Washington State Historic Preservation Office
SPCCP	Spill Prevention, Control, and Countermeasure Plan
SR	State Route
TESCP	Temporary Erosion and Sedimentation Control Plan
UCR	Upper Columbia River
Wanapum	Priest Rapids Band of the Wanapum

Washington DFW	Washington Department of Fish and Wildlife
Washington Ecology	Washington State Department of Ecology
WIV	Wanapum Indian Village
WSDOT	Washington State Department of Transportation
Yakama Nation	Confederated Tribes and Bands of the Yakama Nation
YTC	Yakima Training Center

FINAL ENVIRONMENTAL ASSESSMENT
Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Administration and Compliance
Washington, DC

Priest Rapids Hydroelectric Project
FERC No. 2114-303

A. Application Type: Non-Capacity Amendment

B. Date Filed: May 17, 2019, supplemented on June 5, 2019 and June 26, 2020

C. Applicant's Name: Public Utility District No. 2 of Grant County, Washington

D. Waterbody: Mid-Columbia River

E. County and State: Grant, Yakima, Kittitas, Douglas, Benton, and Chelan Counties, Washington

F. Federal Lands: The project occupies lands managed by U.S. Bureau of Reclamation (Reclamation), U.S. Bureau of Land Management (BLM), U.S. Department of Army (Army), U.S. Fish and Wildlife Service (FWS), and U.S. Department of Energy (DOE).

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Federal Energy Regulatory Commission (Commission or FERC) issued a license for the Priest Rapids Project (FERC No. 2114) to the Public Utility District No. 2 of Grant County (Grant PUD or licensee) on April 17, 2008.[1] The project is located on the mid-Columbia River in Grant, Yakima, Kittitas, Douglas, Benton, and Chelan Counties, Washington. The project includes two hydroelectric developments, Wanapum and Priest Rapids. This final Environmental Assessment (EA) focuses on the license amendment for the Priest Rapids development.

The Priest Rapids development consists of a 7,725-acre reservoir and a 10,103-foot-long dam spanning the river. The Priest Rapids dam is located on the Columbia River, at river mile (RM) 397, near the community of Mattawa, Washington. The dam consists of left and right embankment sections; left and right concrete gravity dam

[1] *Public Utility District No. 2 of Grant County, Washington*, 123 FERC ¶ 61,049 (2008).

sections; a left and right fish passage structure each with an upstream fish ladder; a gated spillway section; and a powerhouse containing 10 vertical shaft integrated Kaplan turbine/generator units with a total authorized capacity of 675 megawatts. The development also includes a fish hatchery; the Priest Rapids Band of the Wanapum (the Wanapum) Indian Village (WIV); and three 230-kilovolt, 6-mile-long transmission line.

The Priest Rapids boundary around the Priest Rapids dam, as described in the Commission's license, includes the Priest Rapids reservoir, the tailrace of the Priest Rapids dam, and lands along the shoreline between 100 and 2,000 feet from the full pool elevation of Priest Rapids reservoir and extending approximately one mile downstream of the dam. Parcels within the project boundary in the vicinity of the Priest Rapids dam include federal lands under the jurisdiction of the DOE, Army, and private lands owned by Simon Martinez Livestock, Inc.

The Priest Rapids project boundary also includes the WIV immediately adjacent to the existing right embankment. The Wanapum are descendants of the people who lived up and down the Columbia River from Wenatchee to the Tri-Cities. Following construction of the Priest Rapids dam, their village was relocated to a site on the right bank at the base of the dam, where it exists to date.

1.2 AMENDMENT REQUEST AND NEED FOR ACTION

A. Amendment Request

On May 17, 2019, and supplemented on June 5, 2019 and June 26, 2020, Grant PUD, filed a request to amend its license to construct a separate embankment immediately downstream of the existing dam, and structurally connected to the existing embankment to improve seismic stability. Grant PUD proposes to: construct a roller-compacted concrete dam, approximately 2,200-foot-long and 25-foot-high; construct a secant pile cutoff wall and a 150-foot-long and 25-foot-high embankment; and realign section of an existing private roadway. The existing embankment would remain in place. In addition, Grant PUD proposes to conduct the following actions: clearing and grubbing of vegetation; establishing a temporary concrete batch plant and construction staging areas; excavating aggregate source material from an existing quarry known as the Cow Creek Quarry; and installing one permanent groundwater well and one temporary surface water pump for construction water use. The existing embankment would remain in place. The work would occur at the right embankment of the existing dam but would not affect normal dam operations (including operation of the turbines, spillway, powerhouse, or fish ladders), and reservoir levels and flows would remain within normal ranges throughout the construction period. Grant PUD would also utilize best management practices (BMP), and proposes to implement the following plans as mitigation measures for the proposed amendment application: (1) Temporary Erosion and Sedimentation Control

Plan (TESCP); (2) Spill Prevention, Control, and Countermeasure Plan; (3) Dust Control Plan; and (4) Traffic Control Plan.

B. Need for Action

In 2007, Grant PUD, the Public Utility District No. 1 of Chelan County, Washington, and the Public Utility District No. 1 of Douglas County, Washington, in coordination with the Commission, jointly conducted a Probabilistic Seismic Hazard Assessment, to evaluate the ground-shaking hazards that could affect the dams owned and operated by these three public utility districts in response to the updated Federal Guidelines for Dam Safety by the Federal Emergency Management Agency. Five high-priority hazards were identified in the hazard assessment, including the right embankment of the Priest Rapids dam.

On May 5, 2015, the Commission directed Grant PUD to convene an independent Board of Consultants (BOC) to assess the seismic performance and post-seismic stability of the right embankment of the Priest Rapids dam. Grant PUD initiated a seismic risk analysis and found that while the existing right embankment of the Priest Rapids dam met stability guidelines for normal and flood loading conditions, soils beneath the foundation of the embankment were potentially liquefiable in seismic conditions. Liquefaction of the foundation soils can be triggered by a significant earthquake in the vicinity of the Priest Rapids dam and could result in damage to or failure of the embankment. Consequences of an embankment failure could include significant downstream damage.

In July 2017 and as part of the Commission-required seismic risk analysis process, Grant PUD submitted preliminary design documents for the Priest Rapids Right Embankment Improvement Project (PRREIP) and began the environmental permit preparation and agency coordination. The final design and contract documents for the PRREIP were submitted to the Commission's Division of Dam Safety and Inspections – Portland Regional Office (D2SI-PRO) and the BOC on November 15, 2018.

In accordance with the National Environmental Policy Act (NEPA) of 1969 and the Commission's regulations (18 CFR Part 380), this draft EA assesses the effects associated with the proposed amendment of the project's license, and whether or not to approve the amendment, and if so, recommend terms and conditions to become part of any amendment order issued. In this final EA, we assess the environmental effects of the Proposed Action and the No-Action Alternative

1.3 PRE-FILING CONSULTATION AND PUBLIC NOTICE

As required by Commission's regulations, the license amendment application for the PRREIP was prepared using a three-stage consultation process with the appropriate resource agencies and other stakeholders. Details of the proposed action, including the

opportunity to review and comment on an applicant-prepared draft EA (APEA) were provided to the Priest Rapids Coordination Committee (PRCC).[2] Supplemental versions of the draft APEA was provided to the PRCC. The PRCC was established as required by the project's license to oversee the activities associated with anadromous fish for the project. Grant PUD also provided the draft APEA and supplementals to the owners and users of the upstream and downstream access routes, including: DOE, Simon Martinez Livestock, Inc., Bonneville Power Administration (BPA), Pacific Power, U.S. Army, and telecommunication companies. Comments on the APEA and the proposal to amend the project's license were received from DOE, Army, Washington DFW, Wanapum, and the Yakama Nation.

On June 6, 2019, the Commission issued a public notice of the application for the proposed amendment. This notice set a 30-day period during which interventions, comments, and protests could be filed, ending on July 8, 2019. On June 27, 2019, Reclamation – Pacific Northwest Region said it had no comments. The Washington DFW filed a notice of intervention on June 21, 2019 and the Wanapum filed a motion to intervene on July 8, 2019.

On September 24, 2020, Commission staff issued a draft EA for the proposed amendment, evaluating the potential effects of the proposal and identifying the potential environmental measures to mitigate or reduce potential impacts. Comments on the draft EA were filed by FWS on October 22, 2020; DOE, Richland Operations Office on October 23, 2020; NMFS on October 28, 2020; the U.S. Environmental Protection Agency (EPA) on October 30, 2020; and Grant PUD on November 9 and 20, 2020. In our analysis sections of this final EA and the attached Appendix A, we summarize and address the comments received. This final EA satisfies the Commission's responsibilities under the National Environmental Policy Act (NEPA).[3] As discussed below, the no-action alternative is not a viable alternative given that the no-action alternative does not meet current Commission dam safety requirements, and the on-going hazard to public safety and property would remain unabated.

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[2] The PRCC compromises of representatives from: National Marine Fisheries Service (NMFS), FWS, Washington Department of Fish and Wildlife (Washington DFW), Colville Confederated Tribes, Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), Confederated Tribes of the Umatilla Indian Reservation, and the Wanapum.

[3] On July 16, 2020, the Council on Environmental Quality issued a final rule, *Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act* (Final Rule, 85 Fed. Reg. 43,304), which was effective as of September 14, 2020; however, the NEPA review of this project was in process at that time and prepared pursuant to the 1978 regulations.

In its October 30, 2020 filing, the EPA supports the overall purpose of the proposed project to improve the Priest Rapids dam stability by addressing its seismic risks. The EPA finds that most of the potential impacts, both temporary and permanent, from the proposed project would be from project construction and maintenance activities. While mitigation measures and best management practices could be applied to minimize the impacts, the EPA recommends that the Commission coordinate with other federal, state, and tribal entities throughout the implementation of the project to ensure activities. As discussed below, our analysis sections and the attached Appendix A summarized and addressed the comments received.

1.4. STATUTORY AND REGULATORY REQUIREMENTS

1.4.1 Section 18 Fishway Prescription

Section 18 of the Federal Power Act provides for the Commission to require the construction maintenance and operation by a licensee of such fishways as may be prescribed by the Secretary of the U.S. Department of Interior or the Secretary of Commerce, as appropriate. No fishway prescriptions were filed by Interior or Commerce for this amendment application.

1.4.2 Endangered Species Act

Section 7(a)(2) of the Endangered Species Act (ESA) [4] requires the Commission to ensure that is actions are not likely to jeopardize the continued existence of federally listed threatened or endangered species or result in the destruction or adverse modification of critical habitat of those species.

The potential impact to threatened and endangered species, or their habitat, that may occur within the vicinity of the project area are described and discussed further in Section 3.8. These species include: Upper Columbia River (UCR) spring-run Chinook salmon, UCR steelhead, bull trout, Ute ladies' tresses (*Spiranthes diluvialis*), Umtanum desert buckwheat, northern wormwood (*Artemisia campestris var. wormskioldii*), Northern wormwood, the Columbia Basin pygmy rabbit, gray wolf, North American Wolverine, and the yellow-billed cuckoo. Commission staff determined that the proposed action would have no effect on the North American wolverine, Columbia basin pygmy rabbit, gray wolf, yellow-billed cuckoo, Umtanum desert buckwheat, Ute ladies' tresses, and northern wormwood. In it December 1, 2020 response, the FWS also concurred with our no effect determination of other terrestrial species.

[4] 16 U.S.C. § 1536(a) (2018).

The proposed action is located within critical habitat for the UCR spring-run chinook salmon, UCR steelhead, and bull trout. However, the Commission staff has determined that the proposed action may affect, but is unlikely to adversely affect, UCR spring-run Chinook salmon, UCR steelhead, and bull trout. The FWS also agreed that implementation of the proposed action would result in insignificant or discountable effects to bull trout and its designated critical habitat. NMFS concurred with Commission staff determination that the proposed action may affect but is unlikely to adversely affect UCR spring-run salmon, UCR steelhead, or designated critical habitat for these species.

1.4.3 Magnuson-Stevens Fishery Conservation and Management Act

Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act[5] requires federal agencies to consult NMFS on all actions that may adversely affect Essential Fish Habitat[6] identified under the Act. In its October 28, 2020 filing, NMFS determined that the proposed action would not adversely affect Essential Fish Habitat and that consultation under this Act was not required.

1.4.4 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA)[7] and its implementing regulations[8] requires that federal agencies "take into account" the effect of any proposed undertaking could affect historic properties and afford the Advisory Council on Historic Preservation (Advisory Council) a reasonable opportunity to comment on the undertaking.[9] Historic properties are districts, sites, buildings, structures, traditional cultural properties, and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the National

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[5] 16 U.S.C. 1801 (2018).

[6] 50 C.F.R. § 600 (2020).

[7] 54 U.S.C. §§ 306108 et seq. (2018). The National Historic Preservation Act was recodified in Title 54 in December 2014.

[8] 36 C.F.R. 800.5(a)(2)(vii).

[9] An undertaking means "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval." 36 C.F.R. § 800.16(y). Here, the undertaking is the proposed amendment to the Priest Rapids Project license.

Register of Historic Places (National Register). In this document, we also use the term "cultural resources" for properties that have not been evaluated for eligibility for the National Register. Cultural resources represent things, structures, places, or archaeological sites that can be either prehistoric or historic in origin. In most cases, cultural resources less than 50 years old are not considered historic. Section 106 also requires that the Commission seek concurrence with the state historic preservation office (SHPO) on any finding involving effects or no effects on historic properties, and consult with interested Indian tribes or Native Hawaiian organizations that attach religious or cultural significance to historic properties that may be affected by an undertaking.

On April 12, 2007, the Commission, Washington SHPO, and Advisory Council executed a Programmatic Agreement (PA) for the project and the PA was implemented in Article 416 of the project's license. The PA required Grant PUD to file for Commission approval a final Historic Properties Management Plan (HPMP). Article 417 of the project's license requires Grant PUD to address in the final HPMP: the identification of cultural resources within the project's area of potential effect (APE); possible threats to cultural resources; mitigation for unavoidable adverse effects; consultation with Washington SHPO; unanticipated discoveries of human remains; public interpretation; traditional cultural properties treatment plans; and coordination and implementation of the HPMP with interested parties. On October 24, 2011, the Commission approved the project's HPMP.

To meet the requirements of section 106, Grant PUD consulted with the Washington SHPO on the assessment of potential adverse effects on historic properties within the project's APE. As the Commission's designated non-federal representative, Grant PUD initiated the section 106 process and between federally recognized Tribes, Washington SHPO, federal agencies, and the Grant PUD Cultural Resources Working Group.[10] A Memorandum of Agreement (MOA) between the Washington SHPO and the Commission was created to address and mitigate for adverse effects to identified cultural resources. The terms of the MOA would ensure that the licensee addresses and mitigates adverse effects. Commission staff recommend incorporating any executed MOA into any amendment order for the project.

Cultural resource protection is discussed further in Section 3.11, *Cultural Resources.*

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[10] The Cultural Resources Working Group consists of DOE, Richland Operations; Reclamation; BLM; FWS; the Commission; Army; Washington State Parks and Recreation Commission; Washington SHPO; Washington DFW; Washington DNR; Confederated Tribes of the Colville Reservation; the Yakama Nation; and the Wanapum.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, Grant PUD would not implement modifications to the existing right embankment of the Priest Rapids dam and would continue to operate the project in its current state. Although the no-action alternative would avoid immediate effects to the environment, it would not address the high-priority seismic hazard identified in the 2007 Probabilistic Seismic Hazard Assessment. The no-action alternative does not meet current Commission dam safety requirements, and the on-going hazard to public safety and property would remain unabated. We use this alternative as the baseline environmental condition for comparison with the proposed alternative and staff-recommended alternative.

2.2 PROPOSED ACTION

Grant PUD proposed the PRREIP including construction of a new, permanent structure landward of the right embankment of Priest Rapids dam to improve seismic stability. This work would occur at the right embankment of the existing dam but would not affect normal dam operations (including turbines, spillway, powerhouse, or fish ladders), and reservoir levels and flows would remain within normal ranges throughout the project. The PRREIP includes: (1) constructing a 2,200-foot-long and 25-foot-high roller-compacted concrete (RCC) dam wall; (2) constructing a secant pile cutoff wall along with a 150-foot-long and 25-foot-high connecting embankment; (3) realigning a 0.5-mile section of existing private roadway; (4) vegetation clearing and grubbing; (5) establishing a temporary concrete batch plant and construction staging areas (approximately 5 acres); (6) excavating of aggregate source material from an existing quarry known as the Cow Creek quarry (approximately 82,000 cubic yards); and (7) installing a permanent groundwater well and a temporary surface water pump for construction water-use. Grant PUD would also utilize described BMPs along with implementation of the following plans as mitigation measures for the proposed amendment application: (1) Temporary Erosion and Sedimentation Control Plan; (2) Spill Prevention, Control, and Countermeasure Plan (SPCCP); (3) Dust Control Plan; and (4) Traffic Control Plan.

Grant PUD expects to start construction as soon as practicable upon receipt of federal, state, and local permitting and approvals. Work is anticipated to be completed within 18 to 24 months, including construction, cleanup, and restoration.

The Proposed Action would occur across multiple parcels, the extent of which is described as the Project Area. The Project Area includes the central construction zone at the right bank landing for the RCC dam and secant pile cutoff wall; access routes on the localized access road upstream to the quarry and downstream to the highway; a potential

barge route from the right bank landing to the left bank landing; the existing access road across Priest Rapids dam; a water intake point at the existing boat basin adjacent to the right bank landing; and the footprint of Cow Creek quarry. This combined footprint encompasses approximately 130 acres, but the consideration of environmental effects includes a buffer of approximately 0.75 miles around this Project Area to account for noise effects.

2.2.1 Roller-Compacted Concrete Dam and Secant Pile Cutoff Wall

Construction of the new embankment involves soil excavation, concrete construction, and secant-pile construction. Soil removal in the footprint of the RCC dam would occur by excavators or large machinery to a depth of 20 to 30 feet below existing grade so that the RCC dam can be built on a foundation of bedrock. Excavation also includes the removal of the westernmost embankment ramp to accommodate the footprint of the RCC dam. This ramp would not be reconstructed.

Ground-disturbing activities would be performed to ensure that they do not indirectly compromise the stability of surrounding soils, such as the existing embankment, ramps, and roads, or the side slopes of the excavation area. These effects would be mitigated by implementing erosion and sediment control measures consistent with the Washington State Department of Ecology's (Washington Ecology) *Stormwater Management Manual for Eastern Washington* (Ecology 2004).

The base of the RCC dam would be sealed to the bedrock foundation with grout to ensure a strong, watertight connection. Excavation and foundation work are estimated to take about 75 working days and batching and placement of concrete is expected to take approximately 20 to 25 working days. This work is expected to require up to 300 truck trips per day within the construction zone between the concrete batch plant, staging and stockpiling areas, and the footprint of the RCC dam and secant pile cutoff wall.

As the RCC dam is constructed to its design elevation, the excavated area would be backfilled with stockpiled soil to meet the existing grade level. Embankment construction is expected to take approximately 50 working days, and secant pile construction is anticipated to take 30 to 45 working days. Following installation of the RCC dam and the cutoff wall, the backfilled areas around the base of the RCC dam and embankment would be regraded as needed to meet existing grade.

Construction of the RCC dam would require the use of concrete mixers, truck-mounted conveyors, and concrete compactors. Hand tools, either powered or manually operated, may also be used in this phase. Construction of the earthen embankment and secant pile wall would require use of haul trucks, bulldozers, a tractor disk, pad foot and/or vibratory smooth-drum rollers, concrete pump trucks, and a track-mounted drill with flight auger.

2.2.2 Access Route Alterations

Existing access routes would be used to deliver and transport heavy machinery, materials, and project personnel. Due to access road limitations over Priest Rapids dam (e.g., limited road width and tight turning radius), existing primitive roadways must be improved in some areas to accommodate construction vehicles and material transport to the Project Area. These improved access routes include the downstream access route, which connects to the regional highway network, and the upstream access route, which connects to the Cow Creek quarry. Ownership of these access routes varies and includes the Army (Upstream route), and DOE and Simon Martinez Livestock, Inc. (downstream route). Grant PUD is working with owners to obtain appropriate easements for use of the access routes.

Vehicles using these routes would include dump trucks and/or semi-trailer trucks hauling large equipment and materials. Per day, there may be 5 to 75 truck trips per segment. The total number of truck trips on the access routes would be variable within the construction timeline, and at certain times use of one access route may be significantly higher than use of the other route—e.g., 5 trips on the downstream route and 70 on the upstream route, or vice versa. If Cow Creek quarry is not available as the aggregate source, crushed aggregate material would be purchased from a commercial source and the upstream access route would not be used.

A third access route may occur by barge across the Columbia River, if necessary. The barge route, if used, would occur at a previously used launch point. No shoreline alterations or other changes are anticipated to accommodate barge operations. The barge may be used to transport materials from the left bank to the right bank for a total distance of approximately 1.5 miles.

Secondary access to the Project Area would continue over the existing road that crosses Priest Rapids dam, which is currently used by WIV residents and Grant PUD personnel, accessible from State Route (SR) 243. The existing Priest Rapids dam route would be used for pickup trucks to transport personnel and tools during construction in addition to ongoing current uses associated with WIV access and Priest Rapids dam maintenance and operations.

Both upstream and downstream access routes would require regrading and placement of a surface layer of gravel to support the proposed construction traffic. Grading would not exceed 3 inches of depth, and gravel placement would not exceed 1-inch depth. Additional temporary gravel pads would be placed in up to five locations on the upstream access route to provide passing zones for construction vehicles, where the total width of road and passing zone would be less than 25 feet. These gravel passing zones would be removed following construction and revegetated with a native seed mix. No passing zones are proposed for the downstream access route. On both access routes,

soil and vegetation disturbance would be minimized with the use of construction BMPs and vegetation restoration after construction.

Equipment to perform access route preparation would include one or more bulldozers, haul trucks, front-loaders, graders, water trucks, and pad-foot and/or vibratory smooth-drum rollers. Use of all access routes would be managed consistent with the Traffic Control Plan, included in Appendix D of the amendment application.

In addition to access route alterations, a short segment of the downstream access route would need to be completely reconstructed adjacent to the WIV where the footprint of the RCC dam would interrupt its current path. Although this portion of the roadway is within the project boundary, it is privately owned and as such Grant PUD is currently in the process of purchasing, and issuing easements across, this segment of the roadway. This would assure that Grant PUD has control of the segment of the road immediately adjacent to the new RCC dam.

Realignment would include some additional grading to reconstruct the gravel road around the flank of the new RCC dam, up to 0.5 mile in length to meet existing grades. The road would be rebuilt with compacted gravel but would not be paved or otherwise improved. The reconstruction of this segment of the downstream access route would occur after all other RCC dam work is completed and is anticipated to take approximately 10 to 15 workdays.

2.2.3 Vegetation Clearing and Grubbing

Prior to construction, vegetation clearing, and grubbing are required to prepare certain portions of the Project Area. This would include temporary and permanent removal of non-native and native vegetation to accommodate project features, including the access routes, construction staging and concrete batch plant areas, Cow Creek quarry, the footprint of the RCC dam and secant pile cutoff-wall, and the restored segment of Martinez Road.

2.2.4 Construction Staging and Batch Plant Area

Fences, erosion control features, and other security measures would be installed around active construction areas and zones designated for staging and stockpiling. Final placement and configuration of the temporary concrete batch plant and staging areas would be determined by the contractor, but all construction staging, and batch plant areas would be situated within the central construction zone of the Project Area.

Construction staging areas would be developed within the central construction zone to accommodate a concrete batch plant, construction staging and stockpiling areas, equipment refueling, and contractor operational areas. The concrete batch plant would be

established to mix concrete materials needed to construct the RCC dam. The batch plant would include the plant, silos, aggregate stockpiles, mixing machinery, an office, a generator and designated batch plant working areas. The total footprint of the concrete batch plant is expected to be approximately 20,000 square feet.

2.2.5 Quarry Development

Crushed aggregate material for construction of the RCC dam and for surfacing of the access routes would be sourced from the Cow Creek quarry within the U.S. Army Yakima Training Center (YTC), approximately 7 miles upstream from the WIV. The Cow Creek quarry would be expanded from its existing condition and rock would be excavated or blasted from the quarry, crushed and sorted, and transported back to the Project Area by 35-ton dump trucks for staging, stockpiling, and road resurfacing. Blasting at Cow Creek quarry would not be conducted during nesting season between March 1 and June 30 to minimize effects to migratory birds.

Since the Cow Creek quarry is owned and operated by the Army, Grant PUD is currently working with the YTC staff to obtain a land use agreement for use of Cow Creek quarry. The land use agreement may further detail mitigation requirements to address potential unavoidable permanent impacts to native vegetation, rare plants, and Washington DFW priority habitats and species.

The PREIP would require the use of excavators, bulldozers, blasting, and rock-crushing equipment to retrieve approximately 82,000 cubic yards of aggregate material for use in the RCC dam. Use of the upstream access route and quarry development would require up to 75 truck trips. Excavated overburden material would be temporarily stockpiled within the limit of disturbance at Cow Creek quarry and would be redistributed evenly within the same limit of disturbance following all quarry excavation activities. If Cow Creek quarry is not available as the aggregate source, crushed aggregate material would be purchased from a commercial source and neither the upstream access route nor the quarry would be used.

2.2.6 Temporary Surface Water Pump and New Groundwater Well

Water use for the Proposed Action would include a temporary surface water pump and a new groundwater well. Pumped surface water would supply water trucks or a temporary sprinkler system to manage fugitive dust and other general construction uses. The groundwater well would supply water for concrete mixing within the concrete batch plant.

A temporary surface water intake pump would be placed in the existing boat basin adjacent to the right bank boat landing, to provide water for construction use. The small, land-based pump would be hooked to a pipe or similar housing to draw water from the

boat basin at a maximum rate of 450 gallons per minute (1 cubic foot per second), to be stored in water tanks for dust control and moisture-conditioning the fill materials. A temporary water right for the intake would be arranged prior to placement, with the assumption that water would need to be pumped for the duration of construction. No changes to reservoir operating levels or flows at Priest Rapids are required to construct the Proposed Action.

Groundwater would be supplied by a new well, to be installed, owned, and operated by Grant PUD for use in concrete mixing for the RCC dam. The well is anticipated to be 16 inches in diameter and would likely extend to a depth of approximately 130 feet. The design and construction of the new well would be done in accordance with Washington Ecology well construction standards and requirements, and as such the installation or use of this well would not affect water quality. This new well would not be connected to the existing water system (that supplies residential water to the WIV). Water would be available to the contractor under existing seasonal and municipal water rights that are subject to instantaneous withdrawal limits and timeframes, consistent with contracting documents. Use of groundwater would not be permitted to exceed the water right for that resource, such that its use would not affect water quantity.

2.2.7 Best Management Practice and Mitigation Measures

Grant PUD proposes to employ BMPs along with project-specific mitigation measures during the construction phase to reduce the overall effects to the environment. These mitigation measures are included, as part of the proposed amendment application, and would be subject to Commission review, as follows:

- Temporary Erosion and Sedimentation Control Plan (TESCP)
- Spill Prevention, Control, and Countermeasure Plan (SPCCP)
- Dust Control Plan, submitted for approval to Yakima Regional Clean Air Agency, emphasizing prevention and minimization
- Traffic Control Plan, to help manage safe usage of the upstream and downstream access routes and the existing Priest Rapids dam road
- Inadvertent Discovery Plan to identify proper protocols regarding previously unidentified cultural and historic resources, pursuant to Grant PUD's approved Historic Properties Management Plan (HPMP) (Grant PUD 2011).

Additional BMPs and mitigation measures are identified in subsequent sections organized by environmental resource area.

3.0 ENVIRONMENTAL ANALYSIS

In this section, we describe the environmental setting, and present our analysis of the environmental effects of the Proposed Action. Sections are organized by resource area (water resources, recreation, etc.). Under each resource area, we first describe the current conditions. The existing condition is the baseline against which the environmental effects of the Proposed Action are compared, including an assessment of the effects of proposed mitigation, protection, and enhancement measures, and any potential cumulative effects.

3.1. General Description of the River Basin

The Priest Rapids Hydroelectric Project is located on the mid-Columbia River and occupies federal land managed by Reclamation, Army, FWS, and DOE.

The Columbia River Basin is 1,210 miles long, of which 460 miles are in Canada and 740 miles are in the United States. It drains an area of 259,000 square miles, including a great part of Washington and Oregon, substantially all of Idaho, the western portion of Montana, and smaller areas in Wyoming and Utah.

Proceeding downstream from the Canadian-U.S. border, the first two dams on the Columbia River are Grand Coulee and Chief Joseph (at river miles [RM] 597 and 544, respectively), both of which are federally owned and operated. The next five developments are the mid-Columbia dams, all which are under Commission license: the Wells Project No. 2149 (at RM 516); the Rocky Reach Project No. 2145 (at RM 474); the Rock Island Project No. 943 (at RM 453); and the Priest Rapids Hydroelectric Project (at RM 415 and 397, respectively).

Downstream of the mid-Columbia dams, the Columbia River is joined by the Snake and Walla Walla rivers, and turns west toward the ocean. On this stretch of the river, which is called the main stem, there are four federal dams (upstream to downstream): McNary, John Day, The Dalles, and Bonneville.

Below the Priest Rapids Hydroelectric Project is the Hanford Reach, which is the largest unimpounded section of the mainstem Columbia River that remains accessible to salmon. The Vernita Bar is a gravel bar located downstream of Priest Rapids dam and is one of the primary spawning areas for fall Chinook salmon within the Hanford Reach.

3.2. Geographic Scope

The geographic scope of this final EA is focused on project lands and waters associated with the Proposed Action, including: the central construction zone at the right bank landing for the RCC dam and secant pile cutoff wall; access routes on the localized access road upstream to the quarry and downstream to the highway; a potential barge

route from the right bank landing to the left bank landing; the existing access road across Priest Rapids Dam; a water intake point at the existing boat basin adjacent to the right bank landing; and the footprint of Cow Creek quarry. This combined footprint encompasses approximately 130 acres and includes a buffer of approximately 0.75 miles around this Project Area to account for noise effects.

3.3. Geology and Soils

3.3.1 Affected Environment

Soils within the Project Area include a range of soil classifications dominated by gravelly, cobbly, sandy loams of alluvial or colluvial origin. Anthropogenically influenced soils in the Project Area include riprap and imported fill, both related to dam construction. Riprap ranges in size from gravel to boulders 3 to 4 feet in diameter and has been placed to protect the dam embankments. Fill soil is generally composed of excavated deposits of local soils, including alluvium or other flood deposit soils typical of this area (FERC 2006).

Within the footprint of the proposed RCC dam and secant pile cutoff wall, soils are primarily composed of Scooteney silt loam. This soil is classified as deep, well-drained, formed from alluvium, and which has soft crumbly texture characteristics and a neutral pH. Gravel content ranges from 20 percent to 55 percent between 18 to 60 inches deep. The foothills of Umtanum Ridge within the Project Area are composed of Kiona stony silt loam, with slopes up to 45 percent. This soil is classified as a deep, well-drained soil formed in colluvium from basalt and loess; it has a soft granular structure with approximately 20 percent to 35 percent gravel and cobbles in the top 20 inches (NRCS 2018). Soil borings performed near the existing embankment in 2007 and 2017 produced sand, silt, and gravel as deep as 19 to 30 feet, and basalt 25 to 100 feet deep (Ecology 2018a). The soils in this region are the result of catastrophic historical glacial flooding and are resistant to erosion due to their granular composition (Grant PUD 2003).

The potential for contaminants or elevated concentrations of potentially hazardous chemicals or metals in soils within the Project Area is low based on available data. Soils on site were tested in July 2018 and the results were analyzed for EPA Residential Regional Screening Levels. The analysis concluded that there are no detected concentrations that exceed the Regional Screening Levels for soil for the eight heavy metals monitored under the Resource Conservation and Recovery Act, which includes arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver (Fuji 2018).

3.3.2 Environmental Effects

Effects to soils in the Project Area would result from construction activities, as described in Section 2.1, including: excavation, grading, and fill activities, for access

routes; excavating the footprint of the RCC dam; and excavation of aggregate material from Cow Creek quarry. Direct soil disturbance would occur in multiple sites within the Project Area, with short- and long-term effects.

Over 120,000 square feet of soil, including 20 to 30-foot-deep excavations for concrete placement and drilling for secant pile installation, would be removed within the footprint of the RCC dam. Areas of direct soil removal within the footprint of the RCC dam would be backfilled with native soils following construction, thereby having a short-term effect to soils. Up to 4 acres of ground disturbance including soil removal (by excavation and/or blasting) would occur at Cow Creek quarry. Gravel and rock excavated from the Cow Creek quarry would not be replaced. However, since the quarry is specifically designated for excavation, it has enough capacity to support the planned level of rock and soil removal.

Grading and soil compaction would occur within the realigned segment of road adjacent to the RCC dam, affecting approximately 32,000 square feet of soil. This segment of road replaces a portion of existing road.

Grant PUD would perform minor regrading within upstream and downstream access routes to address washouts and significant potholes, followed by placement of gravel surfacing within the roadway where soils have been previously disturbed. Grading activities along upstream and downstream access routes would predominantly balance cut and fill., i.e. material removed from one area would be used to fill other areas, and there would be little net gain or loss. Gravel would also be placed at up to five passing zones totaling approximately 7,000 square feet. The establishment of these pullouts to accommodate safe truck passing along the upstream access route would be removed following construction and is considered a temporary effect to the soil.

Indirect effects to soils could result from construction activities in both the short and long term. Disturbed or stockpiled soils (including areas of grading and temporary vegetation removal) would be more susceptible to erosion or slope instability in heavy winds or rain. This may occur within the excavated footprint of the RCC dam and in all areas of soil stockpiling in the short term. Ground-disturbing activities, such as excavation and grading, would be performed to ensure that they do not indirectly compromise the stability of surrounding soils, such as the side slopes of the excavation area, or the existing embankment, ramps, and roads. These effects will be mitigated by implementing erosion and sediment control measures consistent with the *Stormwater Management Manual for Eastern Washington.*

Short-term effects to soils could also occur as a result of spills related to use of fuels, lubricants, or other mechanical fluids during construction. The potential for spills would be minimized through BMPs in the SPCCP. Incidental spills could still occur but would not be expected to significantly impact soils within the Project Area. Although

soils within the Project Area was previously affected by construction of the Priest Rapids dam and development of land in the WIV, the movement of heavy construction equipment throughout the Project Area may cause long-term indirect effects where the silt loam soils become further compacted. Related long-term indirect effects could occur where soil compaction inhibits vegetative re-establishment, which further increases the risk of soil erosion. Compaction would be greatest in areas of concentrated activity, e.g., around the footprint of the RCC dam and batch plant, secant pile cutoff wall, at laydown and staging areas, and along construction access routes. The implementation of BMPs and soil protection mitigation measures within the Project Area would reduce the magnitude of these indirect ground disturbance effects.

Long-term beneficial effects to soils and geology are expected as a result of the seismic stabilization that the Proposed Action would provide. The RCC dam and secant pile cutoff wall have been engineered to maintain structural stability of the Priest Rapids dam in the event of an earthquake and this benefit would offset short-term adverse effects to soils within the Project Area.

Any potential short-term impacts associated with the repair work along the DOE road and maintenance and repair work along the Army YTC road are expected to be minimal, given that they will occur within the existing disturbed footprint and shoulder areas of the existing roadways, and planed implementation of the TESCP and SPCC Plan that will minimize potential for erosion created by stormwater and impacts associated with spills from equipment.

Our Analysis

BMPs and mitigation measures applicable to managing or mitigating effects associated with geology and soils include:

- Limiting areas of ground disturbance to the minimum area necessary for effective work.
- Prioritizing previously disturbed areas for construction staging and stockpiling to limit disturbance to soils.
- Installing temporary staking and/or fencing to clearly delineate work areas.
- Educating workers about the importance of limiting ground disturbance.
- Installing temporary gravel pads or other appropriate ground covering to reduce soil compaction along common routes within the Project Area.
- Minimizing ground disturbance and vegetation removal within 200 feet of the boat basin to the extent practicable.
- Implementing erosion control and mitigation plan to prevent drainage to state waters.

- Spreading, stabilizing, and reseeding any stockpiled soil and/or overburden remaining from excavation activities to minimize habitat effects.
- Revegetating disturbed areas following construction to minimize future erosion.

These BMPs would be included in the TESCP and would limit effects to soil resources during and after construction. With the implementation of these measures, the proposed action would have a minimal and temporary impact on geology and soil resources at the project.

3.4 Water Resources

3.4.1 Affected Environment

The Project Area is within an arid region that receives approximately 8 inches of rain per year and approximately 23.5 inches of snowfall per year, but with 0 inches of average annual snow depth (WRCC 2016). Most stormwater in the flattened plain of the Project Area would infiltrate, whereas stormwater from major rain events on steeper terrain would collect in washes before infiltrating.

There are no perennial streams located within the Project Area. The most significant washes upstream are Sourdough Canyon, approximately 3.5 miles upstream (RM 400.5), and Corral Canyon, approximately 6 miles upstream (RM 403). A limited portion of the Columbia River is included in the Project Area, including a small portion of the boat basin and the potential barge access route between left and right banks of the existing dam.

Two groundwater sources exist in the Project Area, one of which provides water for residential wells within the WIV. Deep groundwater flows through fractured volcanic basalt formations of the Columbia River, to depths of 5,000 feet or more, and can create artesian conditions. Groundwater also flows through the layers of unconsolidated sand and gravel of alluvial and glacial deposits of the river valley in relatively shallow groundwater conditions (Grant PUD 2003). Two residential domestic wells owned by Grant PUD are installed at the WIV at depths of 116 and 145 feet, where groundwater sits in broken basalt layers below solid lava and basalt (Ecology 2018a). Based on review of groundwater wells and well data in the Project Area, groundwater levels within the Project Area are understood to be relatively deep.

The ground within the central construction zone of the Project Area slopes away from the Columbia River as a result of the height of the existing right embankment and a secondary berm downstream of the Priest Rapids dam. As such, stormwater does not directly flow to the Columbia River but primarily infiltrates into the well-drained soils. Outside of the central construction zone, stormwater follows topography to seasonal washes and may infiltrate or enter the Columbia River.

3.4.2 Environmental Effects

Construction of the Proposed Action would have minimal effects to water quality or quantity with the Project Area. Water use for the PRREIP would include a temporary surface water pump and a new groundwater well. Pumped surface water would supply water trucks or a temporary sprinkler system to manage fugitive dust and other general construction uses. The groundwater well would supply water for concrete mixing within the concrete batch plant. In its November 9, 2020 filing, Grant PUD notes it has received authorization, under a Nationwide Permit, from the Corps for the temporary surface water pump.[11] The temporary surface water pump to supply water for dust control and other general uses would use approximately 1 cubic foot per second (cfs) while in operation. The pump and generator would be located away from the water's edge, such that only an intake hose would enter surface waters. The pump housing and generator would be placed in a location to minimize the possibility of leaks, or spills of fuels or lubricants into surface water. This equipment would be managed under the SPCCP and include secondary containment for the generator.

The use of groundwater during construction is not anticipated to affect groundwater quantity or quality. Water would be available under existing seasonal and municipal water rights that are subject to instantaneous withdrawal limits and timeframes, consistent with contracting documents. In addition, Grant PUD also received a Hydraulic Project Approval (HPA) from the Washington DFW associated with its temporary surface water intake screen for the temporary surface water pump described above. The HPA includes requirements associated with notifications to Washington DFW prior to the start of work, along with other requirements to notify or amend the HPA should conditions warrant.

Grading activities to the upstream access route would be performed to avoid potential effect to ephemeral washes. Grading may be performed during the dry season, or specific erosion control measures may be put in place to ensure that minor grading activities would not affect stormwater quantity or quality. Potential spills in upland areas of the Project Area have the potential to affect stormwater quality, but stormwater is not anticipated to affect surface water or groundwater. Stormwater flows within the central construction zone would be constrained by existing topography, due to the presence of the Priest Rapids dam that rises 15 to 25 feet above the adjacent grade and secondary berm downstream of the dam. Outside of the central construction zone, stormwater would collect in seasonal washes. Low levels of average annual precipitation and soils with high infiltration are expected to generate moderate quantities of stormwater. Potential effects to stormwater would be mitigated by procedures and BMPs identified in

[11] The Corps granted the Nationwide Permit through its authority under section 404 of the Clean Water Act; 33 U.S.C. § 1344.

the TESCP. While spills could occur within the Project Area, it is not expected that infiltration would trigger an effect to stormwater or groundwater quality.

Any potential short-term impacts associated with the repair work along the DOE road and maintenance and repair work along the Army YTC road are expected to be minimal, given that they will occur within the existing disturbed footprint and shoulder areas of the existing roadways, and planed implementation of the TESCP and SPCCP that will minimize potential for erosion created by stormwater and impacts associated with spills from equipment. Only minimal amounts of additional water will be needed for dust control that may be needed for the work associated with repair work along the DOE and YTC access roads.

Our Analysis

BMPs and mitigation measures in the TESCP and SPCCP applicable to managing or mitigating effects associated with water resources include:

- Managing stormwater consistent with erosion and sediment control BMPs in the *Stormwater Management Manual for Eastern Washington*, including minimizing the extent of disturbed areas, washing construction vehicles prior to them leaving the site, and covering or revegetating bare soils.
- Scheduling grading activities to upstream and downstream access routes during the dry periods to avoid potential effects to seasonal streams.
- Modifying or curtailing operation of the new well should production from the WIV water system wells decline to prevent negative impacts to the availability of water for the WIV.
- Constructing the new groundwater well in accordance with applicable Washington Ecology groundwater well construction standards and requirements to avoid impacts to groundwater quality.
- Coordinating operation of the well to ensure total withdrawals remain within the limits of the water rights.

Although the construction would take place near the Columbia River, the natural topography would limit the likelihood of Grant PUD's activities impairing water quality. The proposed BMPs described above would further reduce the possibility of deleterious materials, such as soils, fuel, or oils, travelling to surface waters. Through implementation of its BMPs, Grant PUD would also decrease the probability of its proposed action affecting the availability of water to residents of the WIV.

3.5. Air Quality

3.5.1 Affected Environment

Air quality in the Project Area is primarily affected by geography and emissions linked to regional agricultural activities and home heating, but particulate matter may be generated by industrial emissions, motor vehicles, wildfires, and dust from roadways or unpaved surfaces. The Project Area is within the Mid-Columbia plateau in eastern Washington, at the eastern edge of the foothills of the Cascade Mountains, which are a significant climactic boundary for the Project Area and impacts air quality. Prevailing winds in the Project Area are from the northwest.

Washington Ecology monitors fine particulate matter (including vehicle emissions and wood ash) and ozone levels, which are the two pollutants of greatest concern for threats to public health in Washington State (Ecology 2010). Fine particulate matter levels are highest during home heating (wood-fired heating) season throughout the state, but east of the Cascade Mountains wildfires and periods of agricultural field-stubble burning also contribute to elevated levels of particulate matter with an aerodynamic diameter of 2.5 microns or less (PM2.5) (Ecology 2010).[12] The air monitoring station in Yakima is typically used to issue curtailment calls during the home heating season for wood-fired heating. In 2016, measurements taken at the air quality monitoring station in Yakima, Washington exceeded the national air quality standards for PM2.5 twice (Ecology 2017) and multiple exceedances occurred in 2017 and 2018 (EPA 2018; Ecology 2018b) when wildfire smoke impacted air quality to hazardous levels. This station has not recorded an exceedance of particulate matter less than 10 but greater than 2.5 micrometers in diameter (PM10) in more than 10 years (Ecology 2017).

The Yakima air quality monitoring station is approximately 26 miles west of the Project Area, but the two locations are similarly situated near agricultural activities. Activities in the Project Area that would contribute to emissions include: operation of vehicles, operation of gas-powered machinery, operation of wood- fired heating stoves, operation of wood or charcoal barbecues, and burning of brush or piles of debris and wildfires. Activities outside of the Project Area that may still impact the Project Area include agricultural burning, controlled burns, residential woodstoves, wildfires, and emissions from vehicles or machinery. Children and elderly residents in the WIV are the most sensitive receptors to air quality concerns, although all residents of the WIV and Grant PUD workers on the site have the potential to be impacted.

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[12] PM2.5 is monitored as a pollutant as it is particularly injurious to human health, being capable of travelling deep into the lungs and causing adverse reactions since it is too small to be reliably intercepted by the body's natural respiratory defense systems.

The closest air quality sampling station is in Mattawa, approximately 10 miles southeast of Priest Rapids Dam, but this station is operated by DOE to collect samples of alpha and beta emitting radionuclides. This station is downwind of the Project Area but is not expected to have air quality measurements affected by Project activities. Upwind of the Project Area, the YTC is registered with the Yakima Regional Clean Air Agency as a complex minor source of air emissions. Standard annual emissions reporting is performed at this facility; however, in the 2012 EA for a development project on the YTC site, it was noted that insufficient air contaminants are generated to require an air quality permit (Potomac-Hudson 2012). As such, it is unlikely that air quality in the Project Area is measurably impacted by activities on the YTC site.

3.5.2 Environmental Effects

Short-term direct effects to air quality are related to dust and exhaust emissions during construction activities; therefore, no long-term effects to air quality would occur after construction. Heavy construction is a source of particulate matter and exhaust emissions that can adversely affect local air quality. Air quality effects were assessed at the basin level and currently meets air quality standards established by EPA, and the Project is not expected to trigger air quality exceedances at the basin level. Grant PUD proposes BMPs to preventatively address potential environmental effects to air quality. These BMPs are commensurate with the level of construction activity proposed to occur over the course of the construction period, which would vary. The primary effects to air quality would result from increased dust during ground disturbance within the Project Area, equipment emissions during transit of construction vehicles along unpaved roads and surfaces and increased coarse and fine airborne particulates from operation of the concrete batch plant.

Levels of dust would be highest during active construction from 6:00 a.m. to 4:30 p.m., although dust can be generated outside of construction hours when windy conditions interact with disturbed soils. Work activities likely to create fugitive dust include operation of vehicles and machinery outside of paved surfaces, clearing and grubbing, earthwork (e.g. excavation), hauling, stockpiling dry materials, and operation of concrete batch plant. Grant PUD proposes to implement a Dust Control Plan to monitor and control levels of construction-related airborne dust. Airborne dust from native soils may also be generated during the movement of large trucks and heavy machinery, whether it is on any unpaved or unprotected surfaces within the Project Area, or along access routes to transport materials to and from the construction site. Climactic factors (e.g., wind, rain) affect the level of dust generated during construction as well as characteristics of site soils. It is expected that high levels of dust would be generated during construction, but BMPs and mitigation measures in the Dust Control Plan would be applied to minimize the potential effect to air quality. Air quality thresholds for both dust and emissions are incorporated into the Dust Control Plan. Operation of the

concrete batch plant would also generate airborne dust, as a result of the processing of cement and fly ash.

Short-term effects also include emissions from construction equipment that would temporarily change ambient air quality within the Project Area. Construction equipment would consist of pickup trucks and/or vans in addition to heavy equipment including haul trucks, excavators, bulldozers, graders, front loaders, vibratory drum rollers, tractor disc, concrete trucks, track-mounted drill, augurs, and trenchers. Equipment is expected to be used for approximately 5 to 75 trips per day on downstream and upstream access routes, in addition to shorter trips within the central construction zone. This machinery generates standard emissions related to diesel engines including carbon monoxide, nitrogen oxide, sulfur oxide, and volatile organic hydrocarbons, some of which are recognized when airborne as odors or fumes. The increase in emissions from construction equipment would occur only during active work hours and localized to specific work areas, therefore the overall effects to air quality from construction vehicle emissions are relatively low.

Our Analysis

BMPs and mitigation measures applicable to managing or mitigating effects associated with air quality include:

- Implementing engineering or administrative controls to minimize engine idling, which may include auto-shutoff timers, or policies to reduce idling time.
- Controlling fugitive dust during construction using water trucks or other appropriate measures to minimize dust and reduce risk of fire.
- Limiting vehicle speeds within the central construction zone and access routes consistent with Traffic Control Plan.
- Locating staging areas as close to construction sites as possible to minimize driving distances.
- Applying temporary gravel surfacing to staging and laydown areas and travel routes within the Project Area to minimize dust.
- Implementing air quality thresholds for dust-generating work and monitoring air quality during construction with air quality monitoring stations.
- Limiting the production of fugitive dust to comply with Washington state law requirements that emissions not result in an opacity that is greater than 20 percent for more than 3 minutes per hour.
- Ceasing work activities creating fugitive dust if the combined PM 2.5 reading exceeds 250.5 micrograms per cubic meter ($\mu g/m^3$).
- Conducting preconstruction meetings with construction contractors to explain air-quality related environmental and mitigation measures.
- Submitting dust control plan for approval to Yakima Regional Clean Air Agency.

- Ensuring all vehicles and construction equipment used during construction activities are in good working condition.

All impacts to air quality as a result of the proposed activities would be temporary and confined to the area near and downwind of the construction site. Furthermore, the BMPs proposed by Grant PUD above should not only limit the affect its activities are having on air quality, but to monitor the impact and provide a quantitative assessment of its practices.

In addition to the aforementioned BMPs, dedicated dust control equipment for the concrete batch plan would reduce dust emissions to the air, including: water spray-down of aggregate stockpiles, use of vacuum conveyance of cement and fly ash between silos and the batch plant, and use of cement dust collector (baghouse) to reduce emissions. Construction emissions are generally exempt from emissions regulation due to the temporary nature of effects, but regardless of exemption, the level of effect as a result of construction of the proposed action construction is not anticipated to significantly affect the broader air quality at the basin level.

3.6 Aquatic Resources

3.6.1 Affected Environment

As described in Section 2.2, a limited portion of the Columbia River will be affected by the proposed action. The only in-water work is the potential barge route between the left and right banks near the existing Priest Rapids dam and the small water intake located in the boat basin.

The aquatic environment in the upper Columbia River is impacted by the presence of multiple hydroelectric dams. Shorelines slope steeply into the water within the Project Area, with near-shore bathymetry ranging from 10 percent to 28 percent slope. The normal maximum water elevation of the reservoir is 488.0 feet, with a maximum water depth of approximately 68 feet. Seasonal flows in this reach of the Columbia River are regulated by this and other dams. The Columbia River within the forebay of the Priest Rapids Dam is characterized by little thermal stratification, water quality levels are within state standards for pH and alkalinity, and a benthic environment dominated by sand and silt (Normandeau 2000). Specific data for the boat basin is not available, but water temperatures may be slightly higher due to shallower water depth.

More than 40 species of freshwater fishes can be found in the Columbia River and some of these species may be present at various times near the Project Area, including the threatened and endangered species discussed further in Section 3.8. In a 2017 Biological Status Report for the Priest Rapids Project, fish surveys found that species composition was dominated by largescale sucker (*Catostomus macrocheilus*), redside

shiner (*Richardsonius bateatus*), and northern pikeminnow (*Ptychocheilus oregonensis*) (WDFW 2017). Fall Chinook salmon are known to both spawn and rear within the Priest Rapids and Wanapum reservoirs; while spring and summer Chinook, coho, sockeye, and steelhead migrate through the reservoirs as adults on their way to upriver spawning areas. Smolts of these species travel through the reservoirs during downstream migrations. Additional migratory species known to pass through the reservoirs include Pacific lamprey (*Entosphenus tridentatus*). Some of these species may be present at one time or another within the boat basin during the construction period.

Additional aquatic species that may be present include multiple species of waterfowl. The Project Area is part of the Pacific Flyway, a major migratory route for birds including multiple species of waterfowl and wading birds such as the: Clark's grebe (*Aechmophorus clarkia*) and long-billed curlew (*Numenius americanus*).

3.6.2 Environmental Effects

Neither construction nor increased human activity associated with construction are expected to significantly affect aquatic resources within the Project Area. The temporary placement and operation of the surface water intake pipe and screen within the boat basin, and the use of a barge would result in minimal disturbance to aquatic species. These activities are consistent with existing human activities within the Project Area, including operation of boats, caisson, and swimming. Salmonids are not likely to stay near the barge route or intake structure for significant periods of time. A barge, if used, would remain moored in place for extended periods of time and would only be moored in deep water at the center of the channel.

Our Analysis

Based on the limited extent of in-water work, BMPs and mitigation measures applicable to water resources including: managing stormwater as specified in the TESCP to minimize impacts to vegetation and by using stormwater fencing, implementing the SPCCP, and scheduling grading activities to upstream and downstream access routes during the dry periods would sufficiently mitigate the minimal effects to fish species. The use of the pump or barge is not expected to have significant effects to aquatic species.

To protect waterfowl and migratory birds during construction, blasting would be restricted at Cow Creek Quarry during the nesting season from March 1 to June 30. Any impacts to avian species are expected to be temporary.

3.7 Terrestrial Resources

3.7.1 Affected Environment – Vegetation and Wetlands

Vegetation disturbance would be limited to the minimum work area necessary and would occur in previously disturbed areas where possible. To further minimize the disturbance to existing vegetative communities, Grant PUD proposes to install temporary construction fencing at the central construction zone and Cow Creek quarry to delineate work areas from areas not to be disturbed. Once construction is completed, areas of temporary disturbance would be revegetated with native seed. The post-construction revegetation may result in improved habitat conditions because the project area is characterized by a high percentage of non-native plants, particularly cheatgrass (*Bromus tectorum*). The approximately areas of vegetation disturbance for each component are listed below.

Action	Approximate Area of Impact (square feet)	Duration	Total (square feet)
Cow Creek Quarry Development	175,000	Permanent	327,000
RCC Dam and Secant-Pile Cutoff Wall	120,000	Permanent	
Martinez Road Realignment	32,000	Permanent	
Access Route Passing Zones	7,000	Temporary	67,000–227,000
Concrete Batch Plant	20,000	Temporary	
Construction Staging Areas	40,000–200,000	Temporary	

Landscape vegetative communities within the Project Area are typical of the mid-Columbia plateau arid environment. The predominant vegetative community throughout the Project Area, including the areas in and around the WIV, along the upstream and downstream access roads, and within Cow Creek Quarry; is disturbed shrub-steppe. The vegetation within the WIV includes a mosaic of residential landscaping characterized by mixed grasses and scattered trees, and previously disturbed shrub-steppe. The previously impacted shrub-steppe includes habitat for state sensitive species although no federal special status species are known to exist within the uplands within Project Area.

Side slopes of the existing embankment and the access to the boat basin have little to no riparian vegetation. Cliff and talus habitat types border the south and southwest edges of the Project Area along the Umtanum Ridge. These habitat types typically have less than 10 percent vegetative cover but can provide habitat to niche plant species.

Plants in the Project Area include a mix of native and non-native species, some of which have specific cultural importance. Native annual wildflowers and other herbaceous perennials were not observed during a January 2018 site visit but are likely to

occur throughout the Project Area due to seasonal precipitation levels and other climactic factors. Non-native species observed during a January 2018 site visit included teasel (*Dipsacus sylvestris*), cheatgrass, common dandelion (*Taraxacum officinale*), spiny cocklebur (*Xanthium spinosum*), bull thistle (*Cirsium vulgare*), and diffuse knapweed (*Centaurea diffusa*).

Plant species observed following a site visit in June 2018 include: yarrow (*Achillea millefolium*), saskatoon (*Amelanchier alnifolia*), Carey's balsam root (*Balsamorhiza careyana*), chokecherry (*Prunus virginiana*), antelope bitterbrush (*Purshia tridentata*), wood's rose (*Rosa woodsia*), sagebrush (*Artemisia ssp.*), wild buckwheat (*Eriogonum ssp.*), rushes (*Juncus ssp.*), and lomatium (*Lomatium ssp.*) (NWA 2018). On a site visit in September, milk-vetch (*Astragalus ssp.*) was observed in the Project Area. The Army wildlife program manager indicated that Washington State sensitive plants Columbia milk-vetch (*Astragalus columbianus*) and Hoover's desert-parsley (*Lomatium tuberosum*) are present in YTC lands within the Project Area and are likely to be disturbed during construction of the passing zones within the upstream access route (Leingang 2019).

In its June 5, 2019 filing, Grant PUD provided the results of pre-construction sensitive species survey work completed in May 2019. During the survey, one species of sensitive plant was noted extensively within the Cow Creek Quarry: the Columbia milkvetch. Columbia milkvetch is a local endemic with a state designation of sensitive (WNHP 2018). Based upon the survey results, it is estimated that approximately 650 plants are located within the boundaries of the quarry polygon; however, the concentration of plants varied. Several species of native plans are present, and although not typically dominant, they were significant in portions of the landscape.

The Project Area includes a ponded area adjacent to the existing embankment that has vegetation associated with a wetland community. However, after further review and analysis (field conditions and data collection), Grant PUD determined that the areas surveyed did not meet the criteria of a wetland system as defined by the Yakima County Code Chapter 16C.07, Ecology, or the Corps.

3.7.2 Environmental Effects – Vegetation and Wetlands

Construction would result in permanent effects to vegetation within the excavation footprint of the new RCC dam, the expanded footprint of Cow Creek Quarry, and passing zones upstream of the access routes. Effects to existing vegetation would result from permanent removal of vegetation associated with ground disturbance, including native and non-native species of woody shrubs, annuals, and herbaceous perennial. While these actions would cause permanent impacts on about 327,000 square feet (7.5 acres) of vegetated land; large areas of this land include a high proportion of non-native plants.

Vegetation throughout the Project Area that would be affected include disturbed shrub-steppe and rural residential habitat where the environment of sage species is interspersed with large proportions of non-native and invasive species. Long-term indirect effects could occur due to ground disturbance and compaction during construction. The use of heavy equipment within the Project Area could compact the soils and inhibit vegetative growth if BMPs and mitigation measures are not appropriately used. Bare or compacted soils could further increase the potential expansion of non-native vegetation within the Project Area.

Direct effects from short-term and long-term loss of plant cover from construction activities include the potential interruption of biological functions, such as food and habitat sources for wildlife, nutrient cycling, and seedbank development. Although vegetation in the Project Area includes high proportions of non-native species, including cheatgrass, the plant communities do include native species that support a variety of wildlife.

There may also be additional short-term impacts to vegetation along the shoulder areas of the DOE road during road repair work (if needed). Based on visual observations by Grant PUD in its survey, this vegetation is comprised mostly of cheatgrass and other invasive weeds. The construction impacts associated with DOE road repairs will be limited to within 30 feet of the roadway, as measured approximately 30 feet from the centerline of the existing road. In most places, the roadway is less than 60 feet wide, and narrower than the proposed construction impact zone. While the road repair work will be limited to the roadway footprint, the additional construction impact zone is proposed to allow maneuvering of equipment as needed during performance of the repair (e.g. along the road shoulder areas). Use of shoulder areas (e.g. areas with potential occurrence of vegetation) will be limited to only areas needed maneuvering of equipment as needed during performance of the repair. All temporarily disturbed areas will be restored using native seed mixes appropriate to the area disturbed.

In its October 23, 2020 filing commenting on the draft EA, DOE indicated that revegetation of DOE-managed land should be performed in accordance with the Hanford Site Biological Resources Management Plan and the Hanford Site Revegetation Manual. DOE further stated that while the draft EA indicated that vegetated areas that are temporarily disturbed will be revegetated and monitoring will occur for three years, it does not indicate if the revegetation efforts will be working toward any identified success criteria. Therefore, DOE requests review of the any plans for revegetating the area including success criteria which are based on the vegetation in the area before construction.

On November 9, 2020, Grant PUD responded to DOE's comments stating that the draft EA adequately analyzes the environmental effects associated with the potentially short-term impacts to vegetation along the shoulder areas of the DOE road during road

repair work, if necessary. In addition, Grant PUD reiterated that the vegetation within these shoulder areas is comprised mostly of cheatgrass and other invasive weeds, which do not provide meaningful biological functions. Moreover, all temporarily disturbed areas will be restored using native seed mixes appropriate to the area disturbed. Grant PUD proposes to restore any temporarily disturbed areas along the DOE Midway Substation Road shoulder areas in accordance with any applicable Hanford Site management plans and manuals per any land use agreement it enters into with the DOE for the use of the DOE Midway Substation Road.

3.7.3 Affected Environment – Wildlife

Wildlife within the Project Area include a range of mammal and bird species within the following habitat types: shrub-steppe, talus slopes, and rural-residential open spaces. Wildlife associated with cliffs/bluffs and riparian zones may also be present in the Project Area, although the Project Area does not include these habitat types. These habitats, and the presence of wildlife species within them, have been influenced by human development, particularly in the immediate vicinity of the Project Area in and around the proposed dam location where there is increased human activity and infrastructure development associated with the WIV and Priest Rapids Dam.

Additional wildlife species that may use upland habitats within the Project Area for foraging, breeding/nesting, migration, or as permanent residents include: birds, such as Swainson's hawk (*Buteo swainsonii*), peregrine falcon (*Falco peregrinus*), golden eagle (*Aquila chrysaetos*), bald eagle (*Haliaeetus leucocephalus*), lark sparrow (*Chondestes grammacus*), vesper sparrow (*Pooecetes gramineus*), grasshopper sparrow (*Ammodramus savannarum*), American goldfinch (*Spinus tristus*), California quail (*Callipepla californica*), ring-necked pheasant (*Phasianus colchicus*), long-billed curlew (*Numenius americanus*), mourning dove (*Zenaida macroura*), common nighthawk (*Chordeiles minor*), western kingbird (*Tyrannus verticalis*), lazuli bunting (*Passerina amoena*), and loggerhead shrike (*Lanius ludovicianus*); small mammals, such as shrews, gophers, mice, and rabbits; larger mammals, such as badger (*Taxidea taxus*), coyote (*Canis latrans*), bighorn sheep (*Ovis canadensis*), and mule deer; and multiple species of snakes and lizards. State priority species that may occur within the Project Area include ferruginous hawk (*Buteo regalis*), prairie falcon (*Falco mexicanus*), greater sage-grouse (*Centrocercus urophasianus*), Chukar (*Alectoris chukar*), mule deer (*Odocoileus hemionus hemionus*), and elk (*Cervus elaphus*).

In its May 17, 2019 filing, Grant PUD included documentation showing the U.S. Army wildlife program manager for the YTC indicated that no sage grouse or raptors (including burrowing owls) are nesting within 1.5 miles of the upstream access route. There is one known nest of long-billed curlew in the vicinity of Cow Creek Quarry (Leingang 2019). Cliff-nesting raptors such as peregrine falcons may be present in cliffs near the downstream access route. The downstream access route does not provide

suitable habitat for burrowing owls or sage grouse, so they are unlikely to be present in the Project Area.

Article 414 of the Priest Rapids Project license required development and implementation of a Bald Eagle Perch/Roosting Protection Plan (Grant PUD 2009) which includes annual monitoring and reporting measures to track bald and golden eagle sightings, roosting areas and nesting sites within the Priest Rapids Project boundary. During the 2019 winter surveys (January through March), there were 115 eagle observations (112 bald and 3 golden) within the Priest Rapids Dam reservoir, the majority of which were located on the eastern (left) shoreline areas (Grant PUD 2019). There is also one documented bald eagle nest within the Priest Rapids Dam reservoir on Goose Island (Grant PUD 2019). WIV residents have also observed that bald eagles typically perch in trees just upstream from the boat basin.

Free-range horses live within the Project Area, and access fresh water at the area of ponding near the upstream end of the existing right embankment. This group of approximately seven to eight horses roam freely in the foothills of Umtanum Ridge and forage in the shrub-steppe habitat. The horses sometimes use the existing corral adjacent to the WIV.

3.7.4 Environmental Effects – Wildlife

Effects to terrestrial wildlife from construction disturbance are expected in the short-term for species occupying habitat within the Project Area as a result of direct disturbance, increased levels of sound, and increased human presence. These construction-related activities would cause short-term direct disturbance to habitat and use of habitat throughout the Project Area. Affected species would be those that are generally common within the Project Area. Wildlife such as deer, elk, coyotes, game birds, and migratory birds may return to disturbed areas that would be revegetated once construction is complete. Excavation for construction of the RCC dam and use of Cow Creek Quarry would result in the permanent loss of approximately 7.7 acres of vegetated area that may be used as habitat within the Project Area, albeit previously disturbed and modified habitat. The ground disturbance actions would occur within shrub-steppe and rural-residential habitat, where development of the Priest Rapids Dam, the WIV, and Cow Creek Quarry have previously impacted the quality of habitat within the Project Area.

Permanent impacts to vegetation are expected to minimally affect wildlife species due to the proximity of affected areas to human activities, degraded quality of areas to be disturbed, and availability of other habitat resources in the area. As such, ground disturbance activities within the Project Area are considered short term and are unlikely to significantly reduce habitat quality or availability.

Short-term effects to the use of habitat by terrestrial wildlife and waterfowl would also result from increased levels of sound and human activity during construction. The higher levels of noise may disturb or displace resident or migratory wildlife. In most cases, because construction noise would cease after 18 to 24 months, it is anticipated that wildlife that may not have been habituated to the disturbance will eventually return. No intentional harm, harassment, or take would occur to migratory birds such as long-billed curlews, raptors, or burrowing owls.

Based on an eagle use surveys conducted in 2019 (Grant PUD 2019), there are some bald eagle use areas within the anticipated noise attenuation area. Eagles using these areas may relocate to areas outside the noise attenuation area, seeking other available roosting/perching areas along the eastern (left) shoreline where the majority of the 2019 observations occurred. The existing bald eagle nest on Goose Island is outside of the anticipated noise attenuation area. Because there are other available roosting and perching areas, and due to the short-term nature of the project's construction, impacts to eagles are expected to be minimal and temporary.

Mammals that may be found within the Project Area would most likely temporarily avoid the Project Area or would adapt to construction noise and disturbance. Habituation can occur more easily when noise is consistent; all vertebrates adapt behaviorally and physiologically with repeated exposure and rest periods (such as evenings and weekends) (Bowles 1995). If mammals are exposed repeatedly to the same noisy stimulus without direct harassment, their alert and avoidance responses decline rapidly, so that they do not unnecessarily burn energy (Bowles 1995). Elk and deer have been found to avoid areas of construction or traffic noise when it is present, up to 0.75 miles, but return when the disturbance is absent (Bowles 1995). Some wildlife species within the Project Area may have already become habituated to a baseline level of disturbance, as a combination of noise and human activity within the Project Area, at nearby agricultural sites, and as a result of military exercises at the YTC. For species that are more mobile or have larger home ranges, it is expected that they will temporarily avoid the Project Area.

Our Analysis

In its June 5, 2019 filing, Grant PUD provided the results of pre-construction sensitive species survey work completed in May 2019 for previously unsurveyed sections of the Project Area (e.g., the proposed upstream passing zones and Cow Creek Quarry). Several species of native plans are present, and although not typically dominant, they were significant in portions of the landscape. If any of sensitive or listed species are identified within the work area, Grant PUD states additional avoidance measures may be implemented. If avoidance is not possible, Grant PUD proposes to develop a project-specific mitigation plan, consistent with land use agreements and habitat management plans.

BMPs and mitigation measures applicable to managing or mitigating effects for terrestrial resources include:

- Educating construction workers to avoid inadvertent harassment of any wildlife or birds encountered during construction.
- Revegetating disturbed areas following construction which include restoring all temporarily disturbed areas with native vegetation; mitigating for the permanent loss of vegetation by enhancing areas currently void of vegetation and/or dominated by non-native species; and periodic monitoring and maintenance of all re-vegetated areas for a period of 3 years, which will include noxious weed control and re-seeding as necessary to establish native species.
- Avoiding all blasting at Cow Creek Quarry during nesting season between March 1 and June 30.
- Loosening topsoil prior to revegetation and protect soil from erosion during seed germination.
- Implementing measures to reduce risk of wildfire including use of approved spark arresters on heavy power equipment and non-passenger vehicles traveling the access routes and used within the construction area; use of protective ground covers to reduce contact of hot construction equipment with dry vegetation; removal of vegetation from active construction areas; and watering roads as necessary to control dust .
- Equipping all vehicles with basic fire-suppression equipment including fire extinguishers and/or shovels to reduce risk of wildfires.

In addition to the aforementioned BMPs, the short-term disturbance to vegetation would be offset by re-seeding disturbed areas with a native seed mix upon completion of the PRREIP, as well as implementation of mitigation measures. In general, temporarily disturbed areas would be restored using native seed mixes appropriate to the area disturbed. Reseeding with native plants would avoid permanent loss of vegetation and may improve conditions because of the established presence of non-native plants. Revegetation of disturbed areas following construction would re-establish suitable habitat conditions for wildlife in the Project Area. We further recommend that Grant PUD consider any applicable Hanford Site management plan, which include the Hanford Site Revegetation Manual and the Hanford Site Biological Resources Management Plan and comply with the terms of any land use agreement it enters into with DOE. Grant PUD stated in its November 9, 2020 filing that it is willing to restore any temporarily disturbed areas along the DOE Midway Substation Road shoulder areas in accordance with any applicable Hanford Site management plans and man6-uals per any land use agreement it enters into with the DOE for the use of the DOE Midway Substation Road. Grant PUD's proposed mitigation measures would address any temporary impacts to vegetation.

3.8 Threatened and Endangered Species

3.8.1 Affected Environment

The Project Area is within or near habitat of several threatened or endangered species that are federally listed under the ESA. For upland project areas, Grant PUD consulted FWS's online Information for Planning and Consultation (IPAC) tool for a listing of these species for environmental review which could potentially be affected by a project. (USFWS 2018). In addition, Grant PUD consulted with NMFS on status for West Coast Salmon (NOAA 2016) and the FWS Endangered Species database.

The PRREIP takes place within designated critical habitat for UCR spring-run Chinook salmon, UCR steelhead, and bull trout. Critical Habitat for the UCR Chinook salmon evolutionarily significant unit (ESU) was designated on September 2, 2005 (70 FR 52630) and became effective on January 2, 2006 and includes the active channel of the mid-Columbia River. On September 30, 2010, FWS designated critical habitat for bull trout throughout their United States range, which includes the main stem Columbia River.

The small aquatic portion (water withdrawal point and potential barge haul route) of the Project Area provides some, but very limited habitat features for rearing and migration for UCR spring-run Chinook salmon and UCR steelhead, and maybe bull trout. The area lacks aquatic vegetation, woody debris, and natural cover as it is used primarily as a boat basin/moorage area/launch. The area where in-water work would occur is characterized by armored embankment and the natural shoreline is adjacent to Priest Rapids dam. The area does not provide substrates suitable for spawning. It is likely that these fish travel through the project area during migration, but do not remain within the Project Area for extended periods as rearing and forage opportunities are limited.

In the 2003 Priest Rapids Terrestrial Habitat Assessment (Framatome 2003) for the Priest Rapids Project, the federally listed threatened plant species Ute ladies' tresses was identified as a species with a moderate likelihood to occur within the Project boundary. However, its presence was not identified in a botanical survey conducted on May 14, 2019. As we've said, the Project Area is characterized by dry shrub-steppe habitat, and areas of disturbed vegetation associated with dam operations and access roads have a low likelihood to provide suitable habitat for Ute ladies' tresses. Suitable habitat consists of various wetland habitats, or areas that are wet like margins of reservoirs, irrigation ditches, irrigated meadows, or seasonal or perennial water sources (natural or irrigated). Seasonal washes are present within the Project Area; however, these locations are associated with existing access roads that were previously disturbed. Further, construction will not encroach on these washes.

Critical habitat for the federally listed threatened species Umtanum desert buckwheat was identified near the Project Area on the top of Umtanum Ridge. The critical habitat designation was issued April 23, 2013 (78 Federal Register 24008) and became effective on May 23, 2013. However, the potential for Umtanum desert buckwheat to exist within the Priest Rapids Project boundary was previously determined to be low due to a lack of suitable habitat, and no populations were found during the 2019 botanical survey (Salstrom and Easterly 2019).

The federally listed candidate species northern wormwood (*Artemisia campestris var. wormskioldii*) has previously been located within the Priest Rapids Project boundary; however, its presence is not confirmed within the Project Area for the PRREIP (Framatome 2003) nor was it found during the 2019 Botanical Survey (Salstrom and Easterly 2019). Northern wormwood habitat is restricted to basalt, cobble, and sand within riparian areas of the Columbia River. However, there is a limited portion (within the potential barge access route) of riparian habitat. Additional ESA-listed terrestrial species were identified using the IPAC tool, including the Columbia Basin pygmy rabbit, gray wolf, North American Wolverine, and the yellow-billed cuckoo. The Columbia Basin pygmy rabbit and gray wolf are not known to exist within the Project Area.

3.8.2 Environmental Effects

The potential for effects on threatened and endangered species is likely limited to the following ESA listed aquatic species: UCR spring-run Chinook salmon; UCR steelhead; and bull trout and are very unlikely. Although the Project Area overlaps with critical habitat of these three species, the proposed in-water work is minimal and is not expected to adversely affect any of these three species. Neither UCR spring-run Chinook salmon, UCR steelhead, nor bull trout are expected to be present for any significant period within the boat basin due to the limited habitat resources of the existing condition. The temporary surface water intake pump would not significantly affect water quality or quantity, nor would it result in any change to other physical or biological features within the boat basin.

The use of a barge to transport materials between the left and right banks of the Columbia River could result in short-term disruption or disturbance to the migration habitat within the Project Area. The limited duration and geographic extent of the proposed barge access route would only result in minimal, short-term effects to migration habitat, and no long-term effects to the species or their habitat are anticipated to occur.

Our Analysis

Mitigation measures and limiting the timing of blasting to avoid nesting season would protect threatened and endangered species. Because of the lack of suitable habitat and the 2019 botanical surveys which show that no threatened or endangered plant

species exist in the project area, Commission staff has determined there would be no affect to Ute ladies' tresses, Umtanum desert buckwheat, and northern wormwood. The project would also have no effect on Columbia Basin pygmy rabbit, gray wolf, North American wolverine, and yellow-billed cuckoo because of limited available habitat and these species would easily avoid the area in response to human presence and noise during construction.

Commission staff also conclude that the potential for the PRREIP to affect UCR spring-run Chinook salmon, UCR steelhead, and bull trout is unlikely; however, because this area is considered critical habitat, we have determined that the proposed action may affect but is unlikely to adversely affect these species. We find that the limited duration and small aquatic footprint of Grant PUD's proposal would result in minimal, short-term effects to migration habitat, and no long-term effects to species and their habitat are anticipated to occur.

3.9 Construction Access

3.9.1 Affected Environment

The Project Area is accessed primarily by the single-lane road on top of Priest Rapids dam, but existing primitive roads that extend downstream and upstream provide access to a variety of users on the right bank within the Project Area. The condition, ownership, access, and use of each of these routes varies.

The Priest Rapids Dam Road is a single lane road that runs along the top of the existing Priest Rapids dam. This road is accessed from SR 243 on the left bank of the Columbia River. This route is used predominantly by Grant PUD personnel and residents of the WIV, and access is restricted and permitted by Grant PUD. This road connects to paved ramps from the existing embankment down to the WIV, boat launch, and surrounding areas; although locked gates restrict access to one of the ramps. The ramp closest to the dam, the east ramp, connects directly to the paved roads within the WIV. The west ramp continues as an unpaved, single-lane dirt road that extends downstream, branching into two paths just beyond the developed portion of the WIV, continuing along the Chicago, Milwaukee, St. Paul and Pacific Railroad grade. These facilities are described as the downstream access route.

While the access across Priest Rapids dam is used frequently by the residents and guests from the WIV for trips to and from work and school, community events, and ceremonial activities; and by Grant PUD for operational work associated with the dam, the approximate number of daily trips is unknown. A school bus uses this route daily to pick up and drop off school children from the WIV. Grant PUD uses the road to access the boat basin, fish ladder, and other monitoring equipment on the west side of the dam.

The downstream access route runs approximately 9 miles along existing semi-primitive to primitive roadways between the central construction zone at Priest Rapids dam and SR 24 near the Vernita Bridge. This access route includes portions of Priest Rapids Road and the former Chicago, Milwaukee, St. Paul and Pacific Railroad grade, which is eligible for listing on the National Register of Historic Places (NRHP). The downstream access route passes through undeveloped lands, active agricultural lands owned and operated by Simon Martinez Livestock, Inc., and is adjacent to the Midway substation owned and operated by BPA. From SR 24, approximately the first 3.5 miles of road are owned by DOE. The remainder of the downstream access route is owned by Simon Martinez Livestock, Inc., which includes the portion from its orchards to the WIV and beyond. This road is a paved two-lane road between SR 24 and the Simon Martinez orchards, but is a single-lane primitive gravel and dirt road upstream of the orchards.

The downstream routes provide access to multiple users including: the Wanapum; Yakama Nation; Grant PUD; Benton County Public Utility District; Benton County Sheriff; FWS; Army; Simon Martinez Livestock, Inc.; BPA; Pacific Power and Light; and other utility services. The DOE-owned portion of the access road is federal property accessible to users authorized by DOE, and a gate is installed across the road to restrict access. Other portions of the downstream access route have access restrictions (e.g., gates and/or access by permission or easement). Based on the configuration and width of the downstream access route, specifically the DOE-owned portion of the road which is paved, which is straight and generally wide enough for two-way traffic, and along with the proposed traffic control strategy, no passing zones would be necessary to accommodate hauling of commercially sourced aggregate. Section 3.6 of Grant PUD's Traffic Control Plan indicates that temporary traffic control signage will be used for trucks entering and exiting the commercial quarry and the downstream access route. Furthermore, as part of the local permitting process through Yakima County, the Washington State Department of Transportation (WSDOT) was consulted and provided comments related to requirements for all loads transported on WSDOT rights-of-way (SR 24). WSDOT also noted that Grant PUD would be responsible for keeping and maintaining SR 24 free of any debris, and promptly cleaning up any spilled material. Grant PUD, as part of its permit approvals via Yakima County for the PRREIP, will adhere to these WSDOT recommendations.

The upstream access route runs approximately 7 miles between the central construction zone at Priest Rapids dam and Cow Creek quarry along an unnamed road located within the YTC. This section of the access route is an unimproved dirt and gravel road that includes a portion of the Chicago, Milwaukee, St. Paul and Pacific Railroad grade. Sections of this route are owned by Simon Martinez Livestock, Inc., and the remainder of the route is on land owned by the Army. Generally, this segment only supports one-way traffic and would require some minor modifications to accommodate construction traffic and development of five passing zones to allow construction and haul vehicles to pass along the route.

Access to lands around the central construction zone is generally restricted to the Wanapum and Grant PUD staff. Use of the boat basin adjacent to the existing right embankment upstream of Priest Rapids dam is intermittent, and is restricted to use by Grant PUD staff, Grant PUD contractors, and residents of the WIV. A landing craft is stored within the boat house to move a floating caisson but is used infrequently. Two small boats are stored within the boat basin and are used occasionally. If a barge is necessary for use in this project, Grant PUD would use barge access and landing on the left and right banks of the Columbia River.

Grant PUD's proposed Traffic Control Plan describes the different project access routes and owners for various segments of these routes; identifies existing users and uses of all proposed access routes; establishes a traffic operations plan for all access routes during each phase of construction; and identifies a traffic control strategy to minimize disruptions to access route owners and users. Construction for the project is expected to last 18-24 months and occur during scheduled work hours. Work hours will occur between 6:00 a.m. to 4:30 p.m., Monday through Saturday. Usage of access routes, SR 24, and SR 243 will vary throughout the project as different phases of construction will require different types of transportation. Phases in construction can be broken down into: mobilization (~3.5 months), excavation, RCC placement, secant pile wall construction, and demobilization (~3.5 months).

In its June 26, 2020 supplemental filing, Grant PUD discusses the potential additional post-construction repair work that could be necessary at the end of the PRREIP to completely repair the downstream access road if the PRREIP causes damage that cannot be remedied via the methods described in the Traffic Control Plan. Grant PUD says that a complete repair of the DOE road would require: (1) asphalt patching of all potholes and degrade pavement surface; (2) chip sealing of the entire roadway surface after the asphalt repairs; and (3) seal coating of the entire roadway surface after the chip seal has cured out (60 days or more). Construction impacts will be limited to within approximately 30 feet from the centerline of the existing road. While the road repair work will be limited to the roadway footprint, the additional construction impact zone is proposed to allow maneuvering of equipment as needed during the performance of the repair. If a complete road repair is needed after the PRREIP is constructed, this repair work is expected to occur in two phases: patching and chip sealing occurring over approximately seven workdays, during which access to the road may be restricted or delayed for short periods via use of flaggers and one-way traffic and be allowed to cure over 60 days (there will be no access restrictions during this time); and applying the seal coat occurring over approximately seven workdays, during which access to the road may be restricted or delayed for short periods via use of flaggers and one-way traffic restrictions or delays for short periods via use of flaggers and one-way traffic. All phases of work, including potential access restrictions and/or delays, will be communicated with the roadway owners and all potentially impacted uses in accordance with the Traffic Control Plan.

Any additional maintenance and repair for the Army YTC road, not already addressed, would occur at 12 distinct sections, and includes re-grading, strengthening and widening shoulders and corners, and excavation of material, placement of surface layers of gravel to strengthen and/or widen shoulders and/or corners, and excavation of sloughed material.

In its October 23, 2020 comments on the draft EA, DOE stated that the draft EA did not analyze the use of DOE's Midway Substation Road. DOE argued that such a level of use would require graveled passing zones along the downstream access route, which are not currently proposed. DOE also states that other traffic controls would be needed when entering from State Highway 24. In addition, DOE believes that if crushed aggregate are hauled along State Highway 24, adjacent to McGee Ranch and to the Riverland area, which is very steep, the change in road grade could result in traffic congestion and potential safety hazards, which may require mitigation measures that have not been considered. Further, DOE states that the draft EA's conclusion of minimal impacts to the downstream access road and during road repair does not take into consideration impacts if the downstream access route were to become the primary route. DOE requests Commission staff revise the analysis to include these potential impacts.

In Grant PUD's November 9, 2020 response, it states that DOE incorrectly assumes there would be 75 truck trips per day for the entire duration of the project. The proposed Traffic Control Plan describes the different access routes and owners for the various segments for the routes to be used during each phase of construction. Based on information provided in the Traffic Control Plan, the estimated maximum number of trips per day (up to 75) along the downstream access route would only occur during the excavation and RCC placement phases of the PRREIP if the Cow quarry is not used for the source of the aggregate material. Based on Table 2 in section 3.3.2 of the Traffic Control Plan, for the remainder of the PRREIP, the anticipated trips per day ranges from 5 to 25, which is far less than the 75 trips per day or 32,000 to 43,000 total truck trips as estimated by DOE.

3.9.2 Environmental Effects

Due to access road limitations over Priest Rapids Dam (e.g. limited road width and tight turning radius), and concerns related to significant access impacts to the WIV, other existing developed, semi-primitive, and primitive roadways must be used, and in some areas improved, to accommodate construction vehicles and material transport to the Project Area. Portions of these access routes are federally and privately owned. The proposed Traffic Control Plan describes the different project access routes and owners for various segments of these routes; identifies existing users and uses of all proposed access routes; establishes a traffic operations plan for all access routes during each phase of

construction; and identifies a traffic control strategy to minimize disruptions to access route owners and users.

Direct short-term effects due to construction within the Project Area would occur as a result of construction vehicles moving to and from the Project Area, on the access road across Priest Rapids dam, and both the upstream and downstream access routes. Access to the boat basin would not be changed during construction; however, some portions of the forebay may be more difficult to access if the barge is in use.

Periods of restricted access would occur at both upstream and downstream access routes to accommodate road alterations (grading and gravel surfacing) and to accommodate haul trucks and large construction machinery on flatbed trucks, and access to Cow Creek quarry on YTC. Construction vehicle trips would vary depending on the project phase but is estimated to be between 5 and 75 trips per day on the upstream and downstream access routes, with additional short-distance trips within the central construction zone. If Cow Creek quarry is not available as the aggregate source, crushed aggregate material would be purchased from a commercial source and the upstream access route would not be used. The downstream access route would serve as the primary construction access route and would be closed to non-construction users upstream of the Simon Martinez orchards, consistent with the Traffic Control Plan. The duration of closures may last one or more months in duration.

If use of the upstream access route is needed, access for current users could last for a period of several months due the hauling of material from Cow Creek quarry. However, per the Traffic Control Plan, temporary access for hunting and root gathering are approved since these actions are associated with currently approved existing uses of the YTC land.

Effects to the access road across Priest Rapids dam would occur as a result of increased traffic volumes. Traffic levels across Priest Rapids dam would increase due to the higher number of vehicles that would require daily access to the construction site, including construction workers, construction managers, Grant PUD staff, and vendors. Because construction would occur during regularly scheduled work hours of 6:00 a.m. to 4:30 p.m., Monday through Saturday, effects to traffic volume are expected to be highest around the beginning and end of the daily work period. Some staff or vendors would require access to the construction site throughout the workday however, so a moderate increase to traffic levels could occur at any time during work hours. Current traffic across the dam occurs freely, without dedicated traffic control. Vehicles are occasionally required to wait at pullouts while a vehicle passes from the opposite direction due to limited road width. The increase in traffic volume associated with construction would require traffic control measures and would increase waiting times to cross the dam for both WIV residents and Grant PUD workers, particularly at the beginning and end of the

construction workday. No closures are proposed to the Priest Rapids Dam Road, as this is the primary access route for the WIV.

Short-term direct effects to the upstream and downstream access routes would also occur due to the transit of heavy construction vehicles along the upstream and downstream access routes. Effects may include rutting, potholing, or wash boarding across the entire length of the unpaved access routes. The thin gravel surface installed on paved and unpaved portions of the access routes prior to construction would reduce the effects, but the full extent of effects would depend on the frequency of travel by heavy trucks. Mitigation measures would include post-construction restoration to assure safe driving conditions, but the extent of restoration would be determined by the amount and severity of impacts following construction. No new paving would occur to unpaved sections of either upstream or downstream access routes; however, existing pavement on the downstream access route would be restored following construction, as needed.

Short-term direct effects to access would occur during construction when a portion of the downstream access road would be removed to accommodate RCC dam construction. This section of road would be reconstructed around the RCC dam prior to project closeout but would be inaccessible for the duration of the RCC dam construction timeline. Long-term effects to access would occur due to the because Grant PUD proposes to demolish the existing ramp that interconnect the west side of the WIV to the existing embankment road. Grant PUD says while the ramp would not be reconstructed, vehicles would still be able to access the WIV from the primary ramp on the northeast side of the village and by the road atop the existing embankment where it connects to the boat basin.

A barge route may be needed as an alternative route to transport materials to the central construction zone. The use of a barge would not require new facilities and is not anticipated to result in impacts to the project area.

Our Analysis

Traffic control measures such as flaggers, posted signs, and radio communication would be provided for the upstream and downstream access routes for safety and accessibility. Grant PUD would give advance notice of road closure dates at the downstream access route from SR 24.

BMPs and mitigation measures applicable to managing or mitigating effects associated with construction access include:

- Coordinating with the Wanapum on construction scheduling for the project to ensure appropriate access is maintained to and from the WIV for the school bus across Priest Rapids Dam, as well as for cultural and tribal events.

- Implementing the Traffic Control Plan with the following additional activities: (1) maintaining regular (weekly, at a minimum) communication with all potential users of the downstream and upstream access routes; (2) establishing construction site access routes within the construction area such that they do not block access to residential roads of the WIV; (3) not allowing construction traffic to enter WIV roadways; (4) implementing speed restrictions on roads within the Project Area to minimize wear and tear to existing roads and reduce fugitive dust emissions; and (5) restoring any damaged road surfaces following construction.

The additional passenger car and truck traffic resulting from Grant PUD's proposed work would impact those who regularly use the roads near the construction area. This primarily includes residents of the WIV and Grant PUD staff performing routine tasks at the right side of the dam. However, Grant PUD's proposed BMPs would help to significantly reduce effects to other road users during construction and once the proposed action is complete. In addition, the measures proposed in the Traffic Control Plan would help mitigate and manage with construction access.

We also find that the environmental effects associated with repair of the DOE roadway, minor modifications to the YTC Access Road, the addition of an alternate YTC access route, and equipment and material storage at the Cow Creek quarry, as discussed in Grant PUD's June 26, 2020, supplemental filing, are expected to be minimal. However, the Commission would require Grant PUD to file an Access Road and Replacement Plan, if necessary, to repair and modify the DOE and Army YTC access roads for Commission review and approval. In addition, the Commission would also require Grant PUD to provide documentation of its consultation in the development of the plan. This work would occur within the existing footprint of the roadway for the DOE section of the road, up to the full depth of the roadway cross section. The existing paved road surface will then be prepared, and chip-sealed (asphalt is applied, then coated with gravel, before being rolled to combine the layers). Upon completion of the chip seal coat, any loose asphalt will be swept off and after the appropriate cure time a seal coat applied (asphalt sand mixture). Construction impacts will be limited to within 30 feet of the roadway, and no excavation is proposed beyond the extent or depth of the existing roadway cross section. Excavation within the roadway cross section will be limited to one foot in depth. Construction impacts beyond the roadway footprint will be limited to construction equipment access/staging along the shoulders of the existing road and will not require any excavation.

Any additional maintenance and repair for the Army TTC road, not already addressed, would occur at 12 distinct sections, and includes re-grading and placement of surface layers of gravel to strengthen and/or widen shoulders and/or corners, excavation of sloughed material, adding 1 to 1.5 foot diameter rock (1-man boulders) in one area with a significant drop-off on an inside corner, and the removal of brush and vegetation (200 square foot) along one area to allow for placement of gravel to widen an outside

corner. Equipment to be used for this proposed maintenance and repair work will likely include road graders, excavators, backhoes, dump-trucks, water trucks, soil compactors, and wheel loaders. Excavated material will be used as fill and redistributed within the proposed maintenance and repair areas. Gravel and 1-man boulders needed for this work will be sourced from the existing gravel and rock stockpiles at the Cow Creek quarry on Army YTC land or via commercial source. Any additional Army YTC road maintenance and repair work would begin as soon as practical after all necessary FERC and Army YTC approvals are received and is expected to occur over the course of 25 working days. Grant PUD would coordinate the schedule and traffic control consistent with Traffic Control Plan and in close coordination with the Army YTC.

3.10 Land Use, Recreation, and Aesthetics

3.10.1 Affected Environment – Land Use

The most visible land uses within the Project Area are centered at the Priest Rapids Dam, including Grant PUD operations and activities in and around the WIV. Grant PUD utility operations occur at and around the dam, Priest Rapids reservoir, the Columbia River, the boat basin, transmission lines, and other facilities and resources necessary to support and maintain project operations.

The Wanapum use the lands immediately adjacent to Priest Rapids Dam for residential and cultural purposes. The WIV is the residential center for the Wanapum such that lands within and adjacent to the Project Area are used for cultural and traditional purposes. Swimming, fishing, sledding, hiking, and hunting are central components of Wanapum culture and are not considered recreational activities. While precise metrics are not known, activities such as hunting, fishing, and gathering of plants supports all residents (estimated to be approximately 40 people) of the WIV every year. Other Native American peoples may also use the Project Area for cultural or traditional uses.

In addition to these land uses, other users access the Project Area for a variety of activities, as addressed in the table below. These activities occur primarily along the downstream and upstream access routes. However, land use within the project's boundary is governed by a land use classification system, set forth in the project's approved Shoreline Management Plan (Grant PUD 2010a). The project area's land use classification is Project Facilities, which are primarily for purposes related to hydropower generation, transmission, and associated project facilities.

Lands categorized in the proposed Project Facilities classification would not exclude public use; however, public access to certain project related areas such as the powerhouse, dam, and other project-related infrastructure would be controlled or restricted to protect the safety of the public and to provide for project security. This

classification would also include education/interpretation facilities, public recreation facilities located within or immediately adjacent to Project facilities.

Land Uses Within Project Area

Land Use	Users	Activities
Utility	Grant PUD, Benton County PUD, BPA, Pacific Power and Light	Operations and maintenance activities for Priest Rapids Hydroelectric Dam, electric power lines, and poles
Residential	Wanapum	Housing, Community Gathering Spaces
Traditional/Cultural	Wanapum, Yakama Nation, other Native American tribes	Hunting, Hiking, Walking, Swimming, Sledding, Plant/Root Gathering, Ceremonial Activities
Agricultural	Simon Martinez Livestock, Inc.	Orchards, Livestock Grazing
Military	U.S. Army	Army Tactical Training
Other Operational Uses	DOE and its contractors, Benton County Sheriff, USFWS	Periodic Access and Multiple Uses in Fulfillment of Departmental Mission

Regulations for land use within the Project Area are guided by county codes, including zoning and the Shoreline Master Program for Yakima, Kittitas, and Benton Counties.

Within the Project Area, there are multiple areas with restricted access. The road across the Priest Rapids dam provides access to the right bank by permission of Grant PUD, although residents and guests of the WIV can cross freely as the dam road is the primary point of entry into the WIV. On the right bank of the dam, gates restrict access at four locations within the Project Area. Two gates exist along the upper road that runs along the existing embankment and are operated by Grant PUD personnel. A gate at the base of the westernmost ramp limits access from the existing embankment into the WIV. The Project Area, including the shoreline, is not accessible to the general public although some public access may occur, including transient/day-use boating and fishing, and potentially hiking and hunting along the mountain ridges and gullies.

3.10.2 Environmental Effects – Land Use

Short-term effects on land use would result from construction activities. Although the project will not require any changes in land use classification or zoning, the

magnitude of construction issues would result in short-term disruption to existing land uses. Noise and dust generated during construction may affect normal residential, cultural, and agricultural land uses, either by disruption, annoyance, or other effects to the quality of those uses.

Indirect effects to all land uses described could occur as a result of increased traffic on existing access routes during construction. The land uses that rely on access over the Priest Rapids Dam Road or the downstream access road would not be directly affected but may experience delays. During construction of the PRREIP, access to these resources would be significantly reduced along the upstream and downstream access routes, and within the central construction zone around the RCC dam. The upstream access route would have partial access during construction; however, access to the downstream route would be further restricted.

While no long-term effects would occur to the land use zoning or classification, long-term indirect effects to residential land uses could result from the construction of the PRREIP because the footprint of the proposed RCC dam and cutoff wall would encroach on open space on the upstream/northern edge of the WIV. Portions of finished RCC dam and cutoff wall will be positioned approximately 300 feet from the northwest edge of the existing homes, resulting in a reduced overall area for residential and cultural uses within the WIV.

3.10.3 Affected Environment – Recreation

Although the Project Area does not contain official recreational uses, some informal and unsanctioned recreational use occurs. The Project Area is bounded on the east by SR 243 at the junction with the downstream access route. The Project Area is bounded on the northwest, west, and south by the YTC, which is actively used for US military training. Certain portions of the YTC are open to the public for hunting and hiking and users must enter through the main YTC access gates, which are outside of the Project Area. However, hikers may occasionally enter the Project Area from the northwest. Because of the restricted access to the dam crossing road, public access and therefore recreational use of the Project Area is limited. Further, it is Grant PUD's policy to permit public access, wherever possible, consistent with safety and security considerations, to project lands adjacent project waters.

3.10.4 Environmental Effects – Recreation

Although formal, publicly authorized recreational resources do not exist within the Project Area, lands within and adjacent to the Project Area are likely used for some recreational activities including hiking, walking, and fishing. Indirect effects to any recreation that occurs within the Project Area would experience the same effects to access as other land uses, as a result of construction traffic.

3.10.5 Affected Environment – Aesthetics

The larger visual setting of the Project Area is the Columbia Plateau that includes steep rocky ridges, dry rolling hills, broad agricultural fields, and the Columbia River. There are sweeping high-quality views of this largely undeveloped landscape, including the river and ridgelines that are mainly visible from the WIV and the dam. The only publicly accessible viewpoints include the Wanapum Heritage Center located on the opposite shoreline (left bank) of the Columbia River outside of the Project Area. Views of the natural landscape from these locations are not completely intact and include views of Priest Rapids Dam and the WIV in the foreground or middle ground.

The character of the Project Area is rural residential, contrasted with utility infrastructure, within a natural setting. The rounded-rock armored slope of the existing embankment is a significant visual feature within the WIV. The embankment rises 15 to 25 feet above grade and is within 300 to 500 feet away from five homes at the north edge of the WIV. From the road on top of the west (right) embankment, views of the river and the east bank are possible. From grade level in the WIV, views towards the northwest, north, and northeast are impeded by the dam. Views from within WIV to the southwest and southeast include close views of Umtanum Ridge, which are culturally significant for the Wanapum.

Views to and from the Project Area from the left bank of the Columbia River are partially to completely blocked by topography and by the presence of the dam. Views towards the WIV from the dam embankment road are not blocked, but amplified, due to the elevated position of the embankment road. Territorial views upstream and downstream are possible due to the elevated position of the existing embankment, which is accessible to vehicles and pedestrians that are authorized to use this road.

3.10.6 Environmental Effects – Aesthetics

Effects to aesthetic resources would occur as a result of dust, noise, active construction activities, and the presence of large machinery throughout the Project Area. Approximately 5 to 75 truck trips per day along both the upstream and downstream access routes would occur during construction, in addition to short-distance trips within the central construction zone. These effects would be visible to residents of the WIV. Trips along the downstream access route would be visible to a lesser extent to casual travelers where SR 24 meets the downstream access route.

Construction of the new RCC dam and secant pile cutoff wall would result in a permanent change to the existing aesthetic resources. Views of the new RCC dam and secant pile cutoff wall would be limited outside of the immediate project area and may not be visible from publicly accessible areas of the left bank. For residents of the WIV,

the new RCC dam and secant pile cutoff wall would appear different from the existing right embankment but are not anticipated to create a new source of light or glare.

Our Analysis

BMPs and mitigation measures applicable to managing or mitigating effects associated with land use, recreation, and aesthetics include:

- Coordinating with potentially impacted users of the access routes in development of Traffic Control Plan.
- Coordinating easements and other approvals required for access to and use of lands within Project Area.
- Communicating with users of access routes on changes in accessibility for the duration of construction, consistent with the Traffic Control Plan.
- Establishing construction site access routes within the project area such that they do not block access to residential roads.
- Implementing the Traffic Control Plan.
- Scheduling all construction work during only daylight hours to the greatest extent practicable to minimize effects to land use, recreation, and aesthetics.
- Sharing designs and plans with the Wanapum of the temporary walls and/or screens that may be used to shield construction noise and activities from residential homes.
- Sharing a schedule of construction activities with the residents of the WIV to alert them to the types of construction activities that will be occurring adjacent to the WIV, including details on the duration, potential impacts (e.g., noise, dust, etc.), transportation/access restrictions, and safety considerations.
- Training workers regarding privacy and prohibiting worker entry to the WIV.
- Keeping construction areas free from debris as much as practicable.
- Working with the Wanapum to identify appropriate and aesthetically acceptable designs to the RCC dam following completion. This could include color stain applied to the surface of the concrete or vegetative screening to reduce the visual contrast of the RCC dam compared to the surrounding environment.

The short-term effects to recreation are expected to be minimal. No permanent effects to recreation resources would result from the PRREIP. While no long-term effects would occur to the land use zoning or classification, long-term indirect effects to residential land uses could result from the construction of the PRREIP because the footprint of the proposed RCC dam and cutoff wall would encroach on open space on the upstream/northern edge of the WIV. As discussed above, construction of the new RCC dam and secant pile cutoff wall would result in a permanent change to the existing aesthetic resources. As for access, a Traffic Control Plan would be implemented for all

access routes within the Project Area and would help alleviate and mitigate effects. Site protection fencing would also reduce access to areas of the central construction zone for safety reasons but would be removed upon construction completion.

3.11 Cultural and Historic Resources

3.11.1 Affected Environment

The Commission, as the NEPA lead agency, must consider the effect of its federal action on properties listed or eligible for listing in the NRHP under Section 106 of the NHPA. Historic properties are defined as any district, site, building, structure, or object that is included in, or eligible for inclusion in the National Register. Section 106 and the implementing regulations under 36 CFR Part 800 also require the Commission to seek concurrence with Washington SHPO on any finding involving effects or no effects on historic properties. Section 106 and the implementing regulations under 36 CFR Part 800 also requires consultation with Native American tribes where Native American properties and/or traditional cultural properties have been identified.

The Project Area is part of the traditional territory of several Native American tribes. To account for concerns directly and indirectly related to cultural resources, Grant PUD has been and is currently consulting with Washington SHPO, Native American tribes, federal landowners within the Project Area, and members of the Priest Rapids Project Cultural Resources Working Group.

Pursuant to Section 106 of the National Historic Preservation Act, as amended (54 U.S.C. 306108), and its implementing regulations at 36 C.F.R § 800.5(a)(2)(vii), we have determined the licensee's proposed amendment to create a separate embankment immediately downstream of the existing Priest Rapids Dam would have an adverse effect on historic properties. These properties are identified as the Hanford Branch Line of the Chicago, Milwaukee, St. Paul, and Pacific Railroad; the Priest Rapids West Embankment; and the Priest Rapids Hydroelectric Complex. In addition, the Undertaking would impact eligible properties identified as 45BN00160, 45YA00151, 45YA00153, 45YA01720, and Wownisha, the Priest Rapids Indian Village/Wanapum community at Priest Rapids, which is a Traditional Cultural Property.

To date, Grant PUD has consulted with Washington SHPO, Tribes, federal landowners within the project area, and CRWG members on the Project Area, project description, APE, cultural resources survey plan, cultural resources survey, NRHP determination of eligibility report, and a determination of effects to cultural resources. In addition, Grant PUD completed a technical report to facilitate section 106 consultation regarding archaeological resources, which is discussed in the *Cultural Resources Survey and Testing for the Priest Rapids Dam Right Embankment Improvements*

Project, Project Number 2, Grant County Public Utility District No. 2, Benton and Yakima Counties, Washington (AHS 2019).

In coordination with the Commission, Grant PUD and the Washington SHPO have consulted and developed a Memorandum of Agreement (MOA) to mitigate the adverse impacts to historic properties. To satisfy these responsibilities, the Commission executed the MOA with the Washington SHPO on January 24, 2020 and March 5, 2020, respectively. The Wanapum signed the MOA on February 20, 2020 as an invited signatory. The Army's YTC, DOE's Richland Operations Office and Grant PUD are concurring parties to the MOA. On December 20, 2019, the Commission notified the Advisory Council on Historic Preservation (Advisory Council) of the Undertaking and asked the Advisory Council whether it intended to participate pursuant to 36 C.F.R. Part 800.6. No comments were received.

3.11.2 Environmental Effects

Pursuant to Section 106 and the implementing regulation under 36 CFR Part 800, the Commission must consider whether any historic property could be affected by the Proposed Action within the project's APE. The APE is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16(d)).

The APE for the Project includes: (1) all lands within the Project Area for the PRREIP; and (2) lands outside the project area where project construction or operation may affect historic properties. Grant PUD has received Washington SHPO concurrence on the determination of effects to historic properties for the PRREIP on September 26, 2018. Washington SHPO concurs with Grant PUD's determination of adverse effect to the following National Register eligible historic properties: the Hanford Branch Line of the Chicago, Milwaukee, St. Paul, and Pacific Railroad (45YA339); Priest Rapids Dam West Embankment (HPI-666555); and Priest Rapids Hydroelectric Complex (HPI-578097). Grant PUD's determination of effect to historic properties are identified in Appendix J of the amendment application and the proposed treatment for cultural resources including National Register-eligible properties. There is a potential for unanticipated discoveries of cultural resources and human remains during construction or project-related activities. When this occurs, work will be halted immediately in the vicinity of the find and sections of Grant PUD's Historic Properties Management Plan will be followed including 6.6.3.1 (Protocol for Unanticipated Discoveries) and 6.6.3.2 (Protocol for Discovery of Human Remains) (Grant PUD 2011).

The MOA states that the Commission would ensure the proposed mitigation is carried out by the licensee and in consultation with the Washington SHPO. These measures include: (1) providing monetary support for the Washington Information System Architectural and Archaeological Records Data (WISSARD) historic district

enhancement interface and a paid internship; (2) restoring site within two years of completion of construction for the PRREP; (3) monitoring and reporting on cultural resources for unanticipated discoveries during project construction; (4) containing all work to the identified project area boundaries to avoid effects to National Register eligible properties identified as 45BB00160, 45YA00151, and 45YA00153, and fencing to protect the National Register-eligible property 45YA01720; and (5) mitigating traditional cultural properties identified by the Wanapum.

Our Analysis

When constructing the PRREIP, Grant PUD would avoid impacting known historic properties and archaeological resources to the greatest extent possible. Unavoidable impacts to historic properties will be mitigated for through the Section 106 process including consultation with affected agencies and tribes, as set forth in the MOA. Along with the proposed management measures in Appendix J of the amendment application for cultural resources, Grant PUD, in consultation with Washington SHPO, Native American tribes, federal stakeholders and the Cultural Resources Working Group Members, is proposing the following preventive and mitigation measures:

- Utilizing an archaeologist that meets the Secretary of the Interior's Standards to monitor all ground disturbing activities within the PRREIP project area including the areas that were not previously sampled for buried cultural deposits, such as areas of deep Holocene deposition and alluvial fans.

- Monitoring maintenance activities along the upstream and downstream access routes by a professional archaeologist and/or cultural resource specialist. Documenting monitoring activities in a report, submitting it for review to all signatories and invited signatories of the MOA, and filing the final monitoring report with Washington SHPO.

- In the event of an unanticipated discovery of cultural resources or human remains during construction or project-related activities, halting all work immediately in the vicinity of the find and following protocols for sections 6.6.3.1 (Protocol for Unanticipated Discoveries) and 6.6.3.2 (Protocol for Discovery of Human Remains) of the Historic Properties Management Plan (Grant PUD 2011).

- Conducting a landscape study to address the Yakama Nation concerns with the cultural resources survey and NRHP eligibility report.

- Continue consulting with the Wanapum on concerns related to cultural resources and mitigating adverse effects to cultural resources including traditional cultural properties.

- Continue consulting with Cultural Resources Stakeholders (Wanapum, Yakama Nation, Colville Confederated Tribes, and agencies) on impacts, access, and construction schedules.

- Reviewing the Washington State Department of Archaeological and Historic Properties Washington Information System for Architectural and Archaeological Records Data for the PRREIP.

- Reviewing prior archaeological surveys, historic maps, and aerial photographs

In accordance with section 106 of the NHPA, Grant PUD has consulted with the Washington SHPO and Native American tribes to determine the effects on cultural resources due to the proposed amendment. Grant PUD's proposal to amend its license would adversely affect cultural resources and historic properties. Therefore, we recommend the incorporating the MOA in any amendment order for the Priest Rapids project to mitigate the adverse effects to historic properties. We also agreed with utilizing the protocols in the project's approved HPMP if there are any unanticipated discoveries of cultural resources during project construction.

3.12 Noise and Vibration

3.12.1 Affected Environment

Noise in the Project Area includes constant ambient sound of the Columbia River and water flowing through the turbines and spillway of the dam. Persistent noise from regional wind patterns are also noticeable in the Project Area. Winds typically blow from the northwest, around 8 to 10 miles per hour, with occasional strong gusts to 20 mph (NRCS 2002). Intermittent noise in the Project Area may include project-based work at Priest Rapids Dam (e.g., maintenance actions), vehicle sounds within the village, social activity within the WIV, bird calls within the surrounding landscape, activities occurring at the YTC, and airplanes overhead. The baseline noise level within the Project Area is estimated to be approximately 50 A-weighted decibels (dBA), which is the approximate equivalent of a quiet suburb, light automobile traffic at a distance of approximately 100 feet, or rainfall , and accounts for the combined effects of wind, river flow, airplanes overhead, and intermittent noises from dam operations and maintenance. Noise levels are periodically higher as a result of artillery blasts or other explosions associated with military exercises at YTC.

3.12.2 Environmental Effects

Short-term effects to noise and vibration levels would occur as a direct result of construction activities. Heavy construction equipment would be used in multiple locations throughout the Project Area to perform excavation, stockpiling, fill, grading,

and concrete mixing. The short-term effect is an increase in the level of noise, which is characterized by volume in dBA.

Elevated construction noise from equipment and traffic would be generated for the duration of construction but would return to existing levels upon project completion. Construction of the PRREIP would require sequential operations using different combinations of equipment, each resulting in different levels of noise effects at each phase.

The short-term noise levels are calculated to be between 85 and 91 dBA during most of the construction phases. There are likely to be periods of more intense noise at this range, but the noise level may not be consistent over the course of an entire workday. Noise at levels of annoyance is anticipated to occur throughout construction. Effects of noise would occur approximately during the work hours of 6:00 a.m. to 4:30 p.m. for the duration of construction but may vary between these levels at different times. Work may occur over 24-hour shifts for a limited duration. A noise reduction barrier would be installed around the perimeter of WIV residences in the central construction zone to reduce the effect of construction noise on the residential area. No noise abatement measures would be implemented on the upstream or downstream access routes as these are not adjacent to residential areas or other known sensitive receptors.

In addition to noise levels, construction equipment produces vibrations at a low frequency, typically below 200 hertz. It is not expected that damaging vibrations would occur as a result of construction or operations, and this effect would be short-term in duration. Beyond this typical noise range anticipated for the PRREIP, rock blasting at Cow Creek quarry would likely exceed the average noise level range of other construction equipment but would occur for limited durations and on few occasions. The frequency of occurrence and noise level is expected to be less than blasting that may be heard from the YTC military exercises. Potential long-term effects to localized experience of sound could occur as a result of the construction methods used for the PRREIP. The RCC dam will include rock embankments like the existing condition, as well as textured concrete. The different surface conditions and position of the RCC dam may reflect sounds differently than the existing stone embankment once construction is completed. While there is a possibility that the acoustics may be different at locations adjacent to the completed PRREIP, the effects are expected to be similar to the existing operating condition.

Our Analysis

BMPs and mitigation measures applicable to managing or mitigating effects associated with noise and vibration include:

- Installing a temporary noise barrier, such as an echo barrier or similar, along the limit of disturbance at the north edge of the WIV to reduce construction noise levels within the WIV.
- Positioning stationary equipment as far from residential area the north edge of the WIV as possible to reduce construction noise within the WIV
- Maintaining all construction equipment in good condition in order to minimize noise generation.
- Implementing administrative controls to reduce the effect of noise, such as setting construction work hours 6:00 a.m. to 4:30 p.m.
- Developing and distributing a schedule of construction activities to WIV area residents.

These BMPs would limit effects associated with noise and vibration during and after construction. With the implementation of these measures, the proposed action would have a temporary impact on the area surrounding the project area. However, once construction is completed, the effects of noise and vibration are expected to be like the existing operating condition.

4.0 CUMULATIVE EFFECTS

The Council on Environmental Quality's regulations for implementing NEPA at 40 CFR 1508.7 indicate that an action may cause cumulative impacts on the environment if its effects overlap in space and time with the effects of other past, present, or reasonably foreseeable future actions, regardless of the agency, company, or person undertaking the action. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

The scope of analysis for cumulative effects includes the past, present, and reasonably foreseeable cumulative actions that may occur within the Project Area, including federal and non-federal activities. The study area for cumulative effects analysis is the same as the Project Area. The Project's effects on most resources are short-term, would occur on private or relatively remote lands, and are mitigated where possible. Permanent changes will be mitigated at the project level and therefore would not contribute to cumulative effects (e.g., effects to vegetation and wildlife will be addressed through mitigation, and effects to cultural resources will be mitigated through the Section 106 process).

The DOE will undertake a project between the Midway Substation and SR24 within the cumulative effects study area. This North Loop Electrical Transmission Line Rebuild Project is planned to start at the end of 2021, and last through May 31, 2024. Potential effects from construction of the PRREIP would be avoided and minimized where possible. Effects would be compensated where deemed necessary for any permanent loss; however, impacts will be mitigated at the project level (e.g., through

implementation of the traffic control plan) such that the PRREIP would not contribute to cumulative loss. Indirect effects to traffic, air, and noise would occur, and based on the potential for overlap in construction timing of separate projects, the PRREIP could contribute to cumulative increase in traffic impacts. The Traffic Control Plan is being coordinated with potentially affected parties and will be implemented to minimize the project's contribution to cumulative effects, although some incremental increase would occur.

The greatest cumulative effect would occur as a result of construction-related traffic; however, all construction impacts are temporary and will be minimized through BMPs and mitigation measures. Operational maintenance projects would occur at the Priest Rapids Dam. Activities or projects may be associated with regular maintenance or may arise based on necessity. All activities associated with operations and maintenance of the project are managed by Grant PUD to ensure consistency with terms and conditions of the project's license. Grant PUD must consult and coordinate with the consulting parties and stakeholders regarding the construction of the PRREIP to be consistent with Article 417, which requires that project effects to the Wanapum be mitigated such that the cumulative impacts would not become significant.

5.0 LITERATURE CITED

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6.0 LIST OF PREPARERS

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APPENDIX A
Comments and responses to the Draft EA Raised by the Department of Energy and Grant PUD

Commenter	Summary of Issue	Response
DOE	The EA proposes use of Cow Creek quarry as the aggregate source for the project. Up to five graveled passing zones, 25-feet wide would be placed along the upstream access route totaling approximately 7,000 square feet. A downstream access route is also proposed, which uses DOE'S Midway Substation Road. Passing zones are not proposed for the downstream access route. • Page 13 Section 2.2.2, Second Paragraph, Last sentence • Page 16, Section 2.2.5, First Paragraph, Last Sentence • Page 40, Section 3.9.2 Third Paragraph**:** As stated in these sections of the EA, if Cow Creek quarry is not available as the aggregate source, then crushed aggregate material would be purchased from a commercial source and the upstream access route would not be used.	See Section 3.9.1 of the Final EA for the Commission's response
DOE	DOE raises concerns that the EA did not consider the Hanford Site Biological Resource Management Plan and the Hanford Site Revegetation Manual for the vegetation of the distributed areas and requests to be included in the review of the revegetation plan.	See Section 3.9.1 of the Final EA and Our Analysis for the Commission's response

DOE	The Project boundary is defined as the area around the dam; however, the proposed project includes impacts to areas that include transportation routes. The study area, or "region of effects," for the EA should be more completely identified. The only place a "study area" is mentioned is in Section 4.0, the Cumulative Effects section, which states it is the same as the project study area, however, the project study area was not identified in the EA. DOE respectfully recommends that "project area" and "study area" be defined and used more consistently.	Comment noted.
DOE	Page 38, Second full paragraph, DOE respectfully requests that the length of the Midway Substation Road on DOE-managed land be corrected to "approximately 3.5 miles."	Correction made.
DOE	Page 39, Section 3.9.1 Last paragraph. DOE commented on GCPUD's analysis and noted that because the period of construction is 18-24 months, depending on the level of damage, complete repair <u>or replacement</u> of the road might be necessary at any time, not just at the end of PRREIP construction. This would be even more likely should the downstream access route become the primary route, if the upstream route is not used, as stated several times in the EA and noted in the first comment. DOE respectfully requests that FERC make these revisions to the EA.	See Section 3.9.1 of the Final EA for the Commission's response.

DOE	The conclusion in the EA is that road repair to DOE's road is expected to have minimal environmental effects. Based on the previous comments, particularly with regard to the possibility that DOE's road may become the primary access route if the Cow Creek Quarry is not available, the conclusion is even less accurate. DOE appreciates FERC adding the requirement that GCPUD provide the Commission with a road work plan for review and approval. DOE respectfully requests that DOE will be included in that review and approval process.	Comment noted.
DOE	Page 49, Section 3.11.1, First full paragraph. We believe "facilities" should be "facilitate".	Correction made.
DOE	Page 49, Section 3.11.1, Second full paragraph. There appears to be a typo "The Army's YTC Richland Operations Office" among consulting parties on the MOA. We believe it probably should read "The Army's YTC, <u>and DOE's</u> Richland Operations Office"	Correction made.
DOE	Page 54, Section 4.0 regarding the North Loop Electrical Transmission Line Rebuild Project, please revise the project schedule: Construction is expected to begin toward the end of 2021. Construction will take about two years, with an anticipated completion date of May 2024. Road closures are expected along Midway Substation Road when construction crews are installing the new line and structures. SR24 is also expected to be closed when the construction crew pulls wire across SR24. This is a major electrical transmission line rebuild project, and its schedule and the GCPUD's schedule has some overlap with potential conflict of activities in the same area at the same time. Both	Correction made to the schedule based upon the information filed by the DOE. However, in our review, we find the change in schedule would not change our analysis or our findings.

	projects include road and lane closures. We understand that GCPUD intends to coordinate activities with all parties who use the road but DOE's North Loop electrical transmission line rebuild project requires particular attention because project schedules have the potential for conflicts.	
DOE	General NEPA comment: DOE could adopt FERC's EA for DOE's federal action of issuing a realty instrument (a license) for use of Midway Substation Road if the EA meets DOE's NEPA implementing regulations and addresses the concerns on DOE-managed land. If, for example, the issue of DOE's road becoming the primary access for the project, with attendant impacts, is not addressed in FERC's EA, DOE will conduct its own NEPA process. Potential damage to the road is not just a road repair issue but would also impact the many users of the road, including to operate and maintain major electrical infrastructure (a major substation and many electrical transmission lines).	Comment noted. However, the Commission notes that as discussed in the draft and final EAs, we will require Grant PUD to file a plan for any additional work for the access roads not considered in the Traffic Control Plan. We will also require Grant PUD to provide documentation of its consultation with the resource agencies and stakeholders in the development of this plan.
Grant PUD	Addressed DOE's comments about the number of truck trips in the draft EA.	Comments are noted and addressed in Section 3.9.1 of the final EA.
Grant PUD	Addressed DOE's comments about passing zones.	
Grant PUD	DOE appears to be confused by the description of the FERC Licensed Priest Rapids Project Boundary (as correctly described in Section 1.1 of the draft EA) and the description of the PRREIP Project Area in Section 2.2 on page 12 of the draft EA, which fully identifies all areas of the proposed PRREIP, including the entire downstream access route.	Comment noted.

Grant PUD	In response to the DOE's Comment No. 4, Grant PUD says it included this correction as part of its June 26, 2020 filing.	Correction made.
Grant PUD	Grant PUD doesn't believe additional environmental analysis is necessary for the downstream access route. As referenced in Section 3.9.2 (page 42) in the draft EA, if additional road repairs are needed that would be beyond the scale and scope of what has been already been described and analyzed in the draft EA, it would be required to file plan for these additional repairs for FERC review and approval, which would include required consultation with DOE and other resource agencies and tribes. Although all potential road repairs will be accomplished as currently described and analyzed in the draft EA (and as such would not require additional review), in the unlikely scenario that repairs are needed that would require methods and disturbances that are not already described in the draft EA, it would file for FERC review and approval its updated plan.	Comment noted and addressed in section 3.9.1 of the final EA.
Grant PUD	Grant PUD concurs with the DOE-proposed clarifications in these comments.	Correction made.
Grant PUD	As described in the draft EA, Grant PUD developed a Traffic Control Plan that includes a communication plan (Section 3.7 of the Traffic Control Plan) for all potentially impacted users of the upstream and downstream access routes. This plan will be utilized to coordinate any potential conflicts associated with use of the Midway Substation Road. In addition, Grant PUD understands that as the	Correction made to the schedule based upon the information filed by the DOE. However, in our review, we find the change in schedule would not change our analysis or our findings.

	owner of the Midway Substation Road, DOE may condition use of their road to reflect resolution of any potential conflicts associated with use of the Midway Substation Road. The draft EA accurately describes the only proposed closures of the downstream access route to be upstream, or to the north, of the Simon Martinez Orchards, which would not include any portion of the DOE-owned Midway Substation Road. Furthermore, Grant PUD does not propose to close any section of SR 24 at any time for the PRREIP project. If the transmission line project referenced by DOE requires closures of SR 24, Grant PUD anticipates that the proponent of that project will secure necessary approvals (and provide adequate notices) consistent with applicable Washington State Department of Transportation regulations and guidelines. As such, and given the clarifications provided above associated with the anticipated truck traffic for Grant PUD's proposal, Grant PUD does not anticipate any significant impacts to the implementation of the PRREIP associated with the transmission line project referenced by DOE.		