FINAL ENVIRONMENTAL ASSESSMENT

REBUILD OF 12.6 MILES OF THE BENTON-OTHELLO SWITCHING STATION 115 KV ELECTRICAL TRANSMISSION LINE ON THE HANFORD SITE, WASHINGTON

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ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effects
ACHP	Advisory Council on Historic Preservation
Avista	Avista Utilities
BLM	U.S. Bureau of Land Management
BMP	Best Management Practice
BPA	Bonneville Power Administration
BRMP	Biological Resources Management Plan
CCP	Comprehensive Conservation Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CLUP	Comprehensive Land-Use Plan
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWA	Clean Water Act
DAHP	Washington State Department of Archaeology and Historic Preservation
DOE	U.S. Department of Energy
EA	Environmental Assessment
Ecology	State of Washington Department of Ecology
ECOS	Environmental Conservation Online System
EIS	Environmental Impact Statement
ERDC	U.S. Army Engineer Research and Development Center
ERDF	Environmental Restoration Disposal Facility
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FR	Federal Register
FRV	Fundamental Resources and Values
HCP-EIS	Hanford Comprehensive Land-Use Plan Environmental Impact Statement
HFD	Hanford Fire Department
HRA	Historical Research Associates
HRNM	Hanford Reach National Monument
HRNM-CCP	Hanford Reach National Monument Comprehensive Conservation Plan
kV	kilovolts
KOP	Key Observation Point
MAPR	Manhattan Project National Historical Park
MOA	Memorandum of Agreement
Monument	Hanford Reach National Monument
MSA	Mission Support Alliance
MW	megawatts
N/A	not applicable
NEPA	National Environmental Policy Act

NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHPA	National Historic Preservation Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
ORNL	Oak Ridge National Laboratory
PNNL	Pacific Northwest National Laboratory
Rare Care	Rare Plant Care and Conservation
RCW	Revised Code of Washington
RL	Richland Operations
sq. ft	square feet
SUA	Special Use Airspace
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Property
TNC	The Nature Conservancy
transmission line	Avista's Benton-Othello transmission line
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WAC	Washington Administrative Code
Wanapum	Wanapum of Priest Rapids
WDFW	Washington Department of Fish and Wildlife
WNHP	Washington Natural Heritage Program
Yakama Nation	Confederated Tribes and Bands of the Yakama Nation

GLOSSARY

100-Year Flood	A flood magnitude that has an average recurrence interval of 100 years. (Flood magnitude values are location specific.). Statistically, this is a flood magnitude that has a 1 in 100 chance (i.e., 1 percent chance) of being equaled or exceeded in any 1 year.
Access Road	A road or road spur that provides access to the transmission line corridor and transmission line structure sites during construction and operation and maintenance
Appurtenances	Components of the electrical transmission system excluding the pole structures and conductors. These may include parts such as insulators, fasteners, anchors, and guys.
Area of Potential Effects	Under the National Historic Preservation Act it is 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.
Attainment	A geographic region where the concentration of one or more criteria air pollutants defined in the Clean Air Act does not exceed National Ambient Air Quality Standards
Best Management Practice	Various practices that are effective and practical means of avoiding or reducing impacts during implementation of the Proposed Action. At the Hanford Site, Best Management Practices (BMPs) are specified in site policies, plans, and procedures that are integral to the protection of workers, project assets, and the environment. For example, they may include functional design criteria, site evaluations for land-use requests on the Hanford Site, construction management, environmental protection processes, biological and cultural resource management, weed management, revegetation and ecological restoration, and fire protection restrictions.
Conductors	Wire cables strung along a transmission line through which electricity flows
Criteria Pollutants	Air pollutants considered harmful to public health and the environment for which the Environmental Protection Agency must establish National Ambient Air Quality Standards
Cultural Resources	Areas or objects that are of cultural significance to human history at the national, state, or local level. This generally includes paleontological, pre-contact, and post-contact resources, as well as resources of traditional use or religious value to Native Americans and Native American human remains.
Designated Critical Habitat	The specific areas within the geographic area, occupied by the species at the time it was listed under the Endangered Species Act, that contain the physical or biological features that are essential to the conservation of endangered and threatened species and that may need special management or protection.

Floodplain	That portion of a river valley adjacent to the stream channel that is covered with water when the stream overflows its banks during flood stage. A 100-year floodplain is the area inundated by a 100-year flood event.
Habitat	The combination of biotic (living) and abiotic (nonliving) components that provides the natural home or environment of an animal, plant, or other organism
Historic District	A specific, definable geographic area with a significant number of historic buildings, features, structures, or objects that are united by historical events or aesthetic associations
Historic Property	Any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion on the National Register of Historic Places
Mixed Waste	Waste that contains a radioactive material component and a hazardous/dangerous component subject to the Washington State Department of Ecology Dangerous Waste Regulations (Washington Administrative Code [WAC]-173-303)
Outage	An event caused by a disturbance on the electrical system that requires the electrical provider to remove a piece of equipment or a portion or all of a line from service; caused by human actions or natural events
Pole Structure	Structures that are used to support overhead transmission conductors. Support structures are typically wooden poles, steel lattice towers, or tubular steel monopoles
Precontact	Of or relating to the period before contact of an indigenous people with an outside culture
Pulling Areas	Sites located along the transmission line where equipment (i.e., a puller) is set up and used to pull the conductor through portions of the transmission system
Solid Waste	Any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including, solid liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities. Solid waste does not include solid and dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows, or industrial discharges which are point sources subject to permits under Section 402 of the *Federal Water Pollution Control Act, as amended*, or source, special nuclear, or by-product material as defined by the *Atomic Energy Act of 1954*, as amended.
Staging Areas	Multi-use construction areas (also referred to as laydown areas) established to stage construction personnel and equipment and to store and stockpile new and removed support structures, conductors, electrical hardware, trucks, cranes, and other equipment
State Sensitive Species	Any wildlife species native to the state of Washington that is vulnerable or declining and is likely to become endangered or threatened throughout a significant portion of its range within the state without cooperative management or removal of threats (WAC 220-610-11[2.6])

Stringing	Process of attaching of electrical conductor cable onto support structures from spools of cable
Switching Station	A substation where energy is routed either to or from different transmission lines
Tensioning	Process by which electrical conductor cables are pulled on the support structures and tightened to achieve the appropriate tension or sag between structures
Tensioning Areas	Temporary construction areas located along the transmission line where tensioning equipment is set up and used to tighten the conductor in order to achieve the required conductor sag between structures
Threatened or Endangered Species	"Threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. "Endangered species" means any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta. Species may be listed as threatened or endangered at both the federal and state levels.
Traditional Cultural Property	A site that is eligible for inclusion in the National Register of Historic Places because of its association with cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community
Transmission Line	A system of structures, wires, insulators, and associated hardware that carries electric energy from one point to another in an electric power system. Lines are operated at relatively high voltages, varying from 69 kV up to 765 kV, and are capable of transmitting large quantities of electricity over long distances

1. INTRODUCTION AND PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION AND PROJECT LOCATION

This Environmental Assessment (EA) was prepared for the proposed 12.6-mile long Avista Utilities (Avista) 115 kV transmission line rebuild project on the Hanford Site, which is federally owned by the U.S. Department of Energy (DOE). The proposed project is located, in part, on a portion of the Hanford Site designated as the Hanford Reach National Monument (Monument). A portion of the Monument, on which approximately 9.7 miles of the transmission line is located, is managed by the U.S. Fish and Wildlife Service (USFWS) under a permit from DOE. DOE manages Monument land along a ¼-mile wide corridor on the south and west sides of the Columbia River on the Hanford Site. The transmission corridor crosses the approximately ½-mile wide Columbia River, the ¼-mile wide strip of Monument land and continues for another approximately 2.1 miles across the Hanford Site to the point where the ownership of the transmission line changes from Avista to the Bonneville Power Administration (BPA) (Figure 1-1).

DOE and USFWS have management responsibilities for activities on the Monument; however, DOE is the lead federal agency under the National Environmental Policy Act (NEPA), and DOE's land and resource management plans are used as part of the methodology for analyses in this EA. USFWS' land and resource management plans are also addressed where applicable, although there are many similarities between the plans of the two agencies.

To simplify how the location of the transmission line is described in the EA, the transmission line will be identified as being either "on the Monument" or "off the Monument," or as "USFWS-managed" or "DOE-managed" lands.

The Monument includes approximately 196,000 acres of land on the DOE Hanford Site, of which approximately 165,000 acres are managed by USFWS. The Monument was established in 2000 by a Presidential Proclamation [65 FR 37253. 2000] under the American Antiquities Act. The Proclamation provides that nothing in the Proclamation shall interfere with the operation and maintenance of existing facilities of the Columbia Basin Reclamation Project, the Federal Columbia River Transmission System, or other existing utility services that are located within the Monument. The Proclamation directs that the Monument be jointly managed by DOE and USFWS. The Proclamation also gave USFWS the authority to conduct the Hanford Reach National Monument Comprehensive Conservation Plan (HRNM-CCP) and Environmental Impact Statement (EIS) (USFWS 2008), which provides management guidelines to ensure the proper protection of the Monument's resources.

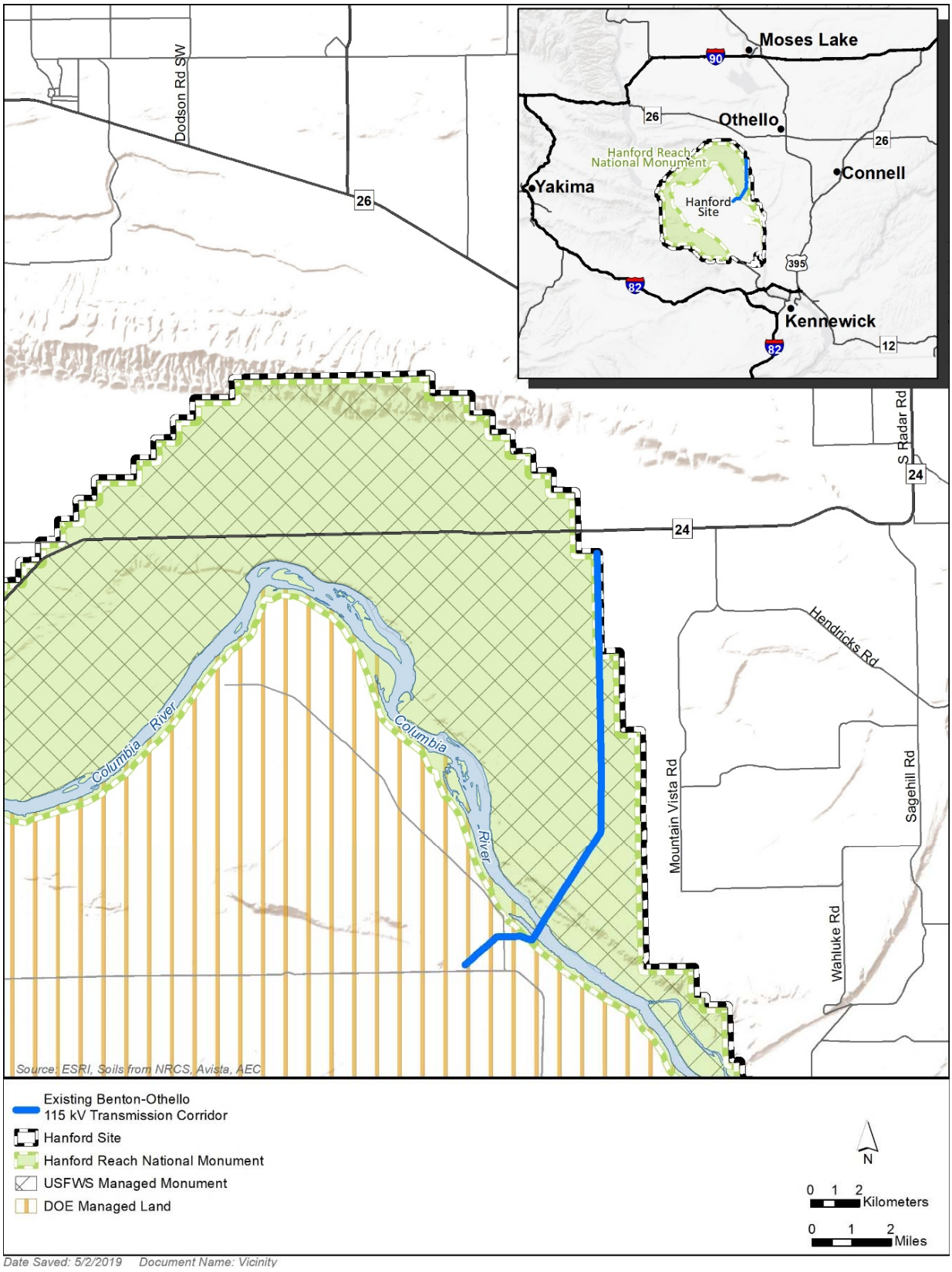

Figure 1-1. Vicinity and Land Management

1.2 NEED FOR ACTION

Avista's Benton-Othello transmission line (transmission line) was originally built with western red cedar wood poles in the 1920s and 1940s and is well past its expected 60-year life span. The existing wood-pole structures on the transmission line are deteriorated with rot, woodpecker holes, and fire damage (Figure 1-2). The existing copper conductors are physically worn and inefficient. They lack the electrical capacity to serve the electrical local demand for the 7,000 current customers and the expected growth, including increased electrical demand of new renewable energy sources in the area. The current capacity of the transmission line is 53 megawatts (MW) and the minimum capacity for the Othello area transmission system is 80 MW. The Othello area includes all Avista, Inland Power and Light Company, and Big Bend Electric Cooperative customers in Othello, including two large food-processing plants, the towns of Lind, Ritzville, and Washtucna, and all surrounding areas.

Figure 1-2. Deteriorated Pole with Fire Damage

1.3 PURPOSE OF ACTION

Avista's purpose for the Proposed Action is to ensure safe and reliable electrical service and energy transmission to customers in an efficient manner and at reasonable rates, as required under the Revised Code of Washington (RCW) 80.28.010. The objectives of the Proposed Action are to:

- Maintain the alignment of transmission lines in the existing easement;
- Ensure the capacity of transmission lines is equivalent to the capacity of the interconnected BPA transmission lines;
- Increase transmission line capacity to meet load demands;
- Improve the structural integrity of the system;
- Minimize the degree to which the system needs to be maintained;
- Perform rebuild work during a time that the outage may be granted on the line (October–March);

- Reduce fire risks to Avista's existing electrical system and to the environment;
- Improve the reliability of the local transmission system and minimize outages; and
- Meet transmission system public safety and reliability standards set by the National Electrical Safety Code (NESC) and North American Electric Reliability Corporation (NERC), respectively.

1.4 NATIONAL ENVIRONMENTAL POLICY ACT AND RELATED LAWS AND REQUIREMENTS

The transmission line is located on Avista's easement through federally managed land. DOE would decide whether to grant a realty instrument for Avista to construct temporary access roads to portions of the transmission line and for temporary material staging and laydown that would be outside Avista's existing easement on DOE-owned land. This EA addresses the NEPA, National Historic Preservation Act (NHPA), Endangered Species Act (ESA), and Clean Water Act (CWA) as well as other laws, DOE procedures and requirements, and subject areas such as land use, floodplains, noise, public health and safety, among others. The NEPA [42 U.S.C. § 4321 et seq.], the Council on Environmental Quality (CEQ) regulations [40 Code of Federal Regulation (CFR) Parts 1500 to 1508], and the DOE's NEPA implementing procedures [10 CFR Part 1021] require that DOE consider the potential environmental impacts of a Proposed Action before making a federal decision that could have environmental effects.

This EA:

- Describes the purpose and need for the Proposed Action;
- Examines the potential environmental effects of the Proposed Action and the No Action alternatives; and
- Analyzes past, present, and reasonably foreseeable actions to evaluate potential cumulative impacts.

DOE would use the findings in this EA to determine whether to prepare an EIS. If the Proposed Action is determined not to significantly affect the quality of the human environment (terminology from NEPA), DOE would issue a Finding of No Significant Impact and not prepare an EIS.

Applicable Land and Resources Management Plans

Because rebuilding the Avista line would occur both on and off the Monument, regulation and management of the resources along the proposed Avista line would be split between the DOE and USFWS. The USFWS, under existing permits from the DOE, is responsible for the protection and management of Monument resources and the management of people and their access to Monument lands under USFWS control. The DOE is also responsible for protecting the resources on and off the Monument as well as managing energy research and remediating wastes remaining from weapons material production on the Hanford Site. While the mission and goals of the DOE and the USFWS on and off the Monument are different, their respective management plans are generally compatible with each other.

The HRNM-CCP provides direction to the USFWS and DOE on management of the Monument (USFWS 2008). The HRNM-CCP is a landscape-scale conservation plan designed to meet applicable laws, executive orders, and policies. This plan provides for the development of more detailed "step-down" plans for the Monument, including:

- Invasive Plant Species Inventory and Management Plan for the Hanford Reach National Monument (Evans et. al. 2003)
- Hanford Reach National Monument Fire Management Plan (USFWS 2009)

Land-use planning and actions on the Hanford Site are directed by the land-use policies set out in the Hanford Comprehensive Land-Use Plan (CLUP), which is Chapter 6 of the Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP-EIS) (DOE 1999). Several implementation plans, addressing unique resources or key activities, are mandated under the framework of the CLUP including:

- Hanford Site Revegetation Plan (DOE/RL-2011-116, Rev. 1) (DOE 2013)
- Threatened and Endangered Species Management Plan: Salmon, Steelhead, and Bull Trout (DOE/RL-2000-27 Rev.3) (DOE 2018b)
- Bald Eagle Management Plan for the Hanford Site (DOE/RL-94-150, Rev. 3) (DOE 2017a)
- Hanford Cultural Resources Management Plan (DOE-RL-98-10, Rev. 0) (DOE 2003)
- Hanford Biological Resources Management Plan (BRMP) (DOE/RL-96-32, Rev. 2) (DOE 2017b)
- Integrated Vegetation Management on Hanford Site (DOE-EA-1728-F) (DOE 2012b)

The Hanford Cultural Resource Management Plan applies to the DOE-managed lands, and DOE actions on USFWS-managed lands on Hanford. The step-down plans are discussed in more detail in the respective resource sections of this EA. The permits and approvals, in addition to the realty instrument DOE may grant, include a Section 10/404 Nationwide 12 Permit or Letter of Permission from the U.S. Army Corps of Engineers (USACE) and a National Pollutant Discharge Elimination System Construction General Permit.

1.5 PUBLIC INVOLVEMENT

DOE held a 14-day public scoping period (January 3–16, 2017) and sent project information to agencies and organizations that could have an interest in the project. Additional project information was made available on DOE's NEPA website. DOE received eight response letters from local jurisdictions, historical societies, and resource agencies during the scoping period. The comments received concerned the following:

- Alternatives, including relocation, use of access roads, and vacation of existing roads;
- Potential impacts to habitat, riparian areas, birds, and threatened and endangered plant and animals;
- Revegetation and weed control;
- Potential impacts to the Manhattan Project National Historical Park (MAPR), the Hanford High School at the Town of Hanford (hereafter referred to as the Hanford High School) and the Hanford Construction Camp Historic District;
- Visual changes; and
- Roles as consulting parties under Section 106 and the NHPA and cooperating agencies under NEPA.

DOE and Avista held an informational meeting with several agencies on May 3, 2017, then held individual follow-up meetings with the National Park Service (NPS) and USFWS.

DOE made the Draft EA available for public review from May 29 – June 11, 2019. Comments were received regarding view impacts, one of which suggested use of copper wire or, a wire covering to reduce the sheen from the aluminum conductors. However, copper wire is outdated and inefficient, and although there are covers for conductors on electrical distribution lines, Avista does not know of a covering for conductors of the size to be used on the electrical transmission line. The low-sheen aluminum conductors, which have even less of a sheen after a few years, were proposed as mitigation to reduce visual impacts as much as possible. Figures 3-25 and 3-26 in this EA were to illustrate before and after views of the pole structures. The conductors in those photos were not of the low-sheen aluminum type, and this Final EA was revised to include this explanation.

Another comment referred to the pole to be removed from the island in the Columbia River as a historic structure. Cultural and historical resource impacts were evaluated in the EA, and while the surveyed section of the Benton-Othello No. 1 Transmission line is individually eligible for the National Register of Historic Places (NRHP) for contributions to the early electrification efforts to rural communities of southeast Washington, this connection to a rural community (the town of Hanford) was severed when the federal government demolished the Hanford Construction Camp and town. The individual poles have been determined not eligible for inclusion in the NRHP or the Washington Heritage Register and do not meet the NHPA's definition of a Historic Property and, therefore, require no management action. The EA notes that removing the island structure would be a noticeable change in the view, primarily for boaters who use it as a navigation reference.

Lastly, a comment noted a requirement for a stormwater permit, and applicable permits were discussed in the EA.

DOE considered public comments it received from Scoping and from public review of the Draft EA in the development of the EA.

2. PROPOSED ACTION AND ALTERNATIVES

This section describes the existing transmission line, the Proposed Action, the No Action Alternative, and how other alternatives were considered during development of this EA. It also describes Best Management Practices (BMPs) that would be used in the Proposed Action. In addition, it describes the federal action DOE may take if the Proposed Action is selected.

Alternatives considered in this EA include the No Action and the Proposed Action. Avista's initial design for the Proposed Action involved reconstruction using traditional construction methods and the most direct access routes. Typical construction methods would have entailed using trucks to access all poles and constructing access roads between most of the transmission support structures (pole structures). The structure on the island/peninsula would have been replaced, and a clear span of the Columbia River would not have been required if typical maintenance methods were used. Instead of evaluating a typical construction alternative with greater soil disturbance and environmental effects, the Proposed Action was altered to incorporate the least disturbing construction methods and access routes.

In response to scoping comments, Avista also considered realigning the 12.6-mile transmission line to avoid the Hanford Site and Monument. This would require purchasing new right-of-way for the transmission line well beyond the project limits, resulting in greater cost to ratepayers and greater disturbance to new areas that had not yet been evaluated for environmental resources. In addition, removing the existing transmission line would still require disturbance to vegetation, habitat, and soils within the transmission corridor. This option would not be cost effective or efficient and would not meet the project purpose and need. The total avoidance of the Hanford Site would not be possible with this option because the transmission line must connect to the BPA-owned transmission line on the Hanford Site.

2.1 DESCRIPTION OF THE PROPOSED ACTION

The easement for Avista's existing transmission line right-of-way, which allows access to rebuild and maintain the line, does not identify a specific width for the right-of-way. Thus, for the purpose of evaluation in this EA, DOE is assuming a 200-foot right-of-way width along the length of the transmission line and 200-foot by 350-foot areas at turns in the alignment of the transmission line where pulling and tensioning equipment would be used. Avista would also need to use DOE-owned property outside of its easement to construct temporary access roads to portions of the transmission line, and for temporary material staging and laydown. DOE's action would be to grant a real estate (or realty) instrument to Avista for this temporary use. As a condition of the realty instrument, which DOE will decide whether to grant for use of federal property outside Avista's existing easement, Avista would be required to complete the BMPs, commitments, stipulations, and mitigation measures that avoid or minimize environmental consequences associated with the proposed transmission line rebuild project on Hanford. The Proposed Action would include:

- Using or improving approximately 35 miles of existing gravel and dirt access roads and creating approximately 3.5 miles of temporary access routes.
- Replacing 127 wood and steel structures and appurtenances (insulators, anchors, guys, etc.) with 89 self-weathering steel H-frame structures similar in design and appearance to the original structures

(Figures 2-1 and 2-2). Most of the new structures would be no more than 10 feet taller than the structures being replaced, with two exceptions:

- Structures in wetlands east of Wahluke Ponds would be up to 30 feet taller than the existing structures; and
- Structures on both sides of the Columbia River would be up to 60 feet taller than the existing structures.

- Replacing the existing copper conductors with new, larger aluminum conductors. The transmission line would continue to transmit 115 kV after construction but would have greater capacity compared to existing conditions.

A comparison of the existing facility and the Proposed Action is presented in Table 2-1. Table 2-2 quantifies estimated impacts by each construction activity due to the Proposed Action.

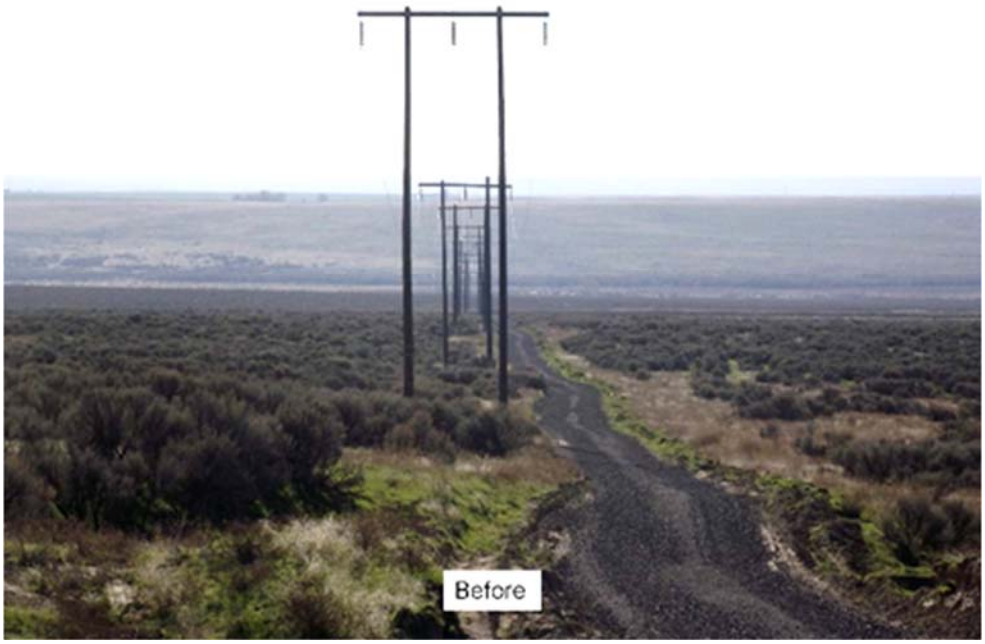

Figure 2-1. Transmission Line North of Project Limits (Before)

Figure 2-2. Completed Transmission Line Rebuild North of Project Limits (After)

Table 2-1. Existing and Rebuilt Transmission Line Elements

Project Element	Existing Transmission Line	Rebuilt Transmission Line
Operating Voltage (kV)	115	115
Total Wood Pole Structures	107	0
Two-pole wood structures	*104 two-pole and three-pole H-frame structures*	0
Three-pole wood structures	*Two three-pole structures at Columbia River crossing*	0
Four-pole wood structures	*One four-pole island structure*	0
Total Steel Structures	20 single pole structures	89 self-weathering steel H-frame structures
Anchors and Guy Wires	130	82
Conductor Material	Copper	Aluminum
Conductor Capacity (MW)	53 MW	80 MW[1]
Total Length (miles)	12.6	12.6

[1] 80 MW is the minimum MW needed to meet the Othello area transmission system; however, the rebuilt line would have a capacity of approximately 205 MW, matching that of the adjoining lines.

Table 2-2. Summary of Impacts by Activity

Activity	Avista Right-of-way (acres)	Outside Avista Right-of-way (acres)	Total Impacted [1, 2](acres)
Temporary Impacts			
Construct New Access Roads[3]	0	1.5	1.5
Improve Existing Access Roads[4]	1.6	3.1	4.7
Stringing/tensioning[5]	8.1	5.0	13.1
Laydown/Staging	0	1.5	1.5
Remove Existing Poles (127)[6]	47.4	0	47.4
Install New Poles (89)[7]	46.8	0.2	47.0
Total Temporary Impacts	**103.9**	**11.3**	**115.2**
Permanent Impacts			
Construct New Access Roads[3]	1.8	0	1.7
Improve Existing Access Roads[4]	0	0	0
Install New Pole Structures and Appurtenances	11.7	< 0.1	11.7
Total Permanent Impacts	**13.5**	**< 0.1**	**13.5**
Total Temporary and Permanent Impacts[8]	**117.4**	**11.3**	**128.7**

[1] Totals may vary slightly due to rounding.
[2] Impacts calculated only for federal lands to assist DOE in determining mitigation requirements
[3] New access roads assumed at 10 feet wide
[4] Existing roads assumed at 15 feet wide except where specified for sensitive species. 11-foot center considered no impact while 2 feet on either side (26.67%) is considered a temporary impact
[5] Tensioning areas assumed to be 350 foot by 200-foot area which may overlap other disturbance areas
[6] Temporary pole disturbance buffers assumed to be 100-foot radius around each pole.
[7] Disturbance area for new poles are assumed to be 100-foot radius for temporary impacts and 20 percent of this would be permanent impacts, except where specified for sensitive resources. Where permanent and temporary pole disturbance buffers overlap, it is assumed to be in a permanent disturbance buffer for calculation purposes.
[8] Where disturbance areas overlap, the highest impact was assumed for calculation purposes. No impacts were double counted.

2.1.1 Temporary Construction Areas

Avista would establish the temporary laydown and staging areas, helicopter landing and refueling areas, truck wash stations, and areas to store poles before disposal. These areas would be staked before mobilizing equipment.

Two laydown areas would be used for staging equipment and materials (poles and appurtenances) which would include truck wash areas, temporary generators, portable restrooms, and a temporary contractor trailer. Both laydown areas would be located outside the Avista right-of-way and off the Monument. The first laydown would be a 39-acre area on a privately-owned farm on Michel Road in Franklin County. The second laydown would be an approximately 1.5-acre graveled area on DOE-managed land off the Monument. See Figure 2-3 for a photo of the laydown on DOE-managed land on the Hanford Site. Poles and appurtenances would be located first at the laydown areas and then moved to the new structure locations before installation. Contractor activities would include driving between pole structures, watering haul roads, conducting fire prevention activities, and installing temporary fencing to prevent theft or unauthorized entry. Helicopters would land and refuel at the laydown areas.

Figure 2-3. Laydown and Helicopter Landing Area

2.1.2 Access Roads

Avista would use existing access roads when possible but would improve sections of roads or construct new temporary spur routes to poles where access is not available. Access roads would be improved to accommodate equipment including pole haul trucks, flatbed trucks, heavy- and light-duty line trucks, earth-moving/excavating equipment, trailers, forklifts used for transportation of the new steel poles, steel cross arms, steel braces, anchors, glass insulators, and other associated materials to each structure location and for removal of the existing pole structures and appurtenances. Access road improvement and construction would include:

- Existing gravel or paved roads that would be used but would not require vegetation removal, widening, or regrading;
- Existing dirt or gravel access roads that are primarily double track routes and that would require minimal vegetation mowing, vegetation removal, or trimming on either side of the road and light blading in short segments; and
- Routes with extensive vegetation that would require mowing or blading to allow equipment access where a new road or spur road would be constructed.

Where existing access roads would be improved, they would be widened to approximately 15-20 feet during construction. New access roads and access routes which would be by foot, would be approximately 6 to 10 feet wide.

Helicopters may be used to access pole structure where access is limited or where specific resources require protection.

Existing roads that would continue to be used for future operation and maintenance on and off the Monument would be restored by minimizing the berms and revegetating approximately two feet on either side, but the remainder of the road width would be seeded with low-growing native species. New temporary roads would be restored. See Figure 2-4 for locations of existing and new roads.

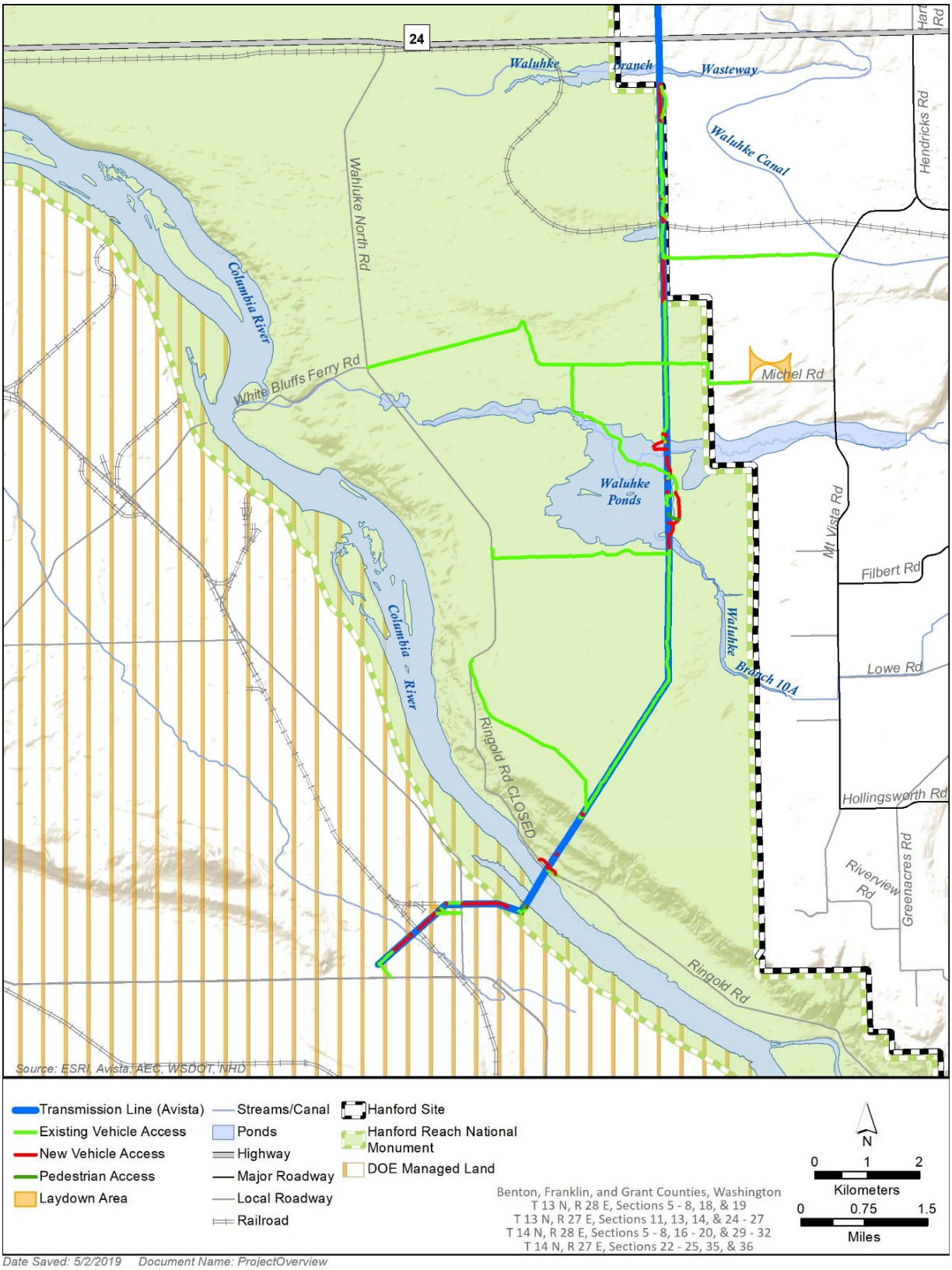

Figure 2-4. Project Overview Map

2.1.3 Replace Pole Structures and Conductors

Approximately 195 pole holes would be excavated to approximately 5 feet in diameter and 7–15 feet in depth, depending on pole length and size. Holes would be excavated with a digger derrick or Lo-Drill with a full-flight auger or core barrel, a backhoe, or by hand. See Figure 2-5 for a photo of pole hole excavation. Spoil would typically be distributed in the right-of-way near the new structures and would blend with the adjacent terrain except in the White Bluffs bladderpod critical habitat where spoil would be placed on plywood or tarps and then hauled away. Six pier foundations would be drilled 8 feet wide and 20–40 feet deep for the construction of concrete and steel foundations to support the taller poles on both sides of the Columbia River.

Figure 2-5. Pole Hole Excavation

Approximately 10 pole structures would require guy wires and anchors. Plate anchors would most likely be used due to the primarily rocky soils, but helix (screw) anchors would be used when possible to minimize ground disturbance. Plate anchor holes would be approximately 10 feet deep and 3 feet wide with trenching for the anchor rod, which would be 4 feet wide and 10 feet deep. See Figure 2-6 for a photo of a plate anchor excavation hole.

Figure 2-6. Plate Anchor Hole and Anchor Rod

For purposes of this analysis, a 100-foot radius disturbance area would be established around each structure, where structures would be either framed on the ground then placed in the holes or framed after the poles are erected. Workers would backfill the holes with crushed rock or poured concrete, depending on the on-site soils, and then compact soil by hand around each pole. A line truck would hold a pole for up to 72 hours as needed until the concrete backfill sets. The disturbance radius would be reduced in the areas containing White Bluffs bladderpod, as described in Section 3.3.1. Disturbance areas would also be reduced where there are fences or topographic obstacles for equipment that would limit their use. Framing and installing pole structures would involve the use of pickup trucks, line trucks, bucket trucks, and/or a crane (Figure 2-7).

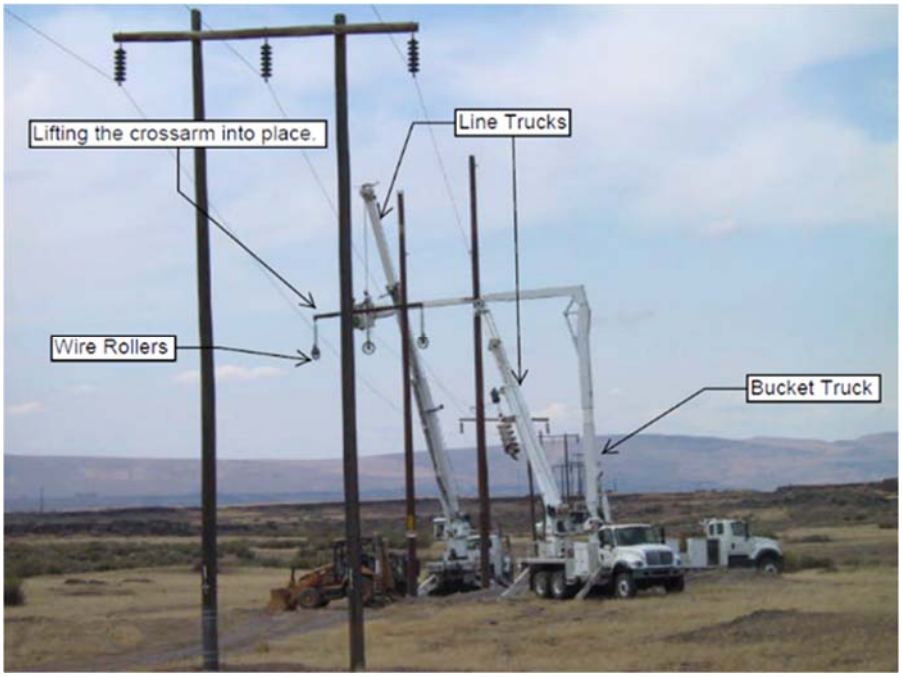

Figure 2-7. Pole Installation

The conductors would be replaced by attaching the ends of the old conductors to the new conductors then pulling the old conductors on rollers to pull the new conductors into place. Workers would use tensioning equipment to pull conductors tight at specific locations mid-span and at angle structures. See Figure 2-8 for an illustration of the tensioning equipment. There would be ten approximately 350-foot by 200-foot areas of soil disturbance due to stringing and tensioning, which would partially overlap the disturbance buffers and access roads. Workers would drive to each new structure and remove the rollers with a bucket truck and then clamp the wires to the ends of the new insulators.

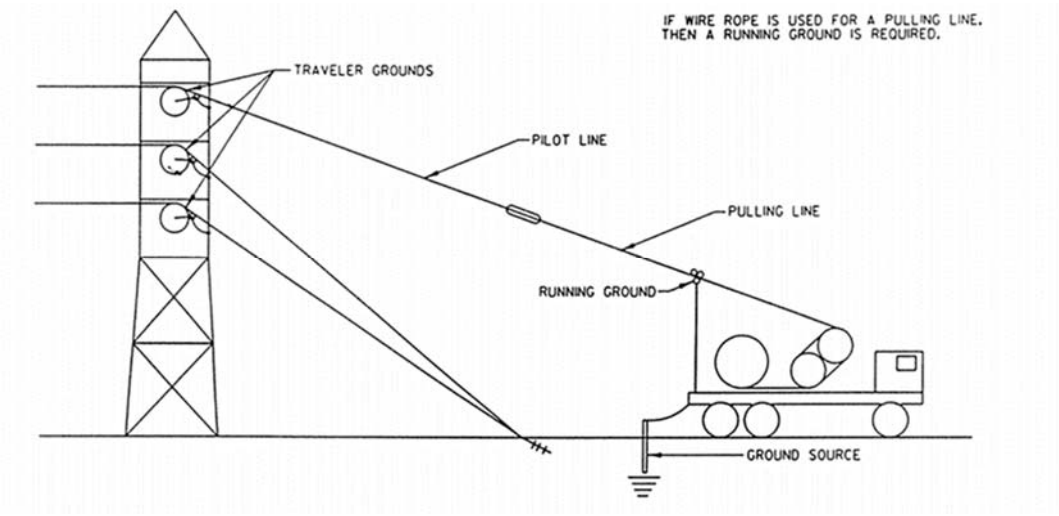

Figure 2-8. Tensioning Equipment

For the majority of the proposed project, all of the material associated with the existing structures and structure components (insulators, guys, anchors, cross arms, and braces) would be removed. In areas with sensitive cultural or ecological resources, other removal means would be used in an effort to minimize disturbance. In these areas, the structures or components, such as wood poles and anchors, may be cut below the ground surface while the upper portions of the structures or components would be removed.

On the USFWS managed portion of the Monument, poles would be removed from the ground and then the bottom of the wood poles, or pole butts, which have been treated with preservatives, would be cut at the preservation line. Pole butts would be transported to Avista's main office in Spokane, Washington, for proper disposal or transported to an appropriate lined land fill. The remainder of the poles and appurtenances would be properly disposed of according to regulatory requirements. On the DOE-managed portion of the Hanford Site, poles and cross arms would be surveyed for residual radioactivity, temporarily stored at a designated location on Hanford, and then properly disposed of. Monitoring, handling and disposal is described in Section 3.3.6, Waste Management.

Where helicopters would be used, workers would climb the poles to detach the existing wires and then lower the components to the ground. A helicopter would be used to transport structures and cables to and from the site where access is difficult or where cultural or ecological resources need to be protected. Holes would be excavated with hand tools and the helicopter would set the structures in the holes, deposit backfill around the new poles, and then fly the old structures to designated locations. Conductors would be replaced as previously described, but crews would be flown in or would walk to structures, rather than using bucket trucks, to clip and unclip the conductors. Helicopter use would be coordinated with the Hanford Site Aviation Safety Officer to ensure no operational conflicts.

2.1.4 Restoration

All of the temporary disturbance areas, stringing and tensioning locations, laydown areas, and access roads not needed for future line operation and maintenance would be restored and revegetated. Avista would prepare and implement a site-specific Restoration Plan that will specify how damage to vegetation and habitat would be avoided, minimized, and mitigated during construction. Soil berms created by blading will be minimized by using narrow blading equipment.

Avista will continue to maintain and monitor restoration areas for a period of five years to ensure that the site-specific success criteria have been achieved in accordance with the Hanford Site Revegetation Manual (DOE 2013). If the criteria are not met within five years, additional restoration and monitoring will be prescribed as necessary. The DOE-issued realty instrument, should it be granted, would remain in place until all Avista commitments and mitigations are satisfied.

2.1.5 Proposed Construction Schedule

The general construction sequence would be as follows:

1. Establish the temporary laydown, helicopter landing and staging areas;
2. Install environmental BMPs;
3. Construct access routes and remove, mow, or trim vegetation as needed;
4. Replace structures and string new conductors; and
5. Restore and revegetate access routes that would no longer be used for future operations and maintenance.

The construction schedule would be established upon the completion of the NEPA process, environmental permitting, and would be dependent upon the outage window, and construction sequencing; however, the anticipated schedule is shown in Table 2-3. Construction is expected to last approximately four months, followed by grading and revegetation.

Table 2-3. Estimated Construction Schedule

Activity	Begin	End
Outage Window[1]	October 1, 2019	March 2020
Install Erosion and Environmental Controls	September 2019	January 2020
Establish laydown, staging, and helicopter landing areas; construct access routes and remove vegetation; stage material	September 2019	February 2020
Excavate holes, install new structures, string new conductors, and remove old structures	Mid October 2019	March 2020
Restoration – Regrading, Revegetation[2], Maintenance and Monitoring	November 2020	June 2026[3]

[1] Period during which this section of line would be removed from service for construction
[2] Planting may occur only during the months of November and December. Regrading for restoration efforts may occur outside of that planting window.
[3] Restoration would be in accordance with the Hanford Site Revegetation Manual (DOE 2013) and documented in a site-specific Restoration Plan.

2.1.6 Operation and Maintenance of Transmission Line

Avista would continue to inspect and maintain the transmission line and access routes within their right-of-way after the transmission line rebuild. The new structures would be self-weathering steel, would have increased capacity, and would meet current standards; therefore, maintenance and emergency repairs would be expected to be less frequent. Maintenance activities would include but would not be limited to:

- Inspecting the transmission line annually;
- Maintaining and monitoring restored and revegetated areas;
- Replacing or repairing individual poles, appurtenances, and conductors as necessary;
- Implementing erosion control measures as needed;
- Managing vegetation within Avista's right-of-way to reduce risk for fires and outages; and
- Accessing the transmission line to conduct the maintenance and operation activities.

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, DOE would not grant a realty instrument to Avista and the Proposed Action of rebuilding the line could not occur. Avista would continue to conduct periodic inspections and routine maintenance including pole treatment, application of fire guard, vegetation management, maintenance of access roads in the right-of-way, occasional pole replacement due to fires or structure failures, and repairs to conductors. The existing conductors would continue to operate beyond capacity, causing outages, posing a fire risk, and affecting the safety and reliability of the rest of the electrical system. Repairs and pole replacements would occur on an unplanned, emergency basis using available materials. During emergency replacements, impact to cultural resources and biological resources may not be avoided due to the need for expedited implementation and the use of traditional construction methods and access. In addition, there are several new renewable energy projects under

construction that are planned to connect to this electrical transmission system, thus requiring it to operate at a capacity higher that exceeds the current design and built. The No Action Alternative would not accommodate these new facilities.

The No Action Alternative would not be consistent with Avista's statutory duty to provide a safe and reliable electric service to its customers in an efficient manner and at reasonable rates and would not comply with Avista's regulatory requirements regarding transmission system reliability and open access through the NERC- and Western Electricity Coordinating Council-delegated authorities regarding the Western Interconnection.

2.3 BEST MANAGEMENT PRACTICES (BMPS)

Avista will implement the applicable DOE and USFWS safety, security, and environmental protection requirements prior to mobilization and construction. The BMPs are specified in policies, plans, and procedures that are integral to the protection of workers, project assets, and the environment. Some of the key programs and documents that will be used during the design, construction, and operation of the rebuilt Benton-Othello transmission line and removal of the existing line are summarized below. These programs and documents, along with the BMPs they prescribe, are considered in the analysis of impacts and mitigation actions discussed in the remainder of this EA.

Erosion and Sediment Control. Avista will plan, implement and manage construction BMPs including erosion and sediment control BMPs that will be identified in a Stormwater Pollution Prevention Plan (SWPPP) based on the Washington State Department of Ecology Eastern Washington Stormwater Manual. The SWPPP will be designed to minimize stormwater pollution, sedimentation and water quality impacts to surface waters from construction. BMPs will remain in place until the soils are successfully stabilized. The SWPPP will identify site-specific measures that include but are not limited to:

- Delineating the clearing limits for vegetation removal and grading;
- Establishing construction access points and limits;
- Installing sediment controls such as silt fences and fiber wattles;
- Stabilizing soils using temporary and permanent seeding, mulching, matting, and dust control;
- Revegetating and seeding in accordance with the Hanford Site Revegetation Manual (DOE 2013) requirements and the site-specific Restoration Plan; and
- Controlling pollutants by identifying risks such as waste materials, chemicals, or petroleum products and handling their use and disposal properly. This will involve establishing concrete washout areas and areas for equipment maintenance, refueling, and chemical storage away from sensitive resources and waterbodies.

Design Standards. The Proposed Action would be designed to minimize risk and maximize reliability by adhering to the NERC Reliability Standards to ensure functions such as performance, environmental protection, safety, and reliability. All structural heights, lengths, and clearances would be designed in accordance with the NESC.

Biological resource management will be in accordance with the Hanford Site BRMP, (DOE/RL 96-32) (DOE 2017b), which provides general directives that apply to all actions occurring on the Hanford Site, including

contractor activities on and off the Monument. These are described in detail in Section 3.3.1.4.2 Biological Resources-Best Management Practices. The following directives apply:

- Work onsite is conducted in accordance with access restrictions and administrative designations related to resource protection areas. These protected sites include areas with rare plant communities (element occurrences), mitigation/restoration areas, collection/propagation areas for native plant materials, and control areas for species of concern, which include bald eagle roost and nest buffer zones, ferruginous hawk and burrowing owl buffer zones, and known populations of plant species of concern.
- New facilities or new road/utility corridors should be built within previously disturbed areas or collocated within existing roads or corridors where possible to minimize habitat fragmentation or degrade existing native habitats.
- Prohibition of vehicular travel off established roads unless specifically approved by the Hanford Fire Department for conducting work activities or in emergency situations off the Monument.

Cultural and historic resource management on Hanford Site, including Monument lands, is described in the Hanford Cultural Resources Management Plan (DOE/RL-98-10) (DOE 2003). DOE and USFWS are responsible for managing cultural resources on the portions of the Monument that each are responsible for managing. Adherence to these guidelines will minimize the impacts on cultural and historic resources. Some BMPs specified in this document include the following:

- Methods to be used for compliance with the Archaeological Resources Protection Act of 1979 [16 U.S.C. § 470aa et seq.], including reporting suspected violations
- Methods for compliance with the Native American Graves Protection and Repatriation Act of 1990 [25 U.S.C. § 3001]

Weed management on DOE- and USFWS-managed properties are implemented through the respective weed management programs. Hanford's Integrated Biological Control program specifies weed control and tumbleweed cleanup, which is done in accordance with program plans. Control of noxious weeds, industrial weeds, and other vegetation is done for the purposes of protecting employees, the public, and the Hanford Site cultural and environmental resources. The USFWS Integrated Plant Species Inventory and Management program (Evans et. al. 2003) provides resource-based weed management including target species, prevention, inventory, monitoring and integrated treatment strategies for USFWS-managed portions of the HRNM.

Revegetation and ecological restoration on the Hanford Site are performed in accordance with the Hanford Site Revegetation Manual (DOE/RL-2011-116) (DOE 2013). This manual provides the following guidance for the planning and implementation of revegetation actions into project planning and would be applied, for consistency, on and off the Monument:

- Guidelines and specifications for revegetation projects in various combinations of soil types and with differing revegetation objectives;
- Development of site-specific revegetation planning documents; and
- Methodology for revegetation site management, including monitoring to ensure compliance with predetermined success criteria and implementation of corrective actions when needed.

Fire protection restrictions and guidelines for off-road travel and working in areas with natural vegetation on the DOE-managed portions of the Hanford Site, are mandated through bulletins and guidance issued by the Hanford Fire Marshal (DOE 2018c). The restrictions and guidelines in this bulletin are dependent on the fire danger level at the time work is being performed and include requirements for notification, restrictions on travel, types of equipment that must be carried in the vehicle, and fire watch protocols.

Fire protection on the USFWS-managed portions of the Monument, are guided by the Hanford Reach National Monument Fire Management Plan (USFWS 2009) which includes strategies for staff and the public fire prevention. It includes measures for fuel reduction, prescribed burning, creating fire breaks, restrictions for off-road vehicle access, fire prevention measures including equipment required by contractors, and prevention of fire by vehicles and equipment.

Spill prevention. Avista will develop and implement a Spill Prevention Plan prior to construction that will identify potential sources of hazardous materials and spills during construction and will outline measures to minimize potential spills, proper disposal, containment, and cleanup if necessary. The Spill Prevention Plan will include descriptions of:

- Proper storage, use, and disposal of hazardous materials to prevent releases or contamination;
- Secondary containment, as needed for chemical storage and refueling;
- Emergency response procedures and contact phone numbers should there be an inadvertent spill, which will include the Avista spill phone number and contact, Hanford and USFWS contacts, an on-call spill cleanup contractor; and
- Contents and locations of appropriate spill kits to respond to spills of materials likely to be on-site. Spill kits will be clearly marked and placed within each vehicle and at all laydown areas.

3. AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

This chapter includes an analysis of the potential environmental consequences or impacts that could result from the Proposed Action and the No Action Alternative. The affected or existing environment is the result of past and present activities and provides the baseline from which to compare impacts from the Proposed Action, as well as the baseline to which reasonably foreseeable future actions and the incremental impact of the Proposed Action are added for the cumulative impacts analysis.

Section 3.1 presents an assessment of environmental resource areas and identifies those subject areas that were considered and dismissed from detailed study. Section 3.2 identifies the past, present, and reasonably foreseeable future actions that are considered in the analysis of cumulative impacts. Section 3.3 presents the affected environment, potential environmental consequences, mitigation measures, unavoidable adverse impacts, and cumulative impacts estimated for each of the subject areas analyzed in detail.

To identify potential impacts on a resource or subject area, a defined area is considered and referred to as the "study area." The term "project area" is used to describe the area in the immediate vicinity of the project. For some resources, the study area includes locations where direct and indirect physical impacts could occur as a result of project activities and is the same as or very similar to the project area.

This EA considers the potential direct, indirect, and cumulative impacts associated with the Proposed Action and No Action Alternative. Beneficial impacts are discussed where applicable. Direct impacts are those that would occur as a direct result of the Proposed Action. Indirect impacts are those that are caused by the Proposed Action but would occur later in time and/or farther away in distance.

3.1 SUBJECTS CONSIDERED AND DISMISSED FROM DETAILED ANALYSIS

Consistent with the CEQ [40 CFR 1500-1508] and DOE NEPA implementing regulations and guidance, the analysis in this EA focuses on the subjects that are relevant to the Proposed Action. As stated in the CEQ regulations:

> "Impacts shall be discussed in proportion to their significance. There shall be only brief discussion of other than significant issues. As in a finding of no significant impact, there should be only enough discussion to show why more study is not warranted [40 CFR 1502.2(b)]."

Accordingly, Table 3-1 briefly describes topics that have been dismissed from the detailed analysis.

Table 3-1. Subjects Dismissed from Detailed Analysis

Subject Area	Project Activities Evaluated	Evaluation
Land Use	Grading, excavating, structure type, removing existing transmission line and replacing pole structures and conductors	The HCP-EIS and the HRNM-CCP provide land management guidance. Section 6.3.5, "Utility and Transportation Corridors," of the HCP-EIS provides policy pertaining to existing utility corridor rights-of-way, which are preferred routes for expanding capacity and new infrastructure. The Proposed Action is to rebuild an existing transmission line in an existing transmission corridor. The Proposed Action would be consistent with DOE and USFWS resource management plans and would not change or alter the land-use designations, map, policies, or procedures of the HCP-EIS or the HRNM-CCP.
Soils	Grading, excavating, removing vegetation and off-road driving	The project area is relatively flat, except along the White Bluffs where there are erodible slopes. Erosion on the White Bluffs is caused primarily by large scale irrigation activities (DOE 2017b) on farmland adjacent to the Hanford Site. Erosion and sedimentation as a result of the Proposed Action would be minimal due to low annual precipitation, granular soils that minimize surface runoff, implementation of erosion control BMPs, and restoration of temporary disturbance areas through revegetation.
Mineral Resources	Grading and excavating	There are no active mineral operations in the area underneath the existing transmission line, access roads, or laydown areas,
Geologic Hazards	Grading, excavating, operations, maintenance, removing existing transmission line, and helicopter operation	Large earthquakes (magnitude 7.0 or greater) are rare in the seismically stable interior Columbia Basin (USFWS 2008). No subsurface geologic features, including faults, have been identified that would pose a hazard to the transmission line corridor (USDA 2006). Small, typically shallow earthquakes generally in the 1 to 4 magnitude range, often occur in spatial and temporal clusters in the central Columbia Plateau and are termed earthquake swarms. The transmission line, including structures and foundations, would be expected to remain operational following typical earthquake events, including minor fault movement. Numerous existing transmission lines on the Hanford Site have not experienced damage from past seismic activity. Volcanic Activity – There has been no volcanic activity in the project region during the last 6 million years, although there is a geologic record of several ashfalls from Cascade Range volcanoes reaching the Columbia Plateau since the Pleistocene epoch (DOE 2012a). The completed transmission line could be affected by such ashfall; however, ashfall events are not expected to affect the transmission line's design or operation. Surface Stability – Helicopters would be used to avoid creating new access roads and to minimize site disturbance. Using downwash calculation methods (Hazelton 2017), wind speeds from helicopter props (rotor wash) on this project were estimated between 38-71 miles per hour up to 54 feet below the rotors, depending upon the helicopter size. Helicopters will be operating above the existing transmission lines at elevations greater than 60 feet to lower materials, workers, raise structures and string conductors, except when taking off and landing which will occur in graveled laydown areas. The project site is primarily vegetated with fine sandy soil substrates and rotor wash could

Subject Area	Project Activities Evaluated	Evaluation
		impact soils around plants (USACE 1991) but this effect could be lessened by construction occurring during fall and winter when ground may be frozen, wet or potentially snow covered. There will be no helicopter used on the exposed upper slopes of the White Bluffs which have highly erodible slopes.
Public Health and Safety	Construction and operation, construction traffic, removing the existing transmission pole structures, and stringing conductors across the river	The general public has shoreline access up to the high-water mark where DOE has posted "No Trespassing" signs. Boating traffic would be restricted during replacement of each of the three phases of the conductor replacement. Boats would be allowed to pass before stringing the next phase. The conductors would be replaced when the power has been turned off in the lines to ensure public safety. Furthermore, the public will be restricted from entering the site during construction. Any possible use of aircraft associated with Hanford Site activities would be coordinated with the Hanford Site Aviation Safety Officer to ensure no operational conflicts.
Transportation and Traffic	Transporting and operating construction equipment, delivery vehicle use, and timing of access	State Route 24 provides access to existing gravel and dirt roads on the Monument, Mountain Vista Road, and Michel Road. Ringold River Road would be used to access the poles on the north side of the Columbia River. The transmission line corridor on the DOE-managed land off the Monument would be accessed by Route 2N and 11A which is restricted to the public. There could be minor, temporary increases in traffic due to the estimated 30 workers commuting to and from the project area, moving construction equipment, and transporting material to the sites. State Route 24 and the local roads have low traffic volumes and low levels of congestion. There would be no permanent impacts to the level of service or congestion. The impacts are anticipated to be over a four-month period in discrete locations where the poles occur or would be accessed during construction, maintenance and monitoring.
Air Quality and Climate	Grading, excavating, off-road driving, equipment emissions, dust from access, excavation, and restoration	The project area is in attainment for criteria pollutants and does not exceed a national ambient air quality standard. Fugitive dust and equipment emissions would temporarily increase during construction and be mitigated through watering. Equipment emissions would be temporary and minor and minimized by maintaining equipment in accordance with manufacturer's recommendation, using ultra-low sulfur diesel fuels (15 parts per million maximum) or biodiesel blends, and limiting equipment idling. Temporary construction impacts are not anticipated to result in any climate impacts.
Noise	Excavating and drilling, helicopter and equipment operation, and corona noise from conductors	Noise from construction activities would be temporary, and sensitive human noise receptors are not present in the study area. Sensitive wildlife receptors include eagles, raptors, and bird rookeries, which have regulated buffers with timing restrictions as discussed in Section 3.3.1 Biological Resources. Transmission system operations would not be expected to create significant noise impacts in the study area. Transmission line noise (also called corona noise) is caused by the partial electrical breakdown of the insulating properties of air around the electrical conductors. It is typically described as a hum. Because the Proposed Action would be replacing an existing 115 kV line, the corona noise from the new line would be similar to the existing transmission line.
Socioeconomics and	Workforce during construction and transmission line siting	The project is on DOE-owned lands and the nearest residence or business is 10.3 miles from the study area. There are no known low-income or minority populations that could be affected (U.S. Census 2018a; 2018b). The Proposed

Subject Area	Project Activities Evaluated	Evaluation
Environmental Justice		Action would temporarily employ approximately 30 workers and would not adversely affect housing, schools, or emergency services. Regional users would benefit from the project regardless of income or race by reducing the frequency of needed operations and maintenance while reducing the frequency and duration of power outages that could affect businesses and residents.
Groundwater	Excavating pole holes, and generating and disposing of hazardous materials	Groundwater levels in the study area are largely influenced by surface and groundwater return flows from farming irrigation which create perched aquifers and ponds in the Wahluke Ponds and causes sloughing along the White Bluffs. The Columbia River surface elevations influence groundwater levels (USFWS 2008). The Proposed Action would primarily disturb surface soils during pole hole excavation and construction of access routes. Groundwater in associated wetlands are described in Section 3.3.2 Wetlands. Most pole replacements would be a maximum of 15 feet deep. Groundwater could be encountered during excavation for the taller poles on either side of the Columbia River where the Proposed Action would require excavation up to 40 feet deep; however, the project would involve filling the holes with steel poles, gravels and concrete which would not substantially affect groundwater levels or quality. Any groundwater encountered during construction of the foundation holes would either be removed from the hole prior to pouring the concrete or allowed to rise in the hole as the concrete fills the bottom of the hole.
Surface Waters	Constructing access roads, excavating, removing vegetation and restoration	The Wahluke Pond associated drainages, the Wahluke Canal, the Columbia River, and the Wahluke Branch Ten Canal are in the surface water study area. Of these, all but the Columbia River are the result of irrigation wastewater. The transmission line conductors cross the Wahluke Branch Ten Canal, the Wahluke Canal, and the Columbia River aerially. The existing access roads cross culverts near the Wahluke Pond and associated drainages. The conductors would be restrung over surface waters and a helicopter would be used to remove the conductors and poles on the island on the south side of the Columbia River, but there would be no in-water work and no debris entering the waterways or soil disturbances that could potentially affect water temperatures, turbidity, flows, or other stream functions as a result. There would be minimal vegetation removal, no tree removal and minimal soil disturbance near the shorelines. The Columbia River is considered a navigable water; however, there will be no permanent impacts to navigation.
Floodplains	Pole replacement and tensioning on either side of the Columbia River	Federal Emergency Management Agency floodplain maps have not been developed for the study area. For this EA, the 100-year floodplain boundaries plus 2 feet were modeled and mapped using the Modular Aquatic Simulation System in One Dimension hydrodynamic model. Disturbance for excavation of pole holes and stringing the conductors are within 100 feet of the 100-year floodplain plus 2 feet limits on the south bank of the Columbia River on DOE-managed land (PNNL 2018). The floodplain boundary would be staked prior to construction and the floodplain would be avoided entirely. There would be no permanent structures or temporary disturbances in the 100-year floodplain plus 2 feet limits.

Subject Area	Project Activities Evaluated	Evaluation
Accidents and Intentional Destructive Acts	Operation and maintenance of systems and access	The likelihood of environmental consequences associated with an intentional destructive act, such as acts of sabotage or terrorism, is extremely low. The existing deteriorated wood and steel poles and the copper and aluminum conductors would not likely be a target on the DOE-managed portions of the Hanford Site due to the restricted access and security. The general public is not permitted to access the DOE-managed portion of the Hanford Site above the high-water mark, and administrative controls (i.e., warning signs) are posted along the Columbia River shoreline at roughly 500-foot intervals. On the USFWS-managed portion of the Hanford Site, vehicular access to the transmission line is restricted to authorized vehicles only, and entrance to the USFWS-managed portion of the Hanford Site has gates in some areas. Interruptions to the electrical grid are an increasing risk; however, the system is being secured through Avista's robust cyber-security programs.
Aircraft Operations (Air Traffic)	Pole siting, pole design, and helicopter operation	The Federal Aviation Administration has categorized the airspace above the Hanford Site as a National Security Area. The specific instructions depicted on local aeronautical charts near the Hanford Site state, "For reasons of national security, pilots are requested to avoid flight at and below 1,800 feet" (FAA 2018). The transmission system would be less than 200 feet in height, so air traffic in the vicinity is not expected to conflict with project components. Potential helicopter use during structure installation and line and conductor stringing is discussed in Section 2.1 and addressed in potential impacts to biological resources in Section 3.3.1.

3.2 PAST, PRESENT, AND FUTURE ACTIONS CONSIDERED FOR ADDRESSING CUMULATIVE IMPACTS

The cumulative impact analyses for each resource or subject area are presented in subsections of Section 3.3 below. The CEQ regulations [40 CFR 1508.7] that implement NEPA define cumulative impacts as the "impact on the environment which results from the incremental impact of the action when added to past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts result from individually minor but collectively significant actions taking place over a period of time."

Present actions are those projects, developments, and other actions that are underway, under construction, or are occurring on an ongoing basis. Reasonably foreseeable future actions generally include those actions that have been formally proposed or planned or that are highly likely to occur based on available information. The following subsections describe these past, current, and reasonably foreseeable future actions.

The boundaries of the cumulative effects' analyses vary by resource. Since the proposed project would occur on DOE-owned land, managed by DOE and USFWS, reasonably foreseeable future projects were determined by interviewing USFWS staff regarding potential future actions on the Monument, and DOE staff regarding potential future actions off the Monument for each agency's lands they are responsible for managing. Reasonably foreseeable future actions include:

- A more formal parking area for the Wahluke Pond may be reconstructed close to the pond but is not funded (Fox 2018).
- USFWS and DOE will continue to conduct vegetation management activities, restore native vegetation, and conduct ecological monitoring. (Fox 2018; Newsome 2018, DOE-2017b).

3.3 SUBJECTS EVALUATED IN FURTHER DETAIL

This section of the EA analyzes the potential environmental impacts of the Proposed Action and No Action Alternative. The affected environment for each subject area represents the existing conditions in the study area as a result of past and present activities. Most potential impacts would occur during construction associated with rebuilding the Benton-Othello transmission line. The impact discussion also addresses potential impacts associated with operations and maintenance activities and mitigation.

The EA evaluates subjects in detail using methods accepted by the agencies responsible for regulating uses that could affect the resources. Study areas for each resource are based on the potential for the No Action Alternative and the Proposed Action to impact it directly, indirectly, or cumulatively. Methodologies for collecting data and analyzing impacts are explained under the Regulations and Methodology section for each resource. Where there are differing perspectives or differing methods for evaluating a resource, the rationale for selecting a methodology is explained.

3.3.1 Biological Resources

Potential impacts of the Proposed Action on the existing terrestrial and aquatic biological resources are determined for the study area. The study area includes:

- The Avista line right-of-way, which is a 200-foot swath centered on the existing Benton-Othello transmission line;
- DOE-owned areas adjacent to, but outside of, the line right-of-way where pulling/tensioning, vehicle and equipment access, temporary equipment storage, and other construction activities would occur;
- Existing and proposed gravel and dirt access roads and new spurs that would be required for the line rebuild;
- Laydown/staging and helicopter landing areas on land owned by the DOE; and
- Adjacent areas where vegetation and/or wildlife may potentially be affected by project activities.

Figure 2-4 provides a map of the project locations listed above.

3.3.1.1 Regulations and Methodology

Because the study area is located both on and off the Monument, regulation and management of the biological resources along the proposed Avista line falls under the HRNM-CCP (USFWS 2008) or the CLUP (DOE 1999), as discussed above in Section 1.4. The HRNM-CCP and the HCP-EIS, along with the implementation plans that flow down from these documents, were developed to support compliance with applicable federal laws, regulations, Executive Orders, and DOE and/or USFWS directives, orders, and guidance. Particularly relevant to the Proposed Action are the aspects of these plans that specify how compliance with the following regulations is assured:

- NEPA
- ESA
- Migratory Bird Treaty Act
- Bald and Golden Eagle Protection Act
- Magnuson-Stevens Fishery Conservation and Management Act
- Executive Order 13112, “Invasive Species”
- Executive Order 11990, “Protection of Wetlands”
- Executive Order 11988, “Floodplain Management”
- Presidential Proclamation 7319, “Establishment of the Hanford Reach National Monument”

In order to provide a consistent approach to the assessment of the existing environment within the study area, determination of potential impacts due to the proposed project, and definition of any mitigation needs, BRMP was selected as the guidance document, regardless of whether the biological resources in question occur on or off the Monument. BRMP, the biological resources management plan that flows down from the CLUP, defines a standard method for determining habitat quality by placing biological resources into six resource priority levels, and based on the resource level assigned, provides accompanying management guidance. BRMP also specifies measures to be taken to avoid or minimize impacts to important biological resources, and when impacts cannot be avoided, provides specific guidance for onsite rectification and/or compensatory mitigation actions. The methodology used for the impact assessment, which is described below, cites the specific guidance found in BRMP as appropriate.

The biological resources present within the study area were determined by field visits and by reviewing monitoring data collected by both USFWS and DOE. Vegetation and wildlife field surveys were conducted by Avista biologists by vehicle and foot in May 2016, February 2017, and April 2017. The presence of species was determined by direct observation, observations of signs of wildlife use, field data, or inferred use based on available habitat and confirmation by USFWS and DOE staff and the Washington State Department of Fish and Wildlife (WDFW) Priority Habitat and Species database (WDFW 2019). Noxious weeds were identified through surveys by Avista within the study area and by accessing USFWS and DOE weed data.

Based on the data collected, resource levels were assigned to habitats within the study area by considering vegetative community types, element occurrences, restoration efforts, and wildlife usage consistent with the Hanford Site BRMP (DOE 2017b). BRMP resource levels range from 0 to 5, with Level 5 being the highest quality resources and Level 0 having the lowest quality.

Under the BRMP, areas within Resource Levels 1 and 0 are preferred for mission support, while projects are expected to avoid and minimize adverse impacts to Resource Levels 2 through 5. For Levels 2, 3, or 4 habitat resources, such as steppe or shrub-steppe habitats, compensatory mitigation is triggered if the impact area, after avoidance, minimization, and onsite rectification (replanting or returning pre-existing plant community to the impacted site), is greater than 1.2 acres. Levels 2 through 4 require mitigation at varying replacement ratios for permanent impacts, which are impacts that exist after the construction impacts are restored. Mitigation for Level 5 resource impacts are determined on a case-by-case basis because they are considered to be irreplaceable resources; impacts to these resources should be avoided to the greatest extent possible.

In addition to the determination of impacts and mitigation actions using the guidance provided in BRMP, the presence of federally listed species in the study area require consultation with the USFWS under Section 7 of the ESA. In compliance with Section 7 of the ESA, DOE prepared a report titled *Biological Evaluation for the Rebuild of the Avista Utilities' Benton-Othello 115 kV Electrical Transmission Line on the Hanford Site, Washington* (DOE 2017c). This included an analysis of the potential for the proposed project to impact federally listed and proposed species and designated critical habitats that would occur near the project. The Biological Evaluation was submitted by DOE for formal consultation with USFWS in May 2016, and USFWS issued a Biological Opinion on February 12, 2018 (USFWS 2018a). This evaluation and the Section 7 consultation are discussed in more detail later in this section.

3.3.1.2 Affected Environment

The Proposed Action would occur within the semiarid Pasco Basin of the Columbia Basin Plateau in south-central Washington State. The study area averages about 7 inches precipitation a year with more than half occurring during the colder months from November through February. Average monthly temperatures range from a low of 31°F in January to a low of 76°F in July; daily maximum temperatures vary from an average of 35°F in December to 96°F in late July (Duncan 2007). Soils in the study area are generally sandy loams or loamy sands, although stabilized sand dunes are also found (NRCS 2006; Hajek 1966).

3.3.1.2.1 Vegetation

Vegetation within the study area is predominately shrub-steppe, that is, habitats dominated by shrubs and steppe grasses. Within the shrub-steppe zone, a number of different community types exist according to climatic conditions, topographic conditions, soil type and depth, and disturbance history. Over the 12.6 miles where the

Proposed Action would occur, the transmission line crosses upland shrub-steppe communities, wetlands, the White Bluffs, benches and riparian areas along the Columbia River, and abandoned agricultural fields.

Upland Shrub-steppe Communities

Upland shrub-steppe communities dominate the Wahluke East Unit where the Avista line crosses the Monument. In areas that have not been disturbed by fire, the overstory is generally dominated by Wyoming big sagebrush (*Artemisia tridentata*); however, antelope bitterbrush (*Purshia tridentata*) becomes the dominant shrub in sandier soils. Spiny hopsage (*Grayia spinosa*) and the smaller snow buckwheat (*Eriogonum niveum*) are also common shrubs in some stands. The most common native grasses are needle-and-thread grass (*Hesperostipa comata*), Sandberg's bluegrass (*Poa secunda*), and in sandy areas, Indian ricegrass (*Acnatherum hymenoides*). Three significant community element occurrences, which are recognized by the Washington Natural Heritage Program, occur within this portion of the study area: Wyoming big sagebrush/needle-and-thread; bitterbrush/needle-and-thread; and Wyoming big sagebrush/Sandberg's bluegrass (Newsome 2018).

Because much of the area has been burned or otherwise disturbed over the past few decades, non-native cheatgrass (*Bromus tectorum*) and Russian thistle (*Salsola tragus)* are very common throughout the area. Significant fires occurred within the study area in 1993, 2002, 2005, 2007, 2015, and 2017. In response to fires, the USFWS has replanted big sagebrush in a number of areas crossed by the proposed transmission line rebuild project (Newsome 2018).

Wahluke Pond Wetlands

There are no natural springs or lakes on the Wahluke slope, but irrigation runoff located off Hanford but adjacent to the electrical line, has created several large artificial wetlands that diversify habitats available to wildlife in this area (USFWS 2008). The Wahluke Pond wetlands, which are located with the study area, are primarily palustrine emergent wetlands with palustrine scrub-shrub components. The vegetation in this wetland is generally dominated by cattail (*Typha latifolia*), common reed (*Phragmites australis*), and Russian olive (*Elaeagnus angustifolia)*. Section 3.3.2 of this EA discusses these wetlands in greater detail.

White Bluffs

The sparsely vegetated White Bluffs, found above the east side of the Columbia River within the study area, are made of soft Pliocene lacustrine deposits of clay, sand, and silt. The top of the bluffs is capped in many places by a harder, highly alkaline, calcium carbonate (caliche) layer (USFWS 2016a). This caliche layer is home to the only known population of the White Bluffs bladderpod, *Physaria douglasii* ssp. *tuplashensis*, which is listed as endangered in Washington State and threatened by the federal government (see Section 3.3.1.2.3 for more information on this species). Other species found within the study area on the White Bluffs include big sagebrush, Sandberg's bluegrass, cheatgrass, Indian ricegrass, buckwheat milkvetch (*Astragalus caricinus*), slender buckwheat (*Eriogonum microthecum*), and several rare plant species (USFWS 2016b; TNC 1999; WNHP 2018):

- Desert dodder (*Cuscuta denticulata*), a state threatened species;
- Great Basin gilia (*Aliciella leptomeria*), a state threatened species;
- Snake River cryptantha (*Cryptantha spiculifera*), a state and federally sensitive species; and
- Dwarf evening-primrose (*Eremothera pygmaea*), a state and federally sensitive species.

Benches and Riparian Areas along the Columbia River

Below the White Bluffs, the primary vegetation is a mixture of bunchgrasses, primarily Sandberg's bluegrass and sand dropseed (*Sporobolus cryptandrus*), and cheatgrass. A few patches of big sagebrush are also found in this section of the study area.

A collar of mostly bare cobble occupies most of the lowest portions of the shoreline on both sides of the Columbia River in the study area. This zone is inundated almost daily during the growing season due to water flow manipulation upriver at the Priest Rapids dam. A number of forbs, including some rare species, occur within the study area in this zone (Sackschewsky et al. 2014):

- Awned halfchaff sedge (*Lipocarpha aristulata*), a state threatened, federally sensitive species;
- Columbia yellowcress (*Rorippa columbiae*), a state threatened, federally sensitive species; and
- Lowland toothcup (*Rotala ramosior*), a state and federally sensitive species.

Near the "low water mark" a low shrub-forb-cobble association with low rhizomatous sub-shrubs, including common dogbane (*Apocyanum cannabinum*) and western goldenrod (*Euthamia occidentalis*), and scattered herbs occur. Strands of reed canary grass (*Phalaris arundinacea*) or riparian wheatgrass (*Elymus lanceolatus*) occur further upslope along the river. Clumps or stands of both native and non-native small trees are found at the top of the slope along the shoreline on the west side of the river and on the island within the study area (PNNL 2004).

Old Agricultural Fields Off the Monument

Off the Monument on DOE-managed land, the proposed project would cross areas that were agricultural lands prior to the designation of the Hanford Site in 1943. Native bunchgrasses, most commonly Sandberg's bluegrass, needle-and-thread grass, and sand dropseed, populate this portion of the study area along with the non-native cheatgrass. In some patches, the bunchgrasses are found with an overstory of gray rabbitbrush (*Ericameria nauseosa*), a mid-successional shrub species.

Finally, as the Avista transmission line joins the BPA line, the line enters a shrub-steppe area with a shrub layer dominated by big sagebrush and an understory co-dominated by Sandberg's bluegrass and cheatgrass.

Noxious Weeds

Noxious weeds occur throughout the study area, both on and off the Monument. The most common noxious weeds within the study area are shown in Table 3-2. In addition, cheatgrass and Russian thistle (*Salsola kali)*, while not considered to be noxious weeds, are considered flammable fuels and may pose a serious fire risk (Evans et. al 2003; DOE 2012b).

Table 3-2. Noxious Weeds Occurring within the Study Area

Scientific Name	Common Name	WA State Classification[1]	USFWS Priority Rank[2]	DOE High Priority[3]
Bassia scoparia	Summer Cypress	B	3	
Centaurea diffusa	Diffuse Knapweed	B	1	*
Centaurea solstitialis	Yellow Star Thistle	B	1	*
Chondrilla juncea	Rush Skeleton Weed	B	1	*
Elaeagnus angustifolia	Russian Olive	C	2	
Lepidium draba	Whitetop	C	2	
Lepidium latifolium	Broadleaved Pepperweed	B	3	
Phragmites australis	Common Reed	B	3	
Rhaponticum repens	Russian Knapweed	B	2	*
Sphaerophysa salsula	Salt Rattlepod; Swainsonpea	C	3	
Tamarix spp.	Saltcedar	C		*

[*] Asterisk indicates species that are DOE High Priority Noxious Weed
[1] Washington State Noxious Weed Control Board 2019; [2] Evans et al. 2003; [3] DOE 2012b.

The Revised Code of Washington *Chapter 17.10-Noxious Weed-Control Boards* provides the regulatory authority for control of noxious weeds in Washington. It also establishes county noxious weed boards and the structure for establishing county noxious weed lists. Washington State organizes noxious weeds into three classes (A, B, and C) that indicate the priorities for eradication and control.

- Class A weeds are non-native species whose distribution is still limited. Preventing new infestations and eradicating existing infestations are the highest priority. Eradication of Class A weeds is required by law.
- Class B weeds are non-native species whose distribution is limited to portions of the State. Species are designated for control where they are not yet widespread.
- Class C weeds are typically widespread in Washington or are of interest to the State's agricultural industry. County weed boards determine guidance for local control of these weeds.

In 1997, DOE established an agreement with neighboring counties' noxious weed boards via a Memorandum of Understanding that guides weed control on DOE-owned lands (DOE 1997b). On the Monument, the USFWS actively controls weed populations in accordance with its invasive species management plan (Evans et al. 2003). Off the Monument, the DOE controls noxious species according to the Hanford Site Integrated Vegetation Management Plan (DOE 2012b). Both the USFWS and the DOE have established a list of priority species that pose the greatest threat to their managed lands (see Table 3-2).

3.3.1.2.2 Terrestrial Wildlife

Mammals

Mammals that occupy and use the shrub and grassland habitat of the study area include large animals such as Rocky Mountain elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*); predators such as coyote (*Canis latrans*), bobcat (*Lynx rufus*), and badger (*Taxidea taxus*); and small herbivores, including northern pocket gopher (*Thomomys talpoides*), Nuttall's cottontail rabbit (*Sylvilagus nuttallii*), and black-tailed jackrabbits (*Lepus californicus*) (Duncan 2007). Site-specific occurrence data for the study area are described below:

- A herd of 50–75 mule deer have been recorded using the Wahluke Pond (Newsome 2018). Mule deer are also common in the portion of the study area off the Monument (Grzyb et al. 2016a). Mule deer rely mainly on the shoreline vegetation and bitter brush shrubs for browsing (Tiller 1997) and are commonly observed near the Columbia River shoreline (Newsome 2018).

- The Great Basin pocket mouse (*Perognathus parvus*), deer mice (*Peromyscus maniculatus*), western harvest mice (Reithrodontomys megalotis), voles (*Lagurus spp., Microtus spp.*), northern grasshopper mice (*Onychomys leucogaster*), bushy-tail woodrats (*Neotoma cinereal*), and northern pocket gophers (*Thomomys talpoides*) are other common small mammals known to occur in the study area (TNC 1999; Duncan 2007).

- Other non-burrowing mammals known to be in the study area include Nuttall's cottontails and black-tailed jackrabbits. The black-tailed jackrabbit is a sagebrush-associated species that exploits areas of rabbitbrush and antelope bitterbrush, which are common in the study area (Grzyb et al. 2016b; Duncan 2007). The black-tailed jackrabbit is a Washington State priority species; it is a candidate species for listing (WDFW 2019).

- A large group of elk have been frequently observed within the portion of the study area off the Monument and signs of elk are plentiful along the Avista right-of-way near the Town of Hanford (Lindsey et al. 2013b; USFWS 2015). Incidental sightings of this elk group have occurred year-round in this area (Figure 3-1), and over 150 elk were recorded in this herd in March 2019 (Nugent 2019). Elk are also occasionally seen on the Monument to the east of the Columbia River; however, they do not generally frequent this portion of the study area (Newsome 2018). Groups of bulls are also known to congregate by the flats along the Columbia River during the ruts (Newsome 2018). In Washington State, elk are considered a priority species due to their recreational, commercial, and Tribal importance (WDFW 2019).

Figure 3-1. Elk within the Study Area Off the Monument

- Seven species of bats were detected during the monitoring of the Hanford High School in the Town of Hanford and the Cornelius substation, both of which are within the study area: little brown bats (*Myotis lucifigus*), Yuma myotis (*Myotis yumanensis*), California myotis (*Myotis californicus*), western small-footed myotis (*Myotis ciliolabrum*), silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), and pallid bat (*Antrozous pallidus*) (Lindsey et al. 2013c). Both structures appear to act as night roosts, which bats are known to habitually use from night-to-night and from year to year. Roosting concentrations of *Myotis* bats and pallid bats are a priority habitat in Washington (WDFW 2019).

Birds

- The most abundant bird species inhabiting the upland shrub-steppe habitats within the study area on the Monument are the western meadowlark (*Sturnella neglecta*), sagebrush sparrow (*Amphispiza nevadensis)*, lark sparrow (*Chondestes grammacus*), horned lark (*Eremophila alpestris*), grasshopper sparrow (*Ammodramus savannarum*), savannah sparrow (*Passerculus sandwichensis*), loggerhead shrike (*Lanius ludovicianus*), and long-billed curlew (*Numenius americanus*) (Earnst 2012). Several of these species, notably the sagebrush sparrow, lark sparrow, and loggerhead shrike, are dependent on large occurrences of sagebrush or grassland with at least some component of native grasses in the understory and are considered indicator species for quality sage-steppe habitats (TNC 1999). Both the sagebrush sparrow and loggerhead shrike are Washington State candidate species.

- The Wahluke Pond has large dissected marsh and riparian habitat that support a variety of waterfowl including sandhill cranes (*Antigone canadensis*), which is a Washington State endangered species; great egrets (*Ardea alba*); Canada goose (*Branta canadensis*); mallards (*Ana platyrhynchos*); American widgeon (*Mareca americana*); northern pintail (*Anas acuta*); gadwall (*Anas strepera*); and diving ducks. This area also provides valuable habitat for pheasants (*Phasianus colchicus*) and non-game birds (WDFW 2019).

- Within the study area along the Columbia River, DOE regularly monitors for bald eagles (*Haliaeetus leucocephalus*) (Wilde et al. 2013). One active nest and a communal night roosts were identified within the study area during surveys in the 2017-18 and 2018-19 seasons. Bald eagles occupy the Hanford Reach primarily during the winter months, arriving in mid-November to forage on fall Chinook salmon (*Oncorhynchus tshawytscha*) carcasses that wash up along the Columbia River. Bald eagles generally move out of the area by Mid-March unless they are nesting. Eagle pairs build nests that are used year-after year; eggs can be laid as early as February and the young generally fledge by mid-summer. Construction activities near eagle nesting areas and night roosts occupied areas are required to comply with the DOE Bald Eagle Management Plan for the Hanford Site (DOE 2017a). Administrative buffers for the nests and the roosts are shown in Figure 3-2.

- Great blue herons (*Ardea herodias*) and white pelicans (*Pelecanus erythrorhynchos*), a State threatened species, are commonly seen in and around the Columbia River and occur in the riparian area within the biological study area. The Cornelius heron rookery, a State Priority habitat, is present along the west shore of the Columbia River (Figure 3-2).

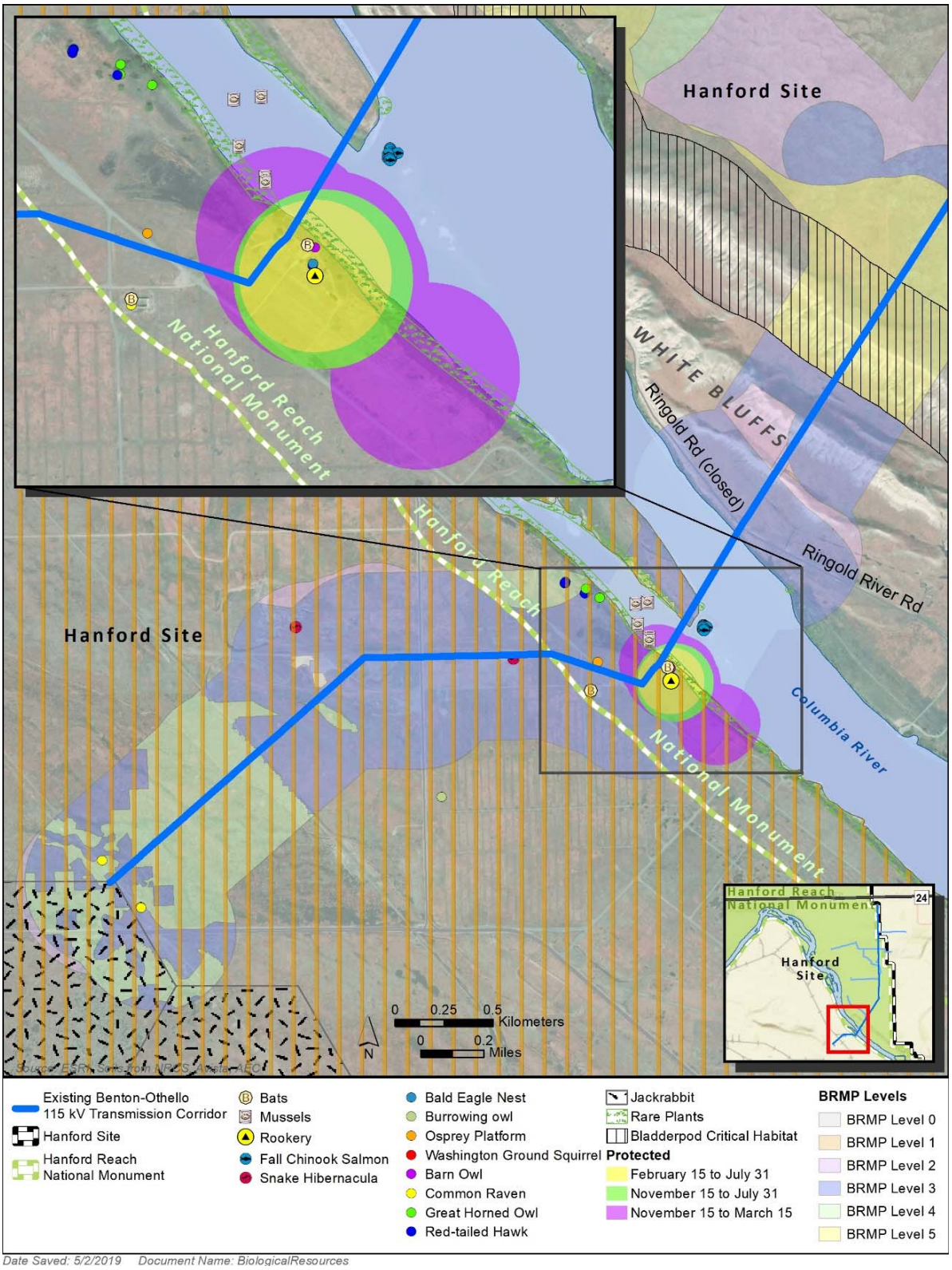

Figure 3-2. Biological Occurrences and Administrative Buffers on DOE-Managed Land

- Red-tailed hawks (*Buteo jamaicensis*), prairie falcons (*Falco mexicanus*), osprey (*Pandion haliaetus*), great horned owls (*Bubo virginianus*), barn owls (*Tyto alba*) and burrowing owls (*Athene* cunicularia) have been documented within the study area off the Monument (DOE and MSA 2018; Nugent 2016). Many of these raptor species, as well as the common raven, use the trees that were planted near now-abandoned homesteads and manmade structures, including transmission towers, and utility poles. (DOE 2016) (Figures 3-2 and 3-3).

Figure 3-3. Osprey Nesting Platform near Pole Structure 24/6

Amphibians and Reptiles

- The Great basin spadefoot toad (*Scaphiopus intermontana*) and Woodhouse's toad (*Anaxyrus woodhousii*) occur in the Columbia Basin where they are known to utilize irrigation ditches and ponds. Both species have been documented within the study area on the Monument (TNC 1999; Duncan 2007).

- The study area contains remnants of native shrub-steppe habitat that are refuges for many species of reptiles. The side-blotched lizard (*Uta stansburiana*), pygmy short-horned lizard (*Phrynosoma douglassii*), and sagebrush lizard (*Sceloporus graciosus*) have been documented within the study area on the Monument (TNC 1999). The sagebrush lizard is a Washington priority species as well as a candidate species for special status listing (WDFW 2019).

- The most common snake species known to occur within the study area are gopher snakes (*Pituophis melanoleucus*), yellow-bellied racers (*Coluber constrictor*), and western rattlesnakes (*Crotalus viridis*). Snakes use hibernacula to avoid cold temperatures. Night snakes (*Hypsiglena torquata)* have also been documented in the study area on the Monument but are rare occurrences (TNC 1999). Off the Monument, two snake hibernacula are located in the transmission line right-of-way near poles structures 25/7 and 24/8 as shown in Figure 3-4. These hibernacula are occupied primarily by western rattlesnakes, which hibernate from early October throughout the winter and early spring and emerging around April (Grzyb 2017).

Figure 3-4. Snake Hibernaculum along Existing Avista Transmission Line near Town of Hanford

3.3.1.2.3 Federally Listed Threatened and Endangered Species

The Project Area is within or near the habitat of several threatened or endangered species that are listed or proposed for listing under the ESA. A list of these plant and animal species and their designated critical habitat, shown in Table 3-3, was provided by the USFWS for further evaluation. This evaluation resulted in the conclusion that, with the exception of the White Bluffs bladderpod (*Physaria douglasii* ssp. *tuplashensis*), the proposed project would have no effect on any of the listed species or their critical habitat.

Table 3-3. Federally Listed Species and Critical Habitat

Species	Scientific Name	Federal Status*	Critical Habitat	Documented in Action Area?	Effect Determination to Species/Critical Habitat
US Fish and Wildlife Service Listed Species					
White Bluffs Bladderpod	*Physaria douglasii* ssp. *tuplashensis*	Threatened	Final Designated	Yes	May Affect, Likely to Adversely Affect/May Affect, Likely to Adversely Affect
Yellow-billed Cuckoo	*Coccyzus americanus*	Threatened	Proposed	No	No Effect/Not Applicable
Upper Columbia River Bull Trout	*Salvelinus confluentus*	Threatened	Yes	Yes	No Effect/No Effect
Columbia Basin Pygmy Rabbit	*Brachylagus idahoensis*	Endangered	No	No	No Effect/Not Applicable
Gray Wolf	*Canis lupus*	Threatened	No	No	No Effect/Not Applicable
National Marine Fisheries Service Listed Species					
Upper Columbia River Steelhead	*Oncorhynchus mykiss*	Threatened	Yes	Yes	No Effect/No Effect
Upper Columbia River Spring-run Chinook Salmon	*Oncorhynchus tshawytscha*	Endangered	Yes	Yes	No Effect/No Effect

Source: (DOE 2017c)

White Bluffs bladderpod occurs in a single population in a narrow 10.6-mile long band along the top of the White Bluffs of the Columbia River, and appears to be restricted to the weathered alkaline paleosols and mixed soils overlying the Ringold Formation. Shown in Figure 3-5, the White Bluffs bladderpod was listed as a federally threatened under the ESA and its critical habitat was designated in 2013. This species is also considered endangered in Washington State (WNHP 2018).

Figure 3-5. White Bluffs Bladderpod

On May 25, 2017, University of Washington Rare Plant Care and Conservation (Rare Care) botanists conducted a census of the White Bluffs bladderpod individuals occurring within the study area that is expected to be directly disturbed as a result of the proposed project. The critical habitat found in the study area is shown in Figure 3-6.

Per Section 7 of the ESA, a Biological Evaluation of the impacts of the proposed project on this species and its designated critical habitat was prepared (DOE 2017c), and the DOE requested a Formal Consultation with the USFWS in September 2017. After reviewing the current status of the White Bluffs bladderpod, the environmental baseline, the effects of the Proposed Action, and the cumulative effects, the USFWS concluded that the Proposed Action is not likely to jeopardize the continued existence of the White Bluffs bladderpod and will not destroy or adversely modify designated critical habitat (USFWS 2018a).

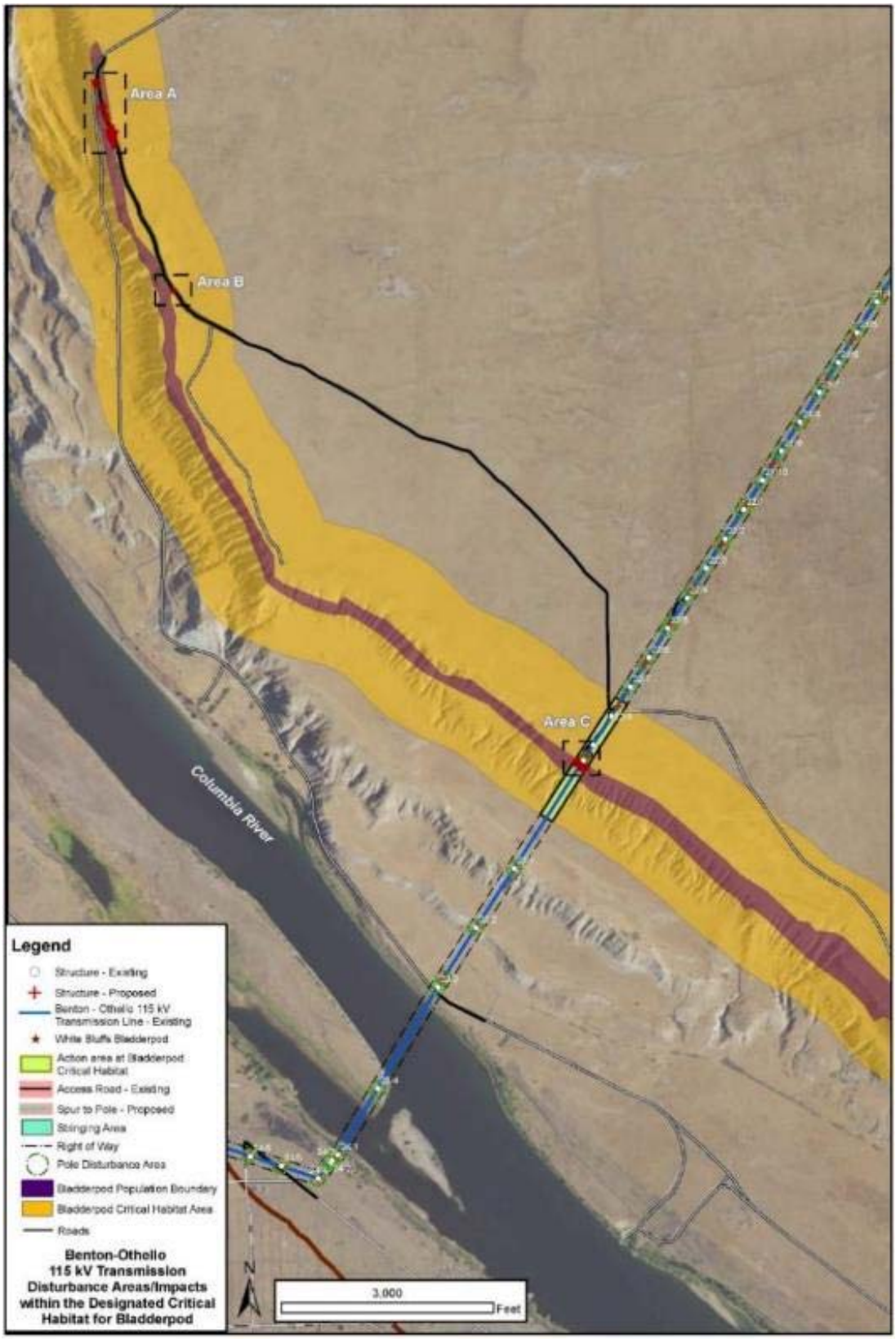

Figure 3-6. White Bluffs Bladderpod Critical Habitat within the Study Area

3.3.1.2.4 Biological Resource Levels

The relative value of both the species and habitats described above were used in applying BRMP resource levels to areas within the study area. The BRMP resource levels prioritize biological resources and assign different levels of management actions – protection, monitoring, impact assessment, mitigation, and restoration – based on the type and relative ecological value of the resource. The map in Figure 3-7 shows the distribution of resource levels 0 through 5 within the study area.

- Level 0 represents an industrial area with no vegetation or with a sparse cover of non-native species. Industrial sites, including roads and parking areas, are considered Level 0 resources.

- Level 1 resources are "Marginal Habitat Resources" with a high proportion of invasive, non-native and common native species. This resource level is generally assigned to upland stands of non-native plants, abandoned agricultural fields, or very small, isolated patches of shrub steppe surrounded by industrial areas.

- Level 2 resources are "Mid-Successional" communities, which generally have a significant number of native pioneer species and fewer climax species present. These communities may support migratory birds, Washington State watch list plants, State-monitored wildlife, and recreationally and commercially important species. Often these areas are upland stands with a sparse climax or successional shrub overstory, and a non-native understory or steppe stands with native plants co-dominant with non-native species.

- Level 3 "Important Resources" include shrub-steppe with a mature native climax shrub overstory and a mix of native and non-native grasses in the understory or with a successional shrub overstory and a predominantly native understory. Snake hibernacula, bat colony roost sites, and wading bird rookeries as well as areas supporting State sensitive or candidate plant or wildlife species, federal species of concern, WDFW priority species and habitats, and culturally important species are considered to be Level 3 resources.

- Level 4 "Essential Resources" encompass upland stands characterized by mature vegetation communities with a native shrub overstory and a native grass understory as well as wetlands and riparian habitats. State threatened or endangered species and candidates for listing under the ESA are also considered Level 4 resources.

- Level 5 "Irreplaceable Resources" are assigned to community element occurrences that are recorded by the Washington State Natural Heritage Program, rare habitats (including cliffs, lithosols, dune fields, ephemeral streams, and vernal pools, fall Chinook salmon and steelhead spawning areas) and species listed or proposed for listing as threatened or endangered under the ESA.

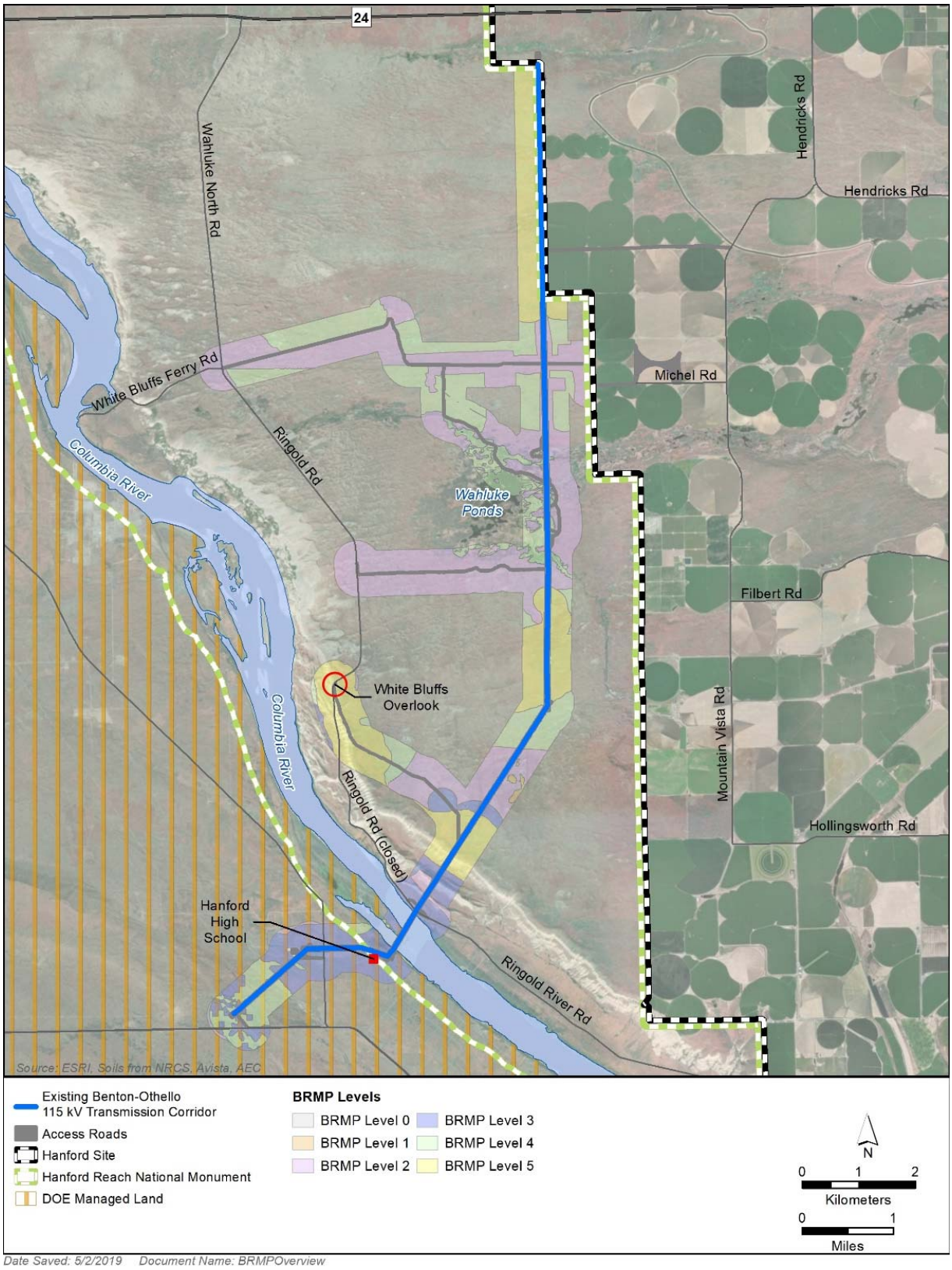

Figure 3-7. BRMP Level Resources in Biological Study Area

3.3.1.3 Environmental Consequences

3.3.1.3.1 No Action Alternative

Under the No Action Alternative, the construction impacts of the Proposed Action, to rebuild the deteriorating Benton-Othello Transmission line, would not occur. Maintenance impacts would continue to occur, and recovery actions along the alignment would likely be needed more frequently as the line continues to age. Thermal overloads could result in fires and destroy important plant and animal populations and habitat. Fires would likely be followed by colonization of the area with non-native species, including cheatgrass and noxious weeds, and could result in the long-term degradation or loss of habitat. Because equipment replacements, inspections and maintenance would occur on an emergency basis, these activities would not be timed to minimize impacts to important and rare species (including the ESA-listed White Bluffs bladderpod and its critical habitat), nesting birds, or important habitats occurring along the line.

Increasingly frequent maintenance and repairs would require heavy equipment and vehicles to access transmission structures, and access roads would be upgraded and maintained. Access roads, some sections of which have been used infrequently and now support substantial amounts of vegetation, may require mowing or blading for continued use. Nearly half of the existing pole structures are located in areas designated as being BRMP Level 5, irreplaceable resources, or Level 4, essential resources (Figure 3-7). Road improvements during emergency access and increased use of these roads for more frequent maintenance, may eliminate adjacent vegetation, disrupt animal corridors, and serve as a conduit for non-native weed species to be introduced into sensitive habitats.

3.3.1.3.2 Proposed Action

Section 2.1 provided a detailed description of the Proposed Action and summarized the expected land area impacts that would result from project activities (Table 2-2). The impacts of these activities on biological resources are described below according to the resource impacted. A direct impact is an immediate of a proposed project on a species or its habitat, and an indirect impact is caused by a proposed project at a later time but is still reasonably likely to occur.

<u>Impacts on Vegetation and Plant Communities</u>

- New spur roads would require removing or damaging vegetation, affecting the upper, most biologically active portion of the soil, and temporarily impacting over approximately 1.5 acres of available wildlife habitat.

- The existing access roads are predominantly double track dirt roads and primitive routes with shrubs or grasses/forbs growing in the road. Overgrown sections of road would be mowed, and the road surface bladed or leveled in sections to allow equipment access. Although a small amount of habitat would be removed, the major impact of this action would be the reduction of fire risk caused by vehicles and equipment traveling over dry vegetation especially during fire season.

- Blading or grading of existing access roads may damage areas adjacent to the road and create unvegetated berms along the side of the roads. Creation of soil berms would alter native plant communities by increasing the potential for tumbleweed and other weed species to grow along the roadway in recently disturbed soils, where they are easily dispersed by passing vehicles and equipment.

- Heavy equipment, vehicles, and materials would crush vegetation, destroy biotic crusts, and compact soils, potentially damaging plant roots including essential shrub-steppe habitat, rare plants, and shrub-steppe associated species.

- Installation of the proposed 89 new permanent pole structures, including, appurtenances, guy wires, and anchors, would permanently affect approximately 11.7 acres of vegetation during construction. Cleared or previously disturbed areas would be used where available; however, stringing/tensioning equipment during construction would disrupt any existing biotic crust on approximately 13.1 acres.

- The proposed project would replace the current wooden poles with steel structures and upgrading the transmission line would reduce the risk of wildfire damage to the surrounding environment.

- When construction and revegetation actions area completed, each of the proposed 89 new pole structures would occupy approximately 0.1-acre area per structure. Because the number of new poles represents a reduction of 38 poles over the current number of poles in the transmission line, roughly 3.8 acres of existing habitat would not be affected by the rebuild. Considering this positive impact, the overall permanent impact would be approximately 13.5 acres.

Removing the 127 existing pole structures would require the use of heavy equipment such as bucket trucks, cranes, and excavation equipment, which would result in damage to existing vegetation and disturbing biotic crust. Removal of each existing pole structure and appurtenance would damage an estimated 100-foot radius around each structure which is about 0.7 acres per structure resulting in approximately 47.4 acres of temporary impact.

- New structure installation and pole removal would create areas with disturbed soils devoid of vegetation. Weedy species colonizing these areas could displace native plants and degrade vegetation communities and could alter the natural fire regime by increasing the frequency or intensity of wildfires.

- The inspection, maintenance and operation of the transmission line could result in occasional vegetation disturbance, soil disturbance and weed dispersal; however, the frequency of these activities would be minimized by replacing the wooden structures with steel structures and improving the existing access roads.

<u>Project Impacts on Wildlife</u>

- Pulling and spooling of lines would temporarily disrupt or displace wildlife. Nesting birds could potentially lose young if the nest were not discovered and protected prior to this activity.

- Permanent removal or temporary disturbance of habitats would result in the loss of opportunities for movement, foraging, nesting, and denning by wildlife.

- Individual animals or important habitat features, such as burrows, could be crushed by equipment during construction. Incidental mortality from these activities would be avoided for most wildlife species because many are highly mobile and would quickly flee if startled by construction equipment. Work would be scheduled to occur during the fall and winter months; when many small mammals and reptiles take refuge and hibernate underground.

- Incidents of wildlife mortality would generally occur at the level of the individual(s) and would not result in local or regional population level impacts; incidental mortality impacts from construction activities related to removal of existing structures and installation of new structures would be low.

- Construction noise and activity during structure removal and installation activities can displace birds during the nesting period, resulting in failed nesting attempts. During the spring and summer, when some species depend on specific locations (e.g., territories and nest sites) to breed, nest, and brood their young, disturbance may cause territory or nest abandonment.

- While bird nests were not observed on the pole structures during field surveys, birds that may potentially use the structures for nesting sites or hunting perches and could be displaced temporarily during construction.

- The Proposed Action would occur within DOE's administrative buffers of the Town of Hanford Bald Eagle Nest, the Cornelius Rookery, and the Town of Hanford Substation Bald Eagle Night Roost (Figure 3-2). Construction impacts during the proposed fall-winter construction period could result in temporary displacement of these birds and could prompt the nesting eagle pair to relocate the nest. Bald eagles are known to begin to lay eggs as early as February (USFWS 2018b); disruption of the nesting pair after eggs are present could result in loss of the young.

- Two documented snake hibernacula, used by western rattlesnakes, are present in the Avista right-of-way off the Monument. Because snakes are ectothermic animals, disruption to a hibernaculum, including during the shoulder season when snakes are moving out during the day and back at night, may result in snake mortality.

- Construction noise from heavy equipment and vehicles would occur throughout the 12-week construction period but would not occur in one area for the duration of the proposed project. The construction noise may temporarily displace wildlife in the area.

- Previous helicopter flights over Hanford have been observed to create a panic response in terrestrial mammals, particularly elk and mule deer (Newsome 2017). During the winter months, elk and mule deer are often within the study area off the Monument, and helicopter disturbance could result in panic to animals causing a higher risk of vehicle collisions.

- Helicopters could disturb eagle nests and roosts near the Hanford Site off the Monument. The DOE Eagle Management Plan requires helicopters and aircraft to maintain a 1,000-foot buffer from eagle use areas to minimize noise disturbance (DOE 2017a).

- Helicopter use could result in some bird mortality. Over 90 percent of reported bird strikes occur at or below 3,000 feet above ground level, although strikes at higher altitudes are common during bird migration, with ducks and geese frequently observed up to 7,000 feet above ground level (FAA 2016). Based on the Air Force Avoidance Model, the risk of bird strikes within the study area, is classified as severe. This area is located along the Pacific Flyway, and the nearby Columbia River serves as a resting area for migrating waterfowl, especially from March to May and late August through November (FAA 2016).

- Migrating birds such as Sandhill cranes, herons, and egrets that use the Wahluke Pond on the Monument could collide with conductors through wetlands causing injury or mortality of individual birds.

Project Impacts on Endangered and Threatened Species

A Biological Evaluation was prepared to address the impacts of the proposed project on the White Bluffs bladderpod, which is a federally threatened species (DOE 2017c). Direct impacts to the bladderpod are expected to occur from uprooting plants by heavy equipment digging or blading of the soil surface and below; or from crushing by tires and placement of supplies. Indirect effects of the proposed project on the bladderpod population could result through actions that increase the likelihood of wildfire or increase the numbers and diversity of non-native plants. Invasive species have the potential to outcompete native species, including the bladderpod, and reduce population size over time. Table 3-4 provides an estimate of the area within the White Bluffs bladderpod critical habitat that is likely to be permanently and temporarily impacted by the Proposed Action.

Table 3-4. Estimated Disturbance Areas in White Bluffs Bladderpod Critical Habitat

Construction Activity in Action Area	Permanent Impact (acres)	Temporary Impact (acres)
Access Roads	N/A	N/A
Improve existing roads used to access the transmission line right of way (10-ft by 4630-ft long)[1]	0	1.06
Improve existing access roads along transmission line (20-ft by 1910-ft long)[1]	0	0.87
Construct Spur Road (10-ft by 133-ft long)	0	0.03
Replace Transmission Line Pole Structures[2]	N/A	N/A
Excavate holes, anchors, and install new pole structures: 22/10 (65-ft radius) and 22/8 (30-ft radius)[3]	0.02	0.21
Remove pole structure and anchors at pole structures 22/9 (20-ft radius)	0	0.06
String and tension new wires	0	0.14
Remove rollers	None	Use of access roads
Haul material off site as needed	None	Use of access roads
Subtotal Area of Disturbance	**0.02**	**2.37**
Total Impact within Critical Habitat	**2.33 acres[3]**	

[1] The areas calculated for access road improvement is a conservative estimate. Where practicable, vegetation may be mowed in lieu of bladed. Pull-off areas may be designated to minimize access road clearing.
[2] Note that the disturbance areas vary for the three poles within the critical habitat: a 30-ft radius is anticipated around pole structures 22/8; a 20-ft radius is expected at 22/9 because the pole is being removed and not replaced, and 65-ft radius is expected around pole structure 22/10 due to the guy wires and anchors required around this structure.
[3] Some construction activities would occur in overlapping areas; therefore, the sum of the construction area acreages exceeds the total disturbance area.

USFWS reviewed the Biological Evaluation for the White Bluffs bladderpod and its critical habitat and reached a conclusion that the proposed project is not likely to jeopardize the continued existence of this species and will not destroy or adversely modify designated critical habitat (USFWS 2018a). This conclusion was reached based on the following assessments of the impacts of the Proposed Action:

- The effects of the action will result in the injury and death of White Bluffs bladderpod individuals in the population; however, the percentage of plants is expected to be less than 1% of the total population.

- Overall, the rebuild of the transmission line will not diminish the numbers, distribution, or reproduction of the White Bluffs bladderpod to a degree that will depreciably reduce the likelihood of survival and recovery of the population.

- The proposed project is likely to affect the primary constituent elements of designated critical habitat for the White Bluffs bladderpod in the short term; however, upgrading the aging transmission line is expected to reduce the need for line maintenance, and less traffic through the critical habitat should result in fewer opportunities for the distribution of weeds seeds from off-site locations. Fire severity is expected to be reduced somewhat because the wood poles will be removed, and fire risk will likely be reduced because aging electrical lines will be eliminated. Only a fraction of the effects of the proposed project on the designated critical habitat are permanent, and the critical habitat unit is expected to continue to function in the manner in which it was designed.

- The proposed project is not likely to destroy or modify White Bluffs bladderpod critical habitat at a range-wide scale.

Overall Assessment of Area Impacts Based on Habitat Quality/Resource Levels

The proposed transmission line crosses a wide range of habitats and biological resources, including relatively undisturbed areas of shrub-steppe vegetation, grasslands with varying degrees of native and non-native species, the White Bluffs, wetlands, aquatic and riparian habitats, and more developed graveled or farmed land. The relative quality of each of the habitats within the study area was assessed by assigning resources levels as defined by the BRMP (DOE 2017b). Table 3-5 shows the relative impacts of project activities on areas of varying resource levels. Level 5 resources are considered irreplaceable and represent the high habitat value, while Level 1 resources are generally marginal habitats and represent the lower habitat value in the Table 3-5 (Section 3.3.1.3.2).

Table 3-5. BRMP Resource Level Impacts by Activity

Activity	Level 1 Marginal Habitats	Level 2 Successional Communities	Level 3 Important Resources	Level 4 Essential Resources	Level 5 Irreplaceable Resources	Total Impacted (acres) [1, 2]
Temporary Impacts	N/A	N/A	N/A	N/A	N/A	N/A
Construct New Access Roads	0.0	1.2	0.3	0.1	0.0	1.5
Improve Existing Access Roads	<0.1	3.0	0.5	0.1	1.1	4.7
Stringing	0.0	2.1	5.6	1.4	4.0	13.0
Laydown	1.5	0.0	0.0	0.0	0.0	1.5
Remove Existing Structures	0.3	19.5	2.9	6.1	18.6	47.4
Install New Structures	0.4	14.8	11.4	4.6	15.7	47.0
Total Temporary Impacts (percent of total)	**2.2 (1.8%)**	**40.6 (35.2%)**	**20.6 (17.9%)**	**12.4 (10.7%)**	**39.4 (34.2%)**	**115.2**
Permanent Impacts	N/A	N/A	N/A	N/A	N/A	N/A
Permanent Impacts from new pole structures	0.1	3.7	2.8	1.2	3.9	11.7
Permanent Impacts from new dirt roads	0	0.1	0.6	0.3	0.8	1.8
Total Permanent Impacts (percent total)	**0.1 (0.7%)**	**3.8 (28.1%)**	**3.4 (25.2%)**	**1.5 (11.1%)**	**4.7 (34.8%)**	**13.5**

[1] The number of acres impacted by project activities are taken from Table 2-2.
[2] The sum total of the activities and BRMP impact may not total consistently due to rounding.

The Proposed Action would have approximately 115.2 acres of temporary impacts to vegetation and habitat. Over half the area potentially affected by the Proposed Action is considered to be higher-quality habitat [i.e., irreplaceable (Level 5), essential (Level 4), or important (Level 3) habitat] and the remainder is primarily levels 1 and 2.

Because the number of total pole structures would be reduced from 127 to 89, there would also be a gain in available habitat along the rebuilt line after revegetation activities are successfully completed. The 38 fewer pole structures include:

- 19 fewer poles in Resource Level 5;
- 5 fewer poles in Resource Level 4;
- 2 fewer poles in Resource Level 3; and
- 13 fewer poles in Resource Level 2.

3.3.1.4 Mitigation Measures

The BRMP establishes a mitigation policy that defines management goals and actions for habitat in each resource level as well as the appropriate compensation for impacts on resources that cannot be avoided (DOE 2017b). The preferred mitigation action is avoidance followed by minimization and onsite rectification of temporary impacts. For the proposed project, the design considerations and best management practices below would be used to achieve these three mitigation actions. Permanent impacts that cannot be avoided, minimized, or rectified would require compensatory mitigation measures be taken.

3.3.1.4.1 Design Considerations

A variety of options that would avoid or minimize adverse impacts to biological resources were considered during the development of the design concepts for the proposed project. Key design features for the transmission line rebuild include the following:

- All of the proposed new poles would be located within the existing Avista right-of-way in a corridor that has been designated and used for a transmission line since the early 1900s.

- The total number of pole structures would be reduced from 127 to 89, and the area where the existing poles would be removed would be regraded and revegetated with native plants.

- The pole structures on either side of the Columbia River would be taller to eliminate the need for an island structure and to avoid shoreline vegetation and soil disturbance. Two existing poles along the Columbia River Corridor would be removed and not replaced.

- Construction support areas would be in previously disturbed Level 1 Resource areas.

- Where soil conditions are suitable, Avista would use helix anchors instead of plate anchors to minimize disturbance. Excavation and large installation equipment are not needed for this type of anchor.

- Most project activities, including construction, would occur between fall and early spring when fire potential is generally low.

- Helicopters would be used to replace pole structures to eliminate use of access roads that pass through the White Bluff's bladderpod critical habitat, which would reduce disturbance to bladderpod plants and designated critical habitat. Helicopters would also be used for pole removal and replacements (if needed) in the Wahluke ponds wetland area and on the island in the Columbia River. Helicopter use would avoid or minimize impacts to the wetlands and the island.

- Helicopter refueling areas would be located at prior-disturbed locations or areas already used for helicopter operations and away from waterways.

3.3.1.4.2 Best Management Practices

In the addition to design features selected to avoid or minimize impacts, the following specific BMPs would be used to avoid, minimize, or rectify the impacts of the proposed project on biological resources.

- Avista would conduct, in concert with DOE/DOE contractor biologist and/or USFWS biologist, preconstruction surveys prior to land disturbance or construction to identify the site-specific resources that are to be avoided such as rare plants, nesting birds, and snake hibernacula. Bird nest surveys would be completed by a qualified DOE/DOE contractor biologist or USFWS biologist within one week prior to the start of any construction activities that occur during nesting season.

- Avista would install signage, fences, and/or flagging to ensure that vehicles and equipment stay within their designated routes and work areas, and so they will avoid areas with important resources such as high-quality plant communities or special-status species. Avista would adjust disturbance buffers around the new construction areas to eliminate using areas not suitable for construction and to minimize vegetation damage and removal.

- Avista would restrict land clearing activities, to the extent that it is able, to the non-nesting season for migratory birds.

- Avista would prepare a Stormwater Pollution Prevention Plan and a Spill Prevention Plan to help avoid, minimize and mitigate potential construction impacts; depending on conditions, silt fencing, fiber wattles, and/or concrete washouts may be used.

- Avista would minimize the risk of fire during construction by:
  - Complying with applicable USFWS (2009) and DOE (2018c) fire restrictions and guidelines for driving off road, and the operation of machinery in vegetated areas during times with elevated fire danger; and
  - Ensuring that all vehicles carry fire extinguishers, a shovel, and other fire control equipment to minimize habitat loss in the unlikely event of fire during construction and maintenance activities. Avista would minimize vehicle idling to reduce the risk of fire due to engine temperatures.
- Avista would control invasive and noxious weeds in construction work areas by:
  - Utilizing manual, mechanical, and/or chemical methods, as recommended by USFWS (on its managed property) or DOE (on its managed property), for each species prior to construction, if needed, with a focus on species with small, contained infestations to reduce the potential for

widespread establishment and the need for long-term management, and at the conclusion of construction in preparation for performing revegetation;

- Using vehicle and equipment cleaning stations outside of the action area to minimize the introduction and spread of weeds during construction; this includes cleaning the vehicles and equipment prior to entering and as soon as possible after leaving each work area, and washing the under carriage and tires of vehicles when leaving areas with known infestations of weedy or invasive plant species;
- Minimizing or eliminating berms during road grading to prevent the spread of weeds; and
- Performing a post-construction noxious weed survey approximately 1 year after construction including all areas disturbed by construction activities to determine if there are new noxious weed infestations, and implement appropriate control measures of noxious weed infestations, if needed.

- Avista would, where possible, cut or crush existing vegetation rather than destroying the vegetation by blading or clearing areas.

- Avista would keep disturbance areas around each pole structure as small as possible, reducing from the more typical 100-foot radius to between a 25-foot and 65-foot radius (in the White Bluffs bladderpod critical habitat) depending on the need for guy wires. Avista would re-contour disturbed areas to match preconstruction conditions.

- Avista would follow the guidelines in the Hanford Site Revegetation Manual (DOE 2013), prepare a site-specific Restoration Plan to be reviewed by DOE and the USFWS, and would restore areas temporarily disturbed by construction as well as the decommissioned portions of the existing Benton-Othello transmission line by:

  - Replacing shrub-steppe vegetation removed from disturbed sites, and reestablishing or improving conditions seen in the pre-existing plant community;
  - Reseeding disturbed areas as soon as practical after construction activities are complete;
  - Planting at the appropriate time to ensure seed germination and seedling survival (planting would generally occur within the period from mid-November to early February);
  - Utilizing a native seed mix;
  - Ensuring that culturally important and pollinator-friendly plant species are included in the native seed mixes used for revegetation;
  - Requesting Tribal input to identify culturally important species for a given habitat;
  - Ensuring that certified weed-free straw (preferably native grass) is used on revegetation sites; and
  - Monitoring seed germination and plant establishment of revegetation sites annually over at least a 5-year period (considering native plant cover, plant survival and growth, plant diversity, and weed cover), and replanting areas, if necessary, to meet success criteria, and monitoring for an additional 5-year period.

- Avista would adhere to the requirements for eagle nest sites and communal night roosts in the Bald Eagle Management Plan (DOE 2017a).

- At nest sites, work is not allowed within the 660-foot nest buffer from November 15 until the nest is abandoned or chicks have fledged and no longer need the nest as support (generally late July to August). Avista would monitor eagle activity near the eagle nests along the Columbia River near the Town of Hanford during construction and would adhere to access restrictions. If eagle activity is affected, then Avista would stop or modify work in consultation with the DOE/DOE contractor biologist.

- At communal night roost sites, 660-foot buffers are in place from November 15 until March 15. During this period, work-related access may be granted between 9 a.m. and 3 p.m. after notification of Hanford Site ecological compliance staff.

- There are no work restrictions in place within the nest or night roost buffers from October 1 to November 15.

- Avista would comply with buffer zones for ferruginous hawk nests in the study area if they are established. On the Hanford Site, nesting ferruginous hawks are protected using WDFW guidelines (WDFW 2004). DOE would establish buffer zones 3,281 feet around active nests and road closure signs would be placed in the roads where they intersect with buffers. Nest areas would be protected from all human disturbance within 820 feet between March 1 and May 31, and within 3281 feet for prolonged activities during the entire nesting and fledging season (March 1 to August 15) (Nugent 2016).

- Avista would instruct helicopter pilots on the potential for bird strikes and terrestrial mammal disturbances based on the time of year and other relevant considerations. This would reduce the risk of bird strikes and impacts on terrestrial mammals during helicopter operations, especially during the migration periods from March to May and late August through November time periods. Transit to and from the project area would be conducted at 3,000 feet above ground level.

- Avista would use the Natural Resources Protective Buffer Map for bald eagles and ferruginous hawks and a 1,300-foot "no-fly" slant distance from nest sites would be maintained by helicopters in order to limit disturbance and avoid nest abandonment by these birds during active nesting and/or roosting times. This slant distance is based on the slant distance thresholds for behavior effects on raptors, including eagles, from aircraft (ORNL 2001).

- Avista would use marking devices approved by USFWS to avoid bird collisions along the portion of the line that spans the Columbia River, the Wahluke pond, and the wetlands adjacent to both areas.

3.3.1.4.3 Specific Conservation Measures for the White Bluffs Bladderpod Population and Critical Habitat

Conservation measures listed in the Biological Opinion issued by USFWS (USFWS 2018a) for the proposed project would be used by Avista to minimize impacts to the White Bluffs bladderpod and/or its designated critical habitat. These conservation measures are listed below:

- Avista or Rare Care would flag and record the locations of bladderpod plants during the flowering period prior to mobilization. Avista or Rare Care would delineate the work areas before mobilization and avoid the plants where practicable.

- Where the road is sufficiently level, Avista would mow the vegetation, rather than blade it, to allow heavy equipment and vehicle access. Mowing may lessen impacts by allowing growth of at least some of the existing vegetation in the impact area.
- To limit impact to plants, Avista would use plywood or other suitable barriers to store the spoils that will be used as backfill near the excavated holes.
- Avista would haul extra spoils off site to avoid burying existing plants or inhibiting future seed germination and reestablishment.
- Avista would use a helicopter to replace the poles below the bluff so that new roads would not have to be constructed to access the two poles.
- Avista would locate all fueling areas, helicopter landing pads and laydown areas outside of the White Bluffs bladderpod designated critical habitat.
- Avista would use only the existing access roads and one new spur road in the critical habitat and would ensure that no vehicles are permitted off established roads.

3.3.1.4.4 Compensatory Mitigation

The DOE policy (DOE 2017b) is to determine mitigation requirements based on resource value rather than strictly on the size of the impacted area. Impacts to Level 5 resources, which are considered to be irreplaceable, are generally determined on a case-by case basis. For level 2, 3, or 4 habitat resources, compensatory mitigation is triggered if the impact after avoidance, minimization, and onsite rectification is greater than 1.2 acres. For compensatory mitigation of shrub-steppe habitats, the ratio of replacement is 1:1 for Level 2 resources; 3:1 for Level 3 resources; and 5:1 for Level 4 resources. Usually this ratio applies to a replacement area of equivalent value to the lost resource, but it can also apply to an incremental increase in the habitat value of an existing resource.

As shown in Table 3-5, the proposed project would result in approximately 13.5 acres that would be permanently impacted. Using the ratios above, these impacts would require roughly 22.4 acres in compensation or an equivalent investment in habitat improvements. In addition, the permanent loss of an additional 4.7 acres of Level 5 habitat, a portion of which is within the critical habitat of the White Bluffs bladderpod, would need to be taken into account.

Due to the fact that the only existing population of the threatened White Bluffs bladderpod is within the project right-of-way, and because there is a lack of information about how this subspecies can be propagated and re-established, the compensatory mitigation for this project would focus on increasing habitat value through the development and execution of a Reintroduction Plan for this subspecies.

Avista, with assistance from Rare Care, would conduct a study to provide additional information on the re-establishment of the bladderpod. Prior to construction, Rare Care would locate and mark bladderpod plants in the action area, collect and bank seeds, and develop an out-planting plan. Approximately 6,000 seeds would be collected and at least 10 percent of those would be stored in the Miller Seed Vault at the University of Washington. The first spring after the proposed project is constructed, Rare Care would plant them in a site determined suitable to USFWS and DOE as appropriate for the study. Avista would monitor the plants for 3 years, commencing with

the first year of out-plantings. The results of the study would be documented in a final report that would be provided to USFWS and DOE.

3.3.1.5 Unavoidable Adverse Impacts

After considering avoidance and minimization, the rebuild of the Benton-Othello transmission line would result in an estimated 115.2 acres that would be temporarily impacted and 13.5 acres that would be permanently impacted. Temporary impacts would be rectified by restoring the native vegetation community at the sites of the disturbance. Permanent impacts would be addressed through a compensatory mitigation effort to develop and implement a Reintroduction Plan for the White Bluffs bladderpod, a federally threatened species found nowhere else on earth. The results of this study will further efforts for future recovery of this species, for which little is known about successful planting and growth requirements.

Despite the reintroduction planning and study of the White Bluffs bladderpod, unavoidable adverse impacts on this species and its critical habitat as well as on other areas of Level 5 Resources remain. Within the study area, the Level 5 'irreplaceable resources' consist of the White Bluffs bladderpod population and its critical habitat and several plant community element occurrences (DOE 2017b).

The Proposed Action would kill or injure individual bladderpod plants and may cause a small depression in reproductive output for those plants. This effect would be small at the population level. The removal and reduction would also reduce bladderpod abundance for the year when the Proposed Action is implemented. Therefore, persistence at the population (and range-wide in this case) scale of bladderpod would be reduced at a detectable level, in numbers, reproduction, and distribution, but is expected to recover in the years following the completion of project activities (USFWS 2018a).

Plant community element occurrences are designated based on a combination of the rarity and imperilment of the ecosystem across its range and its size and condition (WNHP 2017). Although the Proposed Action would impact only a small portion of the three element occurrences it crosses, there is no practical way to restore a Level 5 resource if it lost. While revegetation would occur within the portions of the plant community element occurrences impacted by the proposed project, the abundance and diversity of native plants, biological crust component, and the maturity of the shrubs within these climax communities would take many years to return to pre-disturbance conditions if ever.

3.3.1.6 Cumulative Impacts

The proposed rebuild of the Avista Benton-Othello transmission line would occur in the same right-of-way as the current line, which is approximately 70 to 90 years old. During its history, the major impacts of the transmission line have arguably been to provide poles for bird perches and perhaps abet wildland fires by providing additional fuel. Because the proposed rebuilt line would have fewer structures and those structures would be made of steel, the incremental change to the biological environment, if any, would be to reduce the chance of fire.

Management of the study area both on and off the Monument is expected to remain unchanged for the foreseeable future. Current management by both the USFWS and DOE consists primarily of noxious weed control and fire management and recovery. Once the mitigation measures for the proposed rebuild are completed, no incremental change in either of these management areas is anticipated.

The proposed compensatory mitigation for this proposed project would be the development and implementation of a Reintroduction Plan for the White Bluffs bladderpod. Little is known about the requirements for propagation and successful establishment of White Bluffs bladderpod in its natural setting (out-planting); therefore, the development and implementation of the Reintroduction Plan and the final report could have a potentially large effect on the continued existence and potential recovery of this threatened species.

Finally, there are no known additional projects proposed either on or off the Monument in the reasonably foreseeable future that would further degrade biological resources in the study area.

3.3.2 Wetlands

3.3.2.1 Regulations and Methodology

The Federal Water Pollution Control Act [33 U.S.C. §1251 et seq., as amended] or CWA, is the primary legislative vehicle for federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the United States. The act was established to restore and maintain the chemical, physical, and biological integrity of the Nation's waters and sets goals to eliminate discharges of pollutants into navigable water, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment.

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Section 404 typically requires a permit before dredged or fill material may be discharged into waters of the United States.

Waters of the United States as defined by the Corps includes "waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce" [33 CFR 328.3(a)].

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328.3(b)].

Avista is required to avoid, minimize and then compensate for affected wetland functions and values in accordance with Executive Order 11990 (Protection of Wetlands), and Compliance with Floodplain and Wetland Environmental Review Requirements [10 CFR Part 1022].

Avista prepared a wetland assessment report to identify wetlands that could be impacted by the Proposed Action. The report was prepared using technical guidance from the Corps Wetlands Delineation Manual (Environmental Laboratory 1987) and the Arid West Regional Supplement to the Corps Wetland Delineation Manual (USACE 2008), which provides procedures for delineating the jurisdictional boundaries for wetlands based on indicators for wetland hydrology, hydrophytic vegetation and hydric soils (Figure 3-8).

Due to the high potential for cultural resources to be present in the study area and the need to complete the Section 106 process; Avista consulted with the Corps to determine the wetland boundaries using a combination of vegetative indicators and hydrological indicators and aerial photography but not excavating test pits to identify soil and hydrological indicators, which is typically required. Corps staff agreed that this modified method would

be acceptable for this proposed project and generally concurred with the identified wetland boundaries and wetland ratings. However, the formal review and approval of the wetland boundaries and project impacts would be completed during the permitting process (Moore 2018).

The Washington State Wetland Rating System for Eastern Washington was developed by the Washington State Department of Ecology to differentiate between wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the functions they provide.

Wetland categories range from Category I to Category IV. Category I wetlands are considered to have the highest functions and values and are difficult to replace while Category IV wetlands are considered to have the lowest functions and values and are the most easily replaceable. This methodology is accepted for comparing the relative quality of wetlands in Washington State.

The wetland study area encompasses the Avista right-of-way, pulling/tensioning areas, laydown areas and access roads on DOE-owned lands on Hanford Site but excludes the areas outside the existing gravel roads near the Wahluke Ponds that would not be disturbed. A 100-foot temporary disturbance buffer is assumed around existing and proposed pole locations with 20 percent of that area assumed to be permanently impacted. Where wetland boundaries were obvious due to similar vegetation on-site or on aerials, the wetland was expanded beyond the study area for mapping display purposes.

Figure 3-8. Riparian Vegetation

3.3.2.2 Affected Environment

The transmission line corridor is located within the interior low-elevation Columbia River Basin. Uplands are characterized primarily by shrub-steppe habitat dominated by sagebrush, rabbitbrush, bitterbrush, tumbleweed, and grasslands with varying degrees of native and non-native species. The transition area between upland and wetland is typically an abrupt change in topography and vegetation (Figure 3-9).

The wetlands in the study area are primarily palustrine emergent wetlands dominated by common reed (*Phragmites australis*), reed canarygrass (*Phalaris arundinacea*), cattail (*Typha latifolia)* or crops or they are palustrine scrub-shrub wetlands with similar emergent vegetation but with Russian olive near or on the fringes of the wetlands or irrigation canals. Thin riverine fringes along the Columbia River typically include red mulberry (*Morus rubra*), coyote willow (*Salix exigua*), reed canarygrass, and common reed; however, under and near the transmission lines, woody vegetation is sparse along the banks. The shoreline is highly disturbed from past construction of maintenance roads and transmission lines. The shorelines of the island were not site-verified due to inability to access the island.

Test pits were not excavated to observe wetland hydrology or soils; however, surficial indicators of wetland hydrology were visible including ponding, soil saturation, sediment deposits on vegetation and water stained leaves. Wetland hydrology originates from field runoff (waste ways) and irrigation canals such as the 10A canal, which are part of the South Columbia Basin Irrigation Project. High groundwater levels from nearby large-

scale irrigation practices influence wetland hydrology. Along the Columbia River wetland hydrology is influenced by the river flows and fluctuating water levels in the Columbia River. All of the wetlands in the study area are hydrologically connected to the Columbia River, a Water of the US and navigable water.

The wetlands associated with the Wahluke pond were rated as Category III wetlands. Although the habitat function is temporarily affected due to the removal of vegetation at the Wahluke Pond, the canals and the pond provide nesting habitat for waterfowl and other birds and are used by amphibians, deer and other wildlife. See Section 3.3.1 for more detail regarding birds and other biological resources. These wetlands have moderate potential to provide water quality and hydrological functions. The irrigation runoff has high nutrient levels and the existing wetlands have the opportunity to remove nutrients and toxicants, improving water quality prior to discharge into the Columbia River. This area is also open to the public for wildlife viewing, hiking, and hunting, which provide societal value.

The riverine fringe of the Columbia River is rated as a Category II wetland. It provides high water quality treatment potential for a CWA 303d listed (4.4-dichlorodiphenyldichloroethylene and polychlorinated biphenyls) reach of the Columbia River and provides high habitat function for threatened and endangered species, including salmonids. It also provides a high societal value due to the potential for recreational use.

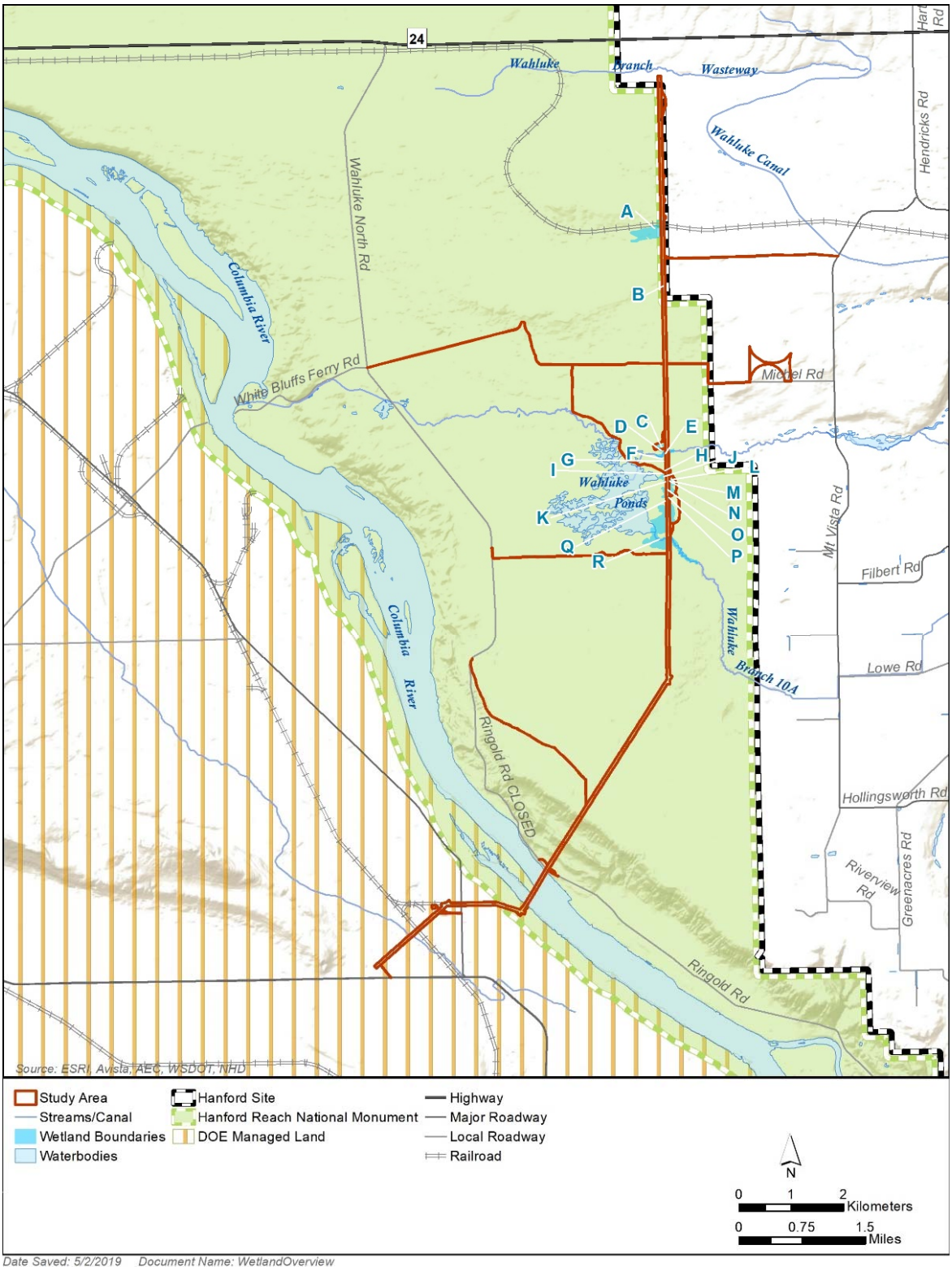

Figure 3-9. Wetland Overview Map

3.3.2.1 Environmental Consequences

Wetland impacts are summarized in Table 3-6. Wetlands along the Columbia River shoreline would not be affected.

Table 3-6. Wetland Impacts

Wetland Name*	Wetland Category	Activity in Wetland	Temporary Wetland Impacts (acres)/ 100-foot disturbance buffer**	Permanent Wetland Impacts Existing Structures/Proposed Structures/20% of disturbance buffer
Agricultural Wetlands (Wetland A and B)	III	Move pole structures 15/5 and 15/7 out of wetlands Pole structure 15/6 to be replaced in wetland	2.0 acres	Existing structures occupy 0.2 acres/ Proposed structures occupy 0.2 acres. Net gain of 0.05 acres of wetland
Wahluke Pond Wetlands (C, E, J, K, N, O, P, R)	III	7 pole structures currently in wetlands. (Pole structures 18/2, 18/6, 18/8, 18/10 and 19/1, 19/3 and 19/4) Moved all pole structures out of wetlands resulting in only 1 pole in wetlands (near Pole structure 18/8)	3.6 acres	Existing structures occupy 0.7 acre/ Proposed structures occupy 0.2 acres. Net gain of 0.5 acres of wetland
Total			**5.6 acres**	**0.6 acres net gain in wetlands based on 0.2 acres per pole estimate/ 120 sq. ft. of fill based on only the 6-foot diameter holes for 4 poles.**

* Letters under Wetland Name refer to the wetland labels on Figure 3-9. Wetland Overview Map.

3.3.2.2.1 No Action

The No Action Alternative would not replace deteriorating poles and would not increase capacity of the conductors which could increasingly require repair and emergency maintenance activities. Emergency repair and replacement activities would result in soil disturbance and wetland fill and access to repair poles within the wetlands. Helicopters would not be used during emergency repairs or replacements so there would be greater impacts to wetlands due to access by large ground equipment.

3.3.2.2.2 Proposed Action

The Proposed Action would have long-term benefits to wetlands because the new steel poles and increased conductor capacity would reduce the frequency of emergency replacements and there would be fewer poles in wetlands (Figure 3-10). Two existing pole structures would be replaced with taller poles (approximately 30 feet taller) in wetlands to allow a longer span. Eight of the ten pole structures that are currently in wetlands would be eliminated or moved to upland locations.

The Proposed Action would temporarily disturb 5.6 acres of wetland vegetation, primarily common reed, cattail and reed canarygrass, and soils during installation and removal of pole structures within wetlands. This assumes a 100-foot radius of temporary disturbance per pole structure. The poles in wetlands would be installed by transporting new poles to the site, hand digging the pole holes, stringing and tensioning the conductors on the new poles then removing the old poles using helicopter, thus eliminating the need to construct access roads to

each pole for vehicles. Workers may still need to access the sites by foot. Existing structures would be cut and dismantled by workers then removed and hauled away by helicopter.

For the purpose of this study, it is assumed each pole structure would permanently impact 0.2 acres (20 percent of the 100-foot radius disturbance area) for the pole fill material, system maintenance and access as well as vegetation management of the transmission system. This would consist of primarily common reed, cattail and reed canarygrass. No wetland trees or shrubs would be removed.

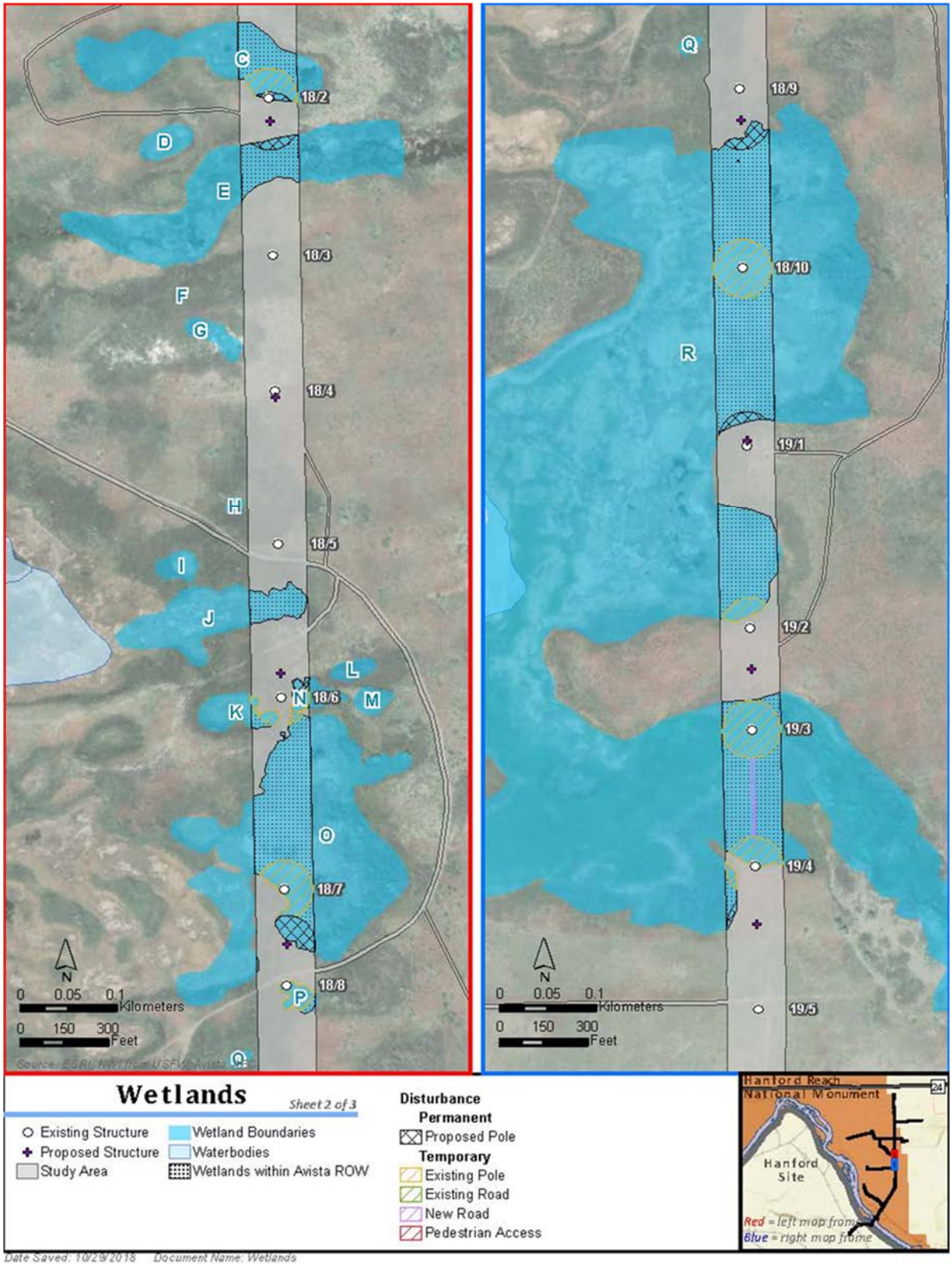

Figure 3-10. Impacted Wetlands

3.3.2.2 Mitigation

Since more poles would be removed from the wetlands than replaced, and the sites of the removed poles would be revegetated, there would be no increase in permanent wetland impacts; therefore, no compensatory mitigation required. Impacts to wetlands as well as their functions and values have been avoided and minimized as practicable.

Temporary impacts to wetlands would be minimized by accessing wetland poles by foot and using helicopters to place new poles and remove the existing poles from the wetlands and on the island structure. During construction, additional reduction in disturbance buffers may be possible based on-site conditions. Erosion and sediment control and spill prevention BMPs such as silt fence, fiber wattles, and concrete washouts would be utilized. Temporary accesses and temporary disturbance around the existing and proposed pole locations will be restored to pre-construction grades and replanted with native wetland species according to the Hanford Site Revegetation Manual (DOE 2013) which is applicable to both DOE- and USFWS-managed lands on and off the Monument. These mitigations are included in Table 5-1 in Section 5. If DOE grants a realty instrument to Avista for this proposed project, DOE will include a condition that Avista is required to complete these mitigations.

3.3.2.3 Unavoidable Adverse Impacts

The Proposed Action has incorporated practicable measures to avoid and minimize impacts to wetland function and values by using the existing alignment rather than a new alignment and eliminating and moving poles from wetlands. In addition, Avista would use a helicopter to haul materials in and out of the wetlands and the island structure. Workers would walk into the site rather than constructing access roads.

After these avoidance and minimization measures are incorporated, the Proposed Action would permanently impact wetlands due to the poles, the area between poles, anchors and guywires, and potential vegetation clearance. The two remaining structures in wetlands (4 poles) assuming a 6-foot diameter, would occupy approximately 120 square feet and cannot be further reduced. See Table 3-6 and Figure 3-10 for impacted wetlands.

3.3.2.4 Cumulative Impacts

The condition of the existing wetlands are the result of past and present irrigation practices and the collection of irrigation wastewater. The collection of irrigation water and the introduction of non-native invasive plants such as common reed and Russian olive have resulted in a degraded system with low habitat diversity and poor water quality; nevertheless, the wetlands are widely used by migrating birds and offer refuge for wildlife. The ongoing USFWS prescribed burning, weed control and revegetation programs on the Monument cause short-term impacts to wetlands; but would offer a long-term benefit. The Proposed Action, which would offer a net gain in the quality and acreage of available wetland habitat, would have beneficial long-term cumulative effects; therefore, the proposed project would have no adverse cumulative effects to wetlands.

3.3.3 Cultural Resources and Historic Properties

3.3.3.1 Regulations and Methodology

Cultural resources and historic properties must be evaluated for federal actions in accordance with the NHPA. As explained in A Handbook for Integrating NEPA and Section 106 (CEQ and ACHP 2013), cultural resource effects assessed under NEPA [40 CFR 1508.8] consider both cultural resources and historic properties.

Cultural resources include areas or objects that are of cultural significance to human history at the national, state, or local level. They generally include paleontological, pre-contact, and post-contact resources, as well as resources of traditional use or religious value to Native Americans, and Native American human remains.

The process for identifying and evaluating cultural resources for NRHP eligibility and assessing project effects to historic properties is outlined in Section 106, "Protection of Historic Properties." The NHPA Section 106 [36 CFR Part 800] requires agencies to take into account the effects of their undertakings on historic properties. This requires identifying historic properties within an Area of Potential Effects (APE); assessing whether they are eligible or listed under the NRHP; determining if they would be adversely affected by the undertaking; and resolving those effects through avoidance, minimization, or mitigation.

The study area for the cultural resource survey is the APE, which is developed in consultation with the Washington State Department of Archaeology and Historic Preservation (DAHP) and affected Tribes. DOE and Avista contacted four potentially impacted tribes to consult regarding the APE and during the development of the cultural resource survey: the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the Wanapum of Priest Rapids (Wanapum), and the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation). 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)].

Potentially impacted cultural and historical resources were evaluated for eligibility for the NRHP based on the four standard criteria.

- Criterion A: the resource is associated with events that have made a significant contribution to the broad patterns of local, state, or national history;
- Criterion B: the resource is associated with the life of a significant person;
- Criterion C: the resource embodies the distinctive characteristics of a type of construction; and
- Criterion D: the resource provides important information in regional prehistory.

For resources determined to be NRHP eligible, integrity is evaluated based on seven aspects of integrity including location, design, setting, materials, workmanship, feeling, and association.

NHPA and the Advisory Council on Historic Preservation (ACHP) regulations implementing Section 106 [36 CFR Part 800], specifically, Section 106, requires agencies to determine whether the undertaking has the potential to cause effects on historic properties; identify historic properties within an APE; assess whether those historic properties may be adversely affected by the undertaking; and resolve those effects through avoidance, minimization, or mitigation. Under NEPA and NHPA, the meaning of "effects" is different. The comparison of

defined terms in Table 3-7 of this EA is taken from the NEPA and NHPA guidance for integration (CEQ and ACHP 2013).

Table 3-7. Definition of Effects Under NEPA and NHPA

Types of Effects	NEPA	NHPA
Types of Effects or Impacts	Effects and impacts are synonymous terms under NEPA. The magnitude, duration, and timing of the effect to different aspects of the human environment are evaluated in the impact section of an EA or an environmental impact statement for their significance. Effects can be beneficial or adverse, and direct, indirect or cumulative [40 CFR 1508.8]	An "effect" means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP [36 CFR 800.16(i)].
Direct Effects	An impact that occurs as a result of the proposal or alternative in the same place and at the same time as the action. Direct effects include actual changes to cultural or historic resources [40 CFR 1508.8]	A direct effect to a historic property would include demolition of a historic building, major disturbance of an archeological site, or any other actions that occur to the property itself.
Indirect Effects	Reasonably foreseeable impacts that occur later in time or are further removed in distance from the Proposed Action [40 CFR 1508.8]	Indirect effects may change the character of the property's use or physical features within the property's setting that contribute to its historic significance; are often audible, atmospheric, and visual effects; and may relate to viewshed issues.

Source: Adapted from CEQ and ACHP 2013.

Effects to historic properties were assessed and avoidance and minimization measures were implemented in the project design. DOE and Avista worked with tribes and DAHP to mitigate all adverse effects through development of a Memorandum of Agreement (MOA). The ACHP, the Yakama Nation, CTUIR, Nez Perce Tribe, Wanapum, DAHP, DOE, and Avista were invited to participate in the development of the MOA.

3.3.3.1 Affected Environment

The APE encompasses direct and indirect effects. The direct effects encompass an area of approximately 615 acres. Direct effects may occur within the right-of-way, turns in the transmission line alignment where up to 350 feet is needed for tensioning and pulling activities, access roads, staging and stockpile sites, new spur roads, pullouts, and helicopter landing and fueling areas. Any existing unpaved non-public access roads or existing roads that may require improvement for access, plus an additional 10 feet on both sides of the road for vehicle pull-offs (except on paved roads or publicly accessible roads), and any new spur roads that may be needed between structures and existing roads are included in the direct effects' assessment area. The indirect effects assessment area, for assessment of visual and auditory impacts to potential historic properties, extends up to one mile on either side of the transmission line corridor to include the land parcels adjoining or adjacent to the corridor. The historic and cultural context may include a larger area such as the Hanford Site or Columbia River region, but the analysis impacts for the alternatives are within the APE.

3.3.3.1.1 Background

The Hanford Site has been inhabited by humans for more than 10,000 years. The site is one of the richest cultural resource areas remaining in the western Columbia Plateau, owing to the proximity to the Columbia River, which influenced precontact and historic settlement in the region. Many decades of archaeological and ethnographic studies in the area have contributed to an extensive government and private research database of information that provides interpretation of resources present and the stories told by Indian tribes and individuals. Rather than provide an exhaustive review of this information, the details of these studies can be found in the numerous publications on the subject and through referral to references provided. The general precontact history and historical development provided in this EA is from the historical and cultural review of the region completed for the NRHP Multiple Property Documentation Form-Historic, Archaeological, and Traditional Cultural Properties of the Hanford Site (DOE 1997a), Hanford Site NEPA Characterization (Duncan 2007), and previous archaeological investigations in the area.

The Hanford Site comprises the cumulative record of multiple occupations by both Native and non-Native Americans representing precontact, ethnographic, and historic periods. Numerous archaeological and aboveground resources are associated with these time periods. Period resources include archaeological sites that are thousands of years old, places of Native American religious and cultural significance, and buildings and structures from the pre-Hanford, Manhattan Project, and Cold War eras. Sitewide management of Hanford's cultural resources and historic properties is in accordance with the Hanford Cultural Resources Management Plan (DOE 2003).

Precontact occupation of the area is characterized by Paleo-Indian groups relying upon hunting wild game and gathering wild plant foods with the eventual emergence of semi-subterranean house- dwellings. Groups still remained mobile; however, as environmental changes fluctuated, large mammal hunting was reduced due to decreased large mammal populations from gradual drought in the area. When Europeans first arrived in the Northwest, the descendants of ancient Native peoples were still living a traditional lifestyle. Native peoples that lived and used the area and its resources included the Chamnapum, the Wanapum, the Walla Walla, Yakama Nation, the CTUIR, the Nez Perce Tribe, the Palouse, and others. When the treaties of 1855 were signed, many of these peoples and their descendants moved to reservations, while some, such as the Wanapum, remained in the area of the Columbia River. The descendants of these groups continue to live in the region and still highly value the Hanford Site lands and resources.

The early settler landscape is composed of those areas on the Hanford Site where people, mainly of European descent, and some of other ethnicities, settled in the Columbia River Plateau prior to the start of the Manhattan Project in 1943. Non-Native American presence in the mid-Columbia began during 1805 with the arrival of the Lewis and Clark Expedition. It was not until the late 19th and early 20th century, however, that non-Native peoples began intensive settlement on the Hanford Site lands. Other visitors included fur trappers, military units, and miners who traveled through the Hanford Site on their way to lands up and down the Columbia River and across the Columbia Basin. It was not until the 1860s that merchants set up stores, a freight depot, and the White Bluffs Ferry on what is now known as the Hanford Reach of the river. Chinese miners began to work the gravel bars for gold during the 1860s. Cattle ranches were established in the 1880s and farmers followed during the next two decades. Agricultural development, irrigation districts, and roads were established in the eastern portion of the central Hanford Site. Several small towns, including Hanford, White Bluffs, Richland, and Ringold, grew up along the riverbanks during the early 20th century. In 1913, the communities' accessibility to outside markets expanded with the arrival of the railroad.

Ferries were established in association with the larger communities along the river. The towns and nearly all other structures were razed in the years after the U.S. Government acquired the land for the Hanford Engineer Works in 1943.

Since 1943, the Hanford Site has existed as a protected area for activities primarily related to the production of radioactive materials for national defense uses and, in more recent times, environmental cleanup associated with past defense production activities. For cultural resources on the Hanford Site, establishment of the nuclear reservation as a high-security area, with public access restricted, has resulted in a well-protected status, although no deliberate resource protection measures were in effect to mitigate effects of facilities construction and associated activities. Thus, the Hanford Site contains an extensive record of precontact archaeological sites and Native American cultural properties, along with pre-Hanford Euro-American sites (primarily archaeological resources), and a considerable number of Manhattan Project/Cold War-era buildings and structures some of which are included as part of the Manhattan Project National Historical Site.

Today, descendants of Native Americans with historical ties to the area are generally enrolled members of the following federally recognized groups: the Yakama Nation, the CTUIR, and the Nez Perce Tribe. In addition, the Wanapum, who still live near the Hanford Site at Priest Rapids are a non-federally recognized tribe who have strong cultural ties to the site and have consulted with DOE since its formation in the 1940s. DOE maintains an ongoing consultation and interaction program with the above four tribes for activities conducted at the Hanford Site.

3.3.3.1.2 Identification of Cultural Resources and Historic Properties

Historical Research Associates, Inc., completed a report titled "Cultural Resources Investigation for the Southern Portion of the Benton-Othello 115kV Transmission Line Rebuild Project, Franklin and Benton Counties, Washington" (HRA 2018), according to the requirements of Section 106 of the NHPA. Three tribes also prepared Traditional Cultural Properties (TCP) studies for the proposed project. DOE conducted a literature review and field investigations in 2016, which included surface survey and subsurface test pits.

Three historic-period architectural resources within the APE were revisited and determined eligible for the NRHP. Twenty-eight archaeological resources in the APE were identified or revisited during the 2016 survey. Of these, ten are either listed on the NRHP, have previously been determined eligible for inclusion on the NRHP, or were recommended as potentially eligible (but are currently unevaluated) for inclusion on the NRHP.

Collectively, three Tribes identified seven TCPs within the APE. Other TCPs were identified beyond the Project APE and are not discussed in this document since they would not be potentially affected by the proposed project. Six of the seven TCPs within the APE were recommended by the Tribes as eligible for inclusion in the NRHP under multiple criteria. Several TCPs are co-located with recorded archaeological sites and are recommended as also eligible under Criterion D. Due to the confidentiality of TCP information; details of the resources, locations, and impacts are not disclosed in this document.

<u>Historic Resources</u>

Three historic-period architectural resources were recorded within the APE and determined eligible for the NRHP; the Hanford Substation, Old Hanford High School, and the Benton–Othello No. 1 Transmission Line between pole structures 13/10 and 26/2 (Table 3-8).

Table 3-8. Historic Architectural Resources in the APE

Site Name	Resource Type	Eligibility Recommendation	Management Recommendation
Hanford Substation	Building (in ruin)	Eligible; Criteria A and D	No further study is needed
Old Hanford High School	Building (in ruin)	Eligible; Criteria C, and D	No further study is needed
Benton–Othello No. 1 Transmission Line between pole structures 13/10 and 26/2	Structure (Transmission Line)	Not eligible	No further study is needed

Archaeological Resources

Twenty-one archaeological sites and seven isolated finds in the APE were identified or revisited during the 2016 survey. Of these, ten are either listed on the NRHP, have previously been determined eligible for inclusion on the NRHP, or were recommended as potentially eligible for inclusion on the NRHP (but are currently unevaluated). These archaeological sites included the Town of Hanford and Hanford Construction Camp, part of the Hanford Railroad System, the Hanford Irrigation Canal, pre-contact lithic scatters and features, and historic debris scatters and concentrations. Isolated finds are not eligible for inclusion on the NRHP.

TCPs

Collectively, the three Tribes who contracted with Avista (CTUIR, Wanapum, and Yakama Nation) to conduct TCP surveys identified six NRHP-eligible TCPs within the APE. Several of the six TCPs in the APE were identified by multiple Tribes, including former habitation sites, fishing locations, and plant or other natural resources gathering areas, some of which are identified as traditional cultural landscapes that encompass multiple resource types. For example, several TCPs include archaeological sites as contributing components. Most of these TCPs have Sahaptin language place names that provide connections to legends or other oral history elements, and these resources may have ceremonial associations.

Six TCPs within the APE were recommended by the Tribes as eligible for inclusion in the NRHP under multiple criteria. Several TCPs are co-located with recorded archaeological sites and are recommended as also eligible under Criterion D.

3.3.3.2 Environmental Consequences

Under the NHPA, an adverse effect is defined as one that directly or indirectly alters the characteristics of a resource that is listed or qualifies for listing on the NRHP.

3.3.3.2.1 No Action Alternative

Under the No Action Alternative, the impacts of the Proposed Action to rebuild the existing Benton–Othello electric transmission line, would not occur. The existing Benton–Othello line would require an increased frequency of ongoing maintenance and repairs and existing access roads would continue to be upgraded and maintained. The No Action Alternative could impact historic or cultural resources because there would continue to be fires and outages that could damage historic sites and structures. The No Action Alternative would require increasingly frequent emergency pole replacements that could occur without detailed cultural survey and avoidance measures and could inadvertently damage cultural resources.

3.3.3.2.2 Proposed Action

Although there are archaeological resources within the APE that are recommended eligible to the NRHP, the proposed project, would have no adverse effect on the integrity of these resources either directly or indirectly as a result of the implementation of avoidance, minimization, or mitigation measures during design as described in the Cultural Resource Survey report (HRA 2018) and MOA; however, due to confidentiality of many of the sites, that detail is excluded from this section. The Town of Hanford and Hanford Construction Camp (45BN308), which is eligible for listing in the NRHP, overlaps the APE; however, only a small area of the extreme northeast corner of the site is in the APE. That area was only used as a storage yard and was not a significant portion of the site; therefore, the Proposed Action was determined to have no adverse effect on the site.

Where the replacement of powerlines would occur in the vicinity of identified historic architectural resources, this would not impact the setting, as there are already powerlines in the existing viewshed, and they have been in place since prior to those resource's determinations as eligible resources. Therefore, the introduction of new pole types has no potential to affect the setting in such a way as to diminish the ability to convey historic context. Previous projects along the Benton–Othello No. 1 transmission line have resulted in similar undertakings (DAHP Project 2016-01-00012, Avista Benton-Othello Transmission Line January 2016) and resulted in a finding of no adverse effect to the historic transmission line.

The Tribes' TCP reports collectively identify both direct and indirect the six TCPs that are recommended as eligible for the NRHP, and most conclude that these effects are adverse to the resources. Due to the confidentiality of this information, locations of the TCPs and impacts are not disclosed in this document.

3.3.3.3 Mitigation

The Proposed Action would be planned, coordinated, and conducted by Avista in a manner that protects the cultural and historic resources. Mitigation would begin by employing the Best Management Practices specified in Section 2.3 and in compliance with the Hanford Cultural Resources Management Plan (DOE 2003). As part of the NHPA Section 106 process, a MOA was developed and is currently being circulated for signature. The MOA was developed through consultation with the affected tribes and DAHP to resolve adverse effects to NRHP-eligible TCPs and properties of religious and cultural significance. It establishes mitigations, stipulations, and actions that would be implemented by Avista. Avista would also implement the work controls as established in the Cultural Resources Survey report to avoid known archaeological resources and minimize potential impacts on unknown resources within the construction area to ensure that historic properties are not adversely affected by the proposed project. The mitigations are included in Table 5-1 in Section 5. If DOE grants a realty instrument to Avista for the proposed project, DOE will include a condition that Avista is required to complete these mitigations.

3.3.3.4 Unavoidable Adverse Impacts

Although implementation of mitigations, stipulations, and actions identified in the MOA would reduce the potential for (and severity of) impacts, construction of the new electrical transmission system and removal of the existing line would result in direct or indirect impacts to some archaeological and cultural resources.

3.3.3.5 Cumulative Impacts

The effects to historic properties and cultural resources, including TCPs, from the Proposed Action are mitigated through the measures contained in the MOA. The TCPs are on DOE- and USFWS-managed land and are subject to reviews and protections in accordance with the DOE and USFWS plans. There would be no

additional reasonably foreseeable actions that would have adverse effects to historic architectural or archaeological sites, specifically TCPs. No new development is proposed near the TCPs; however, there are ongoing programs of revegetation of native shrub-steppe habitats on DOE- and USFWS-managed lands. There would be no cumulative effects to the identified TCPs.

3.3.4 Manhattan Project National Historical Park (MAPR)

This section describes the MAPR, its important key resources and values related to Hanford, and analyzes overall effects of the proposed project to the significance and the purpose of the MAPR.

3.3.4.1 Regulations and Methodology

The MAPR was established through the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 [Public Law 113-291]. On November 10, 2015, the Secretary of the Interior and the Secretary of Energy signed an MOA to establish the park. The NPS and DOE issued a Manhattan Project National Historical Park Foundation Document "to affirm a national park unit's core mission and significance, its key resources and values, and the interpretive themes conveying its important stories." The foundation document is not a decision-making instrument (NPS 2017).

The NPS is responsible for administration, interpretation, and education and provides technical assistance to resource preservation efforts. The DOE will continue to have responsibility for management, operations, maintenance, and historic preservation of the historic Manhattan Project sites under its jurisdiction.

Fundamental resources and values (FRVs) of the MAPR were identified to help focus planning and management efforts. The Foundation Document states that "if fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized" (NPS 2017).

The potential effects to the resources under Section 106 of the NHPA are explained in Section 3.3.3. The potential direct, indirect and cumulative effects to the MAPR as a result of the No Action Alternative and Proposed Action were analyzed by reviewing the MAPR Foundation Document, reviewing the stated key resources and values of the resources, identifying FRVs in the study area, describing current conditions, trends, threats and opportunities to FRVs.

For the purposes of this evaluation, the MAPR study area are the areas of the Avista right-of-way, access roads and stringing/tensioning areas that intersect the FRVs plus a ¼ mile viewshed from the front of the High School at the Town of Hanford.

3.3.4.2 Affected Environment

The MAPR is jointly managed by DOE and NPS to "preserve and interpret the nationally significant historic sites, stories, and legacies associated with the top-secret race to develop an atomic weapon during World War II and provides access to these sites consistent with the mission of the DOE" (NPS 2017). Coordinated by the U.S. Army, Manhattan Project activities were located in numerous locations across the United States. The park incorporates three of the most significant locations, each of which played an essential role in the Manhattan Project: Oak Ridge, Tennessee; Los Alamos, New Mexico; and Hanford, Washington. (NPS 2017).

The Hanford Engineer Works (now called the Hanford Site) was an approximately 600-square-mile site along the Columbia River where over 50,000 workers were tasked with producing large quantities of plutonium.

The MAPR at Hanford includes several significant historical sites that are considered FRVs by the MAPR. FRVs are defined by the MAPR as "those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. FRVs are closely related to a park's legislative purpose and are more specific than significance statements" (NPS 2017). The following FRVs have been identified for the MAPR on Hanford Site and are shown on Figure 3-11:

- The B Reactor National Historic Landmark,
- The Hanford High School in the Town of Hanford;
- The White Bluffs Bank building in the White Bluffs Historic District;
- The warehouse at the Bruggemann's Agricultural Complex; and
- The Hanford Irrigation District Pump House (also known as Allard Pump House).

DOE conducts tours (controlled access) for the public to the MAPR facilities at Hanford, generally from spring through fall (Figures 3-12, 3-13, 3-14, 3-15 and 3-16).

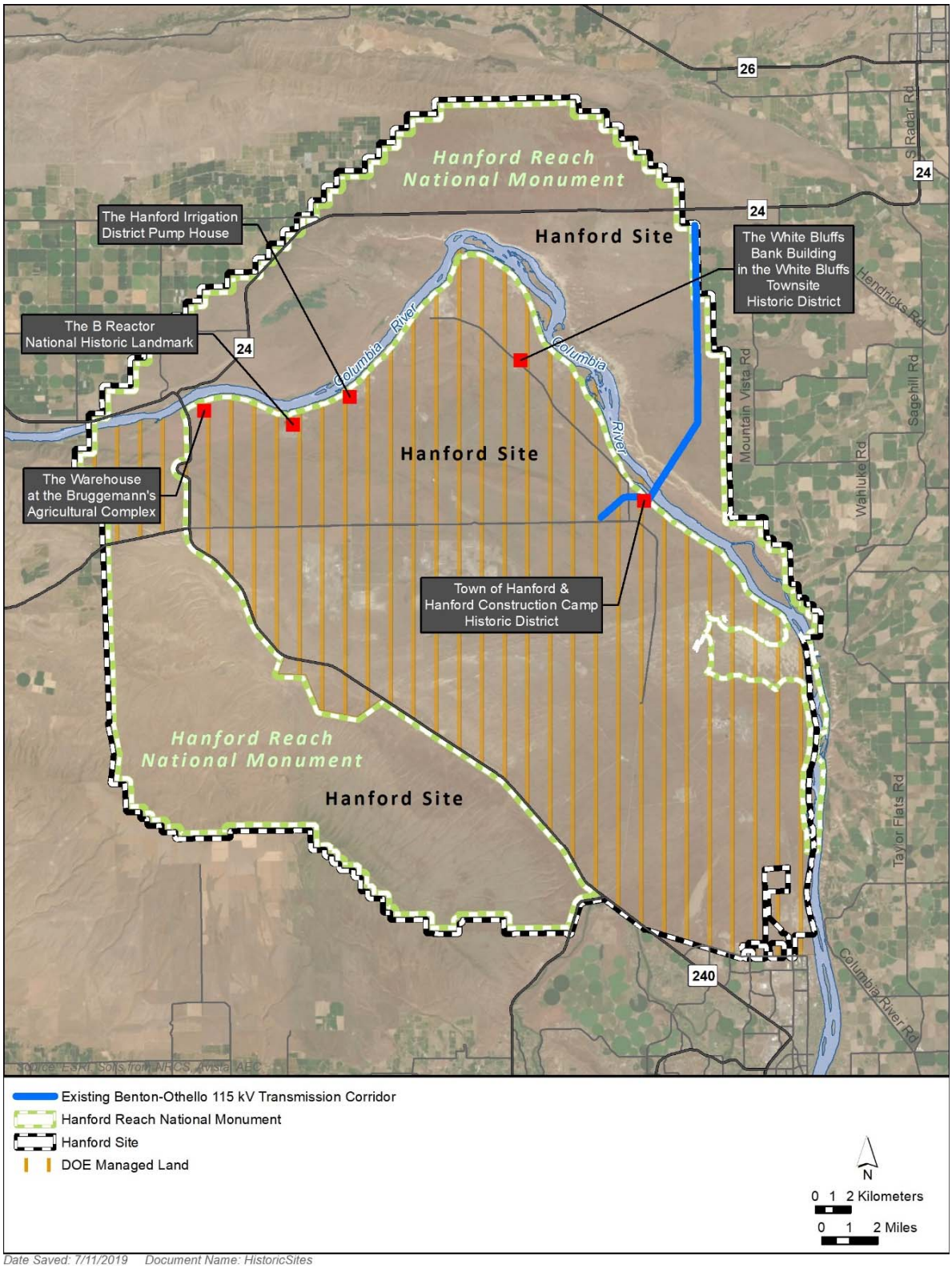

Figure 3-11. Manhattan Project National Historical Park-Hanford Site

The Hanford High School in the Town of Hanford is the only MAPR FRV in the study area.

The Hanford High School was originally built in 1916 and was shut down in 1943 when the entire Hanford area was acquired by the government for use in the Manhattan Project. Today, the concrete walls and some of the interior components of the classroom building are all that remain (Hazelbrook 2001). The Hanford High School setting has been altered as the buildings from the Hanford Construction Camp have been demolished.

The existing transmission line is outside the boundary of the Hanford High School but overlaps a small section on the northeast corner of the Town of Hanford and Hanford Construction Camp Historic District. Within a ¼ mile radius of the High School are a tall chain link fence surrounding the structure, the approximately 20-foot-wide gravel road and an access route to the river, existing wood transmission pole structures, a man-made osprey nesting platform, and a modern pole structure with a solar-powered siren and warning signage. Remediated sites that had contained construction debris, graphite, coal and a landfill associated with the Hanford Construction Camp are also within a ¼ mile radius of the Hanford High School (Figure 3-12) but have been revegetated with native species and are not prominent on the landscape.

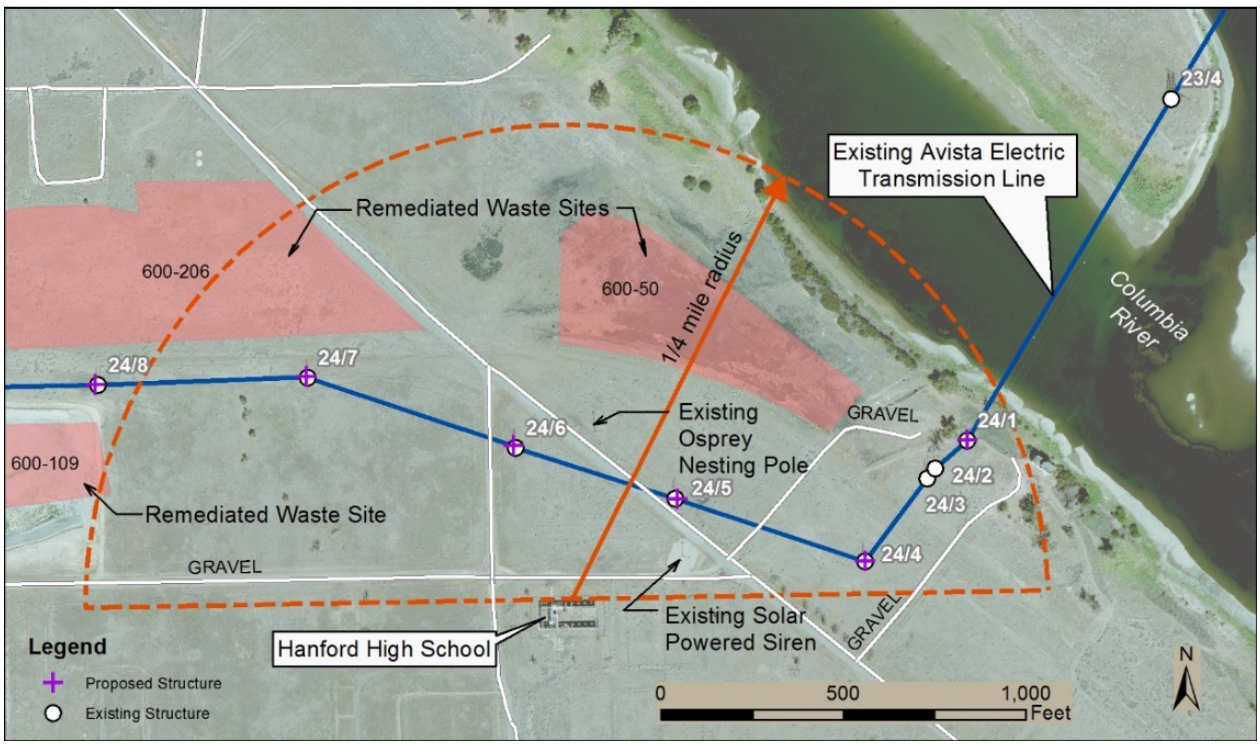

Figure 3-12. Features within View of Hanford High School

Figure 3-13. Public Tour at MAPR

Figure 3-14. Panoramic View from Hanford High School in the Town of Hanford and Hanford Construction Camp Historic District

Figure 3-15. View of the High School in the Town of Hanford from Gravel Road and Southeast of the Siren (Facing Southwest)

Figure 3-16. View from Gravel Road Near Solar-Powered Siren Facing Pole/Structures 24/1, 24/2, and 24/3

Avista previously replaced and repaired several of the original poles and cross arms near the Hanford High School in the study area as listed in Table 3-9.

Table 3-9. Past Replacements at Pole Structures

Pole/Structure Number	Year of Replacement	Description of Work Conducted
23/3	1999	Replaced pole structure and appurtenances
24/1	2015	Replaced pole structure after fire
24/2	2012	Replaced portions of pole structure after fire
24/3	2012	Replaced portions of pole structure after fire
24/7, 24/8 and 24/9	1987, 1990, and 1980 respectively	Replaced cross arms
23/3	1999	Replaced pole structure and appurtenances

3.3.4.3 Environmental Consequences

3.3.4.3.1 No Action Alternative

The No Action Alternative would involve conducting routine maintenance and repair of the transmission line which may involve applying fire guard, replacing pole structures in place and conducting emergency replacements in response to unplanned outages and fires.

The No Action Alternative could affect the MAPR because emergency repairs could be conducted during the tours and disrupt the visitor experience temporarily and could affect the visual features in the area permanently as replacement materials may not be H-frame pole structures.

3.3.4.3.2 Proposed Action

The transmission line replacement would result in vegetation and soil disturbance, pole replacement and stringing and tensioning activities as close as 100 feet from the High School and would be within view of the MAPR tour stop. This section discusses potential effects to FRVs that are important to the significance and purpose of the MAPR.

The Proposed Action would not adversely affect the visitor experience during the MAPR tours primarily because construction would occur when there are no scheduled public tours (generally mid-November to March). Past emergency repairs and DOE construction near the site have already added modern features to the views from the Hanford High School towards the transmission line.

Pole structures 24/2 and 24/3 would be removed and not replaced. The remaining pole structures from 24/1 through 24/8 would be replaced in nearly the same locations with similarly configured H-frame structures made of self-weathering steel and low sheen conductors. None of the structures would be closer to the High School than the original structures; however, pole structure 24/1 along the Columbia River shoreline would be approximately 60 feet taller than the existing structures to eliminate the need to replace the island structure. This would increase the visibility in the landscape when close to the structure. See Figures 3-25 and 3-26 for a comparison of existing and proposed pole structures.

The taller pole structure at the shoreline would be a moderate change but it would not substantially alter views because the new structure would be a similar configuration, would be over 2,000 feet away and would not

be visible when viewing from the graveled areas around the facility. The new structures would not shift emphasis or dominate any views of or from the Hanford High School.

3.3.4.4 Mitigation

Avista would use a low sheen conductor that would become progressively duller in 2 to 3 years to minimize visual effects. The differences between the existing and replacement poles are unlikely to be noticeable from the MAPR tour stop and would not affect the viewers' experience because there would be fewer poles visible, and they would be self-weathering steel and similar in framing and color to the original pole structures (Figures 3-25 and 3-26; note, however, that the photographs do not show low-sheen conductors). These mitigations are included in Table 5-1 in Section 5. If DOE grants a realty instrument to Avista for this project, DOE will include a condition that Avista is required to complete these mitigations.

3.3.4.5 Unavoidable Adverse Impacts

There would be no adverse impacts to the Manhattan Project National Historical Park.

3.3.4.6 Cumulative Impacts

The existing setting and condition of the MAPR is a result of past and present activities including historic farming, development of the Town of Hanford, the construction of the Manhattan Project development during WWII, environmental cleanup, biological protection and emergency pole replacements. The interpretation of the Hanford High School at the Town of Hanford and the Hanford Construction Camp Historic District is important to the MAPR purpose, and tours of the site are expected to continue. The proposed project would not have adverse effects to the significance of the FRVs including the Hanford High School and would not affect the visitor experience or the ability of the NPS and DOE to perform tours or interpret the site. The replacement of and removal of the existing pole structures would have no cumulative effects to the MAPR.

3.3.5 Visual Quality

This section addresses visual resources which include the natural and man-made physical features that give the landscape its character. Features that form the overall visual impression a viewer receives include landforms, vegetation, water, color, adjacent scenery, scarcity and man-made modifications.

3.3.5.1 Regulations and Methodology

DOE and USFWS do not have a visual analysis system of their own; therefore, the U.S. Department of the Interior, Bureau of Land Management (BLM's) Visual Resource Management Manual (VRM) (BLM 1984) classification system was used to assess the visual effects of the alternatives. This includes qualitative descriptions of visual characteristics applying the BLM VRM classifications derived from an inventory of scenic qualities, sensitivity levels, and distance zones for key areas as follows:

- Class I: Very limited management activity; natural ecological change.
- Class II: Management activities related to solitary small buildings and dirt roads may be seen but should not attract attention of the casual observer.
- Class III: Management activities may attract attention but should not dominate the view of the casual observer; the natural landscape still dominates buildings, utility lines and secondary roads.

- Class IV: Management activities related to clusters of two-story buildings, large industrial/office complexes, and primary roads as well as limited clearings for utility lines or ground disturbances may dominate the view and be the major focus of the viewers' attention.

The VRM identifies three mapping distance zones that qualitatively describe how landscapes are observed under good viewing conditions as follows:

- Foreground-Middle ground zone – Areas seen from highways, rivers, or other viewing locations less than 3-5 miles away. This is the point where the texture and form of individual plants are no longer apparent in the landscape.
- Background zone – Areas seen from beyond the foreground-middle ground zone but less than 15 miles away. Vegetation in this zone is visible just as patterns of light and dark.
- Seldom seen zone – Areas that are hidden from view or not distinguishable and more than 15 miles away.

The visual study area includes views towards and from the transmission line that are within the foreground, middle ground, and background, which extend up to 15-miles from Key Observation Points (KOPs). KOPs were selected along the most visible and sensitive locations and considering the most noticeable changes expected by the alternatives. See Figure 3-17 for the KOP locations.

3.3.5.2 Affected Environment

The USFWS goals for the Monument include protecting the natural visual character and promoting the opportunity to experience solitude on the Monument with special consideration to areas with wilderness characteristics (USFWS 2008).

The visual study area is in a remote setting with wide open expanses of shrub-steppe and grassland landscapes as well as White Bluffs, wetlands and the Columbia River. There are also transmission lines, including large BPA lattice structure transmission lines. The majority of the Monument has shrub-steppe habitat and grasslands and open, unobstructed views which creates an open and solitary setting. The following describes the BLM Classes and visual elements at each of the KOPs.

KOP-1-is a Class III area with views of BPA gravel access roads and large steel lattice towers in the foreground and middle ground. Views to the north are dominated by shrub-steppe habitat with few human-made features in the foreground, middle ground and background. Views from KOP-1 facing south towards the existing Benton-Othello line are moderately developed with access routes overgrown with vegetation and with views of aged wooden H-frame structures. Views to the west or east are also dominated by the BPA access road and steel lattice towers (Figures 3-18 and 3-19).

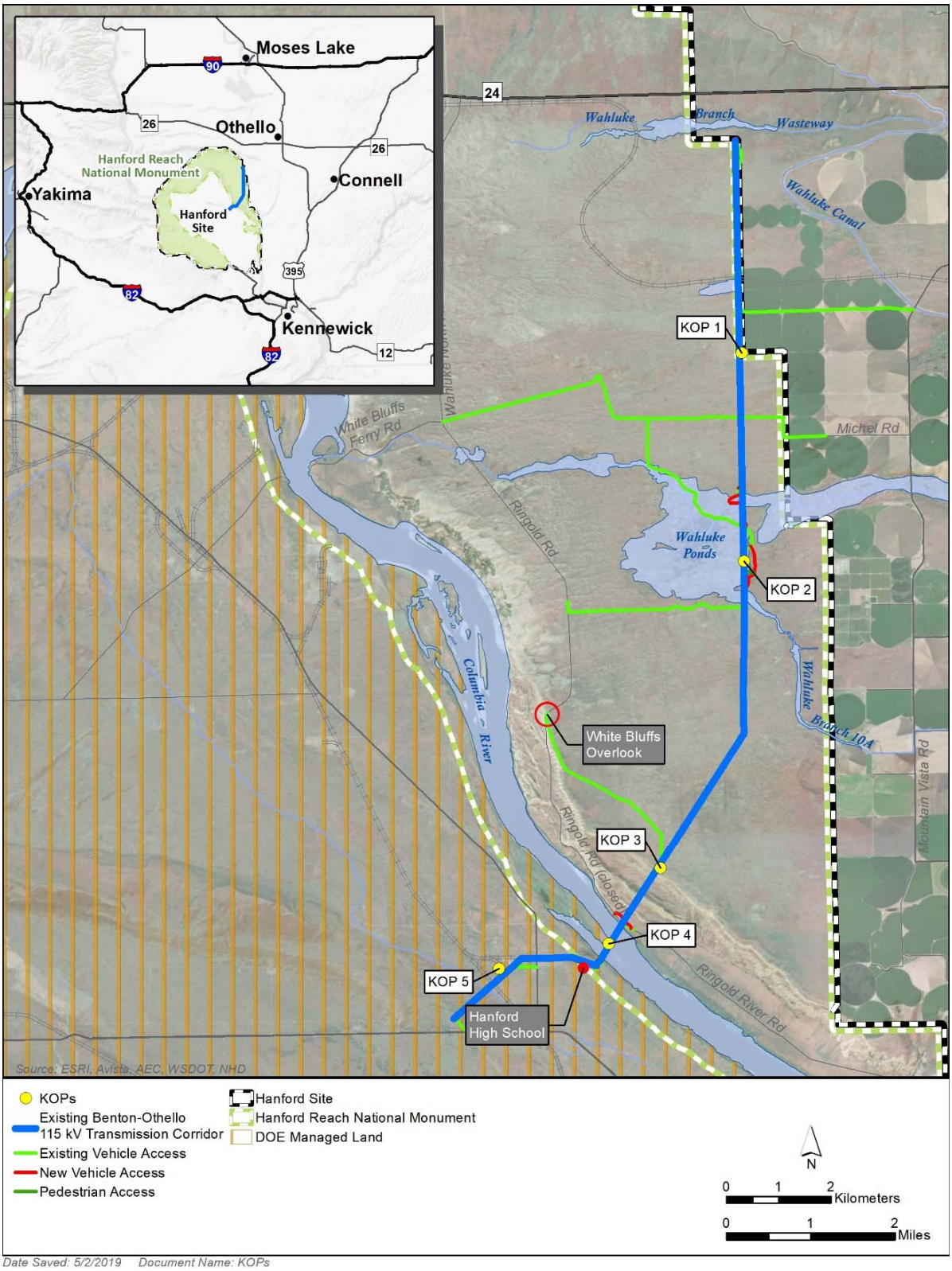

Figure 3-17. Locations of Key Observation Points

Figure 3-18. KOP-1 – BPA Transmission Lines from the Access Road Facing East

Figure 3-19. KOP-1 – Benton Othello Line from the Access Road Facing South

KOP-2 is a Class II area within the Wahluke Pond-associated wetlands. The views are dominated by the open vegetated landscape and contrasting colors of the wetland and upland vegetation including scattered shrubs in the foreground and middle ground. Old wood poles are prominent in the foreground and background from the access road towards the transmission line corridor (Figure 3-20).

Figure 3-20. KOP-2-Wetlands near Access Road, Facing North

KOP-3-is a Class II area on the White Bluffs with foreground and middle ground views dominated by the light soils on the bluffs and charred vegetation from a recent fire (2017). Views towards the Columbia River have rolling hills in the background and the Columbia River. Worn pole structures are visible and contrast with the White Bluffs when viewed from the south side of the Columbia River off the Monument (Figures 3-21 and 3-22). From the White Bluffs (Pole Structure 22/10) facing south, the older wood pole structures are visible and facing north the newer steel single pole structures are in the foreground (Figure 3-23).

Figure 3-21. KOP-3 – View from White Bluffs Facing the Columbia River

Figure 3-22. KOP-3 – Pole Structure from White Bluffs Facing South

Figure 3-23. KOP-3 – White Bluffs – Single Pole Steel Structures Near Access Road Facing North

KOP-4 is a Class II area located on the island on the DOE-managed land on the Monument within the Columbia River corridor. With the exception of the island pole structure, the island is generally a natural setting with grasses and shrubs in the fore ground, the Columbia River and shorelines in the middle ground, and the White Bluffs, shrub-steppe habitat and hills in the background. Views towards the island and structure are closest to boaters who use it as a general navigation landmark. The island and structure are within the background when viewing it from either shoreline (Figure 3-24).

Figure 3-24. KOP-4 – Views of Island Structure from the North Shore Facing South

KOP-5 is a Class III area located on the DOE-managed Hanford Site. It is an existing gravel pad surrounded by a network of roads and shrub-steppe landscapes. This site will be the laydown area and helicopter landing area (Figure 2-3).

3.3.5.3 Environmental Consequences

3.3.5.3.1 No Action Alternative

The No Action Alternative involves normal operation and maintenance activities including driving to inspect poles, replacing or servicing poles as needed and treating poles with fireguard. During routine maintenance or emergency pole replacements, Avista crews would use materials on hand which may not be similar to the original in size or design. Replacement poles would typically be placed in the same general location as the original, which would be within the Avista right-of-way and would not require additional right-of-way easements. Emergency replacements could damage plants and result in soil disturbance due to the need for equipment access, staging poles and conductors and for worker access to the site. The poles would continue to deteriorate and fail structurally, and thermal overloads would continue to cause outages and fire risk, which could damage the vegetation, recreational uses, and historic sites.

3.3.5.3.2 Proposed Action

The Proposed Action would replace wooden and steel structures with H-frame structures made of self-weathering steel and low sheen conductors, which would be very similar in appearance to the original H-frame structures. (Figures 3-25 and 3-26; note, however, that the photographs do not show low-sheen conductors). Visitors would not notice the difference except where the blue single pole steel structures would be replaced with H-frame structures north of the White Bluffs on the Monument, and in the wetlands and along the Columbia River where the poles would be taller. There would be 38 fewer pole structures which would restore a more natural setting in discrete locations.

There would be temporary visual impacts in all disturbance areas due to construction equipment, materials staging, and soil and vegetation disturbance. Visitor use of the study area is limited due to restricted public use of the DOE-managed lands and the road restrictions within the Avista right-of-way on portions of the USFWS-managed Monument. Temporary disturbance areas and access roads on DOE-owned lands outside of Avista's right-of-way would be restored with native vegetation, which will reduce visual effects. The Proposed Action would reduce the need for periodic maintenance activities and emergency pole replacements, resulting in less temporary and long-term disturbance to the visual quality.

Changes at the KOP locations which would result from the Proposed Action are described below:

- Near KOP-1, rebuilt structures would be similar in configuration, height (less than 10-foot difference) and similar color to existing structures. There would be changes in the pole locations within the corridor, but changes would not be noticeable after restoration. Changes in structure material and vegetation clearing would only be visible in the foreground primarily for maintenance crews and Monument staff. The area is not typically accessed by the public and therefore not expected to be a noticeable change to visitors.

- Near KOP-2, two approximately 30-foot taller poles would span the wetlands and would be visible in foreground but there would be fewer poles in the view. This change would be most noticeable in discrete locations within the foreground and middle ground at the existing and proposed pole locations. Eliminating the human-made visual intrusions from the landscape may enhance the visitor experience near the Wahluke Ponds wetlands on the USFWS-managed land on the Monument. Spiral bird deflectors will be used on the conductors and deflectors will be used near wetlands and may be visible to humans.

- Near KOP-3, the H-frame structure near the White Bluffs on the Monument would be moved north, away from the edge of the bluff and may be less visible from the south shore of the Columbia River. The 20 single pole steel poles would be replaced with self-weathering steel H-frame structures similar to the original H-frame wooden structures that were present before the 2007 fire. This would be a noticeable change compared to the existing conditions but similar to pre-2007 views.

- Near KOP-4, the wooden island structure is a unique structure which would be cut at the base then be entirely removed. Eliminating the island structure would be noticeable to boaters due to WDFW fishing regulations referencing the "Old Hanford Townsite (also known as Town of Hanford) wooden powerlines" for determining regulated areas (WDFW 2019). Viewers from the shoreline would notice its removal in the middle ground. Removing the structure would eliminate a prominent human-made structure from the predominantly natural setting.

- Near KOP-5, the Proposed Action would not introduce new structures, materials or permanently alter views in the immediate foreground. The presence of material and equipment during construction would create a moderate, temporary visual effects that would be restored to pre-construction conditions of a gravel pad. Any pole structures replaced nearby would be similar in framing and height and would not be noticeable.

Figure 3-25. Structures and Access Roads on Rebuilt Section North of Project (Before)

Figure 3-26. Structures and Access Roads on Rebuilt Section North of Project (After)

3.3.5.4 Mitigation

The Proposed Action would be constructed during the fall and winter when there are low numbers visitors use the project area compared to the summer months. Avista will coordinate with WDFW and other agencies as needed, to remove the island structure as a navigation tool for boaters. These mitigations are included in Table 5-1 in Section 5. If DOE grants a realty instrument to Avista for this proposed project, DOE will include a condition that Avista is required to complete these mitigations.

3.3.5.5 Unavoidable Adverse Impacts

There are no unavoidable adverse effects due to the Proposed Action. The island structure is viewed by some as an important historic artifact and its removal would be a noticeable change in the landscape. The removal of the structure; however, was evaluated by DOE and the pole was determined to not contribute to the historic significance of the transmission line. See Section 3.3.3, Cultural Resources and Historic Properties. The island structure is deteriorated, poses a fire risk and does not have enough structural integrity to support the new conductors. Access to the structure for inspection, operation and maintenance is difficult due to the location and cultural and biological sensitivity. It is not feasible to rebuild the transmission line to span the existing pole structure intact while still staying within Avista's right-of-way and meeting the NERC clearance standards for transmission lines. There are no feasible alternatives to removing the island structure. Realigning the transmission line to avoid the island structure could potentially create new impacts to the Hanford Substation, Hanford Construction Camp, and/or the Hanford High School by placing pole structures and conductors in new locations (discussed further in Section 3.3.3).

Boaters currently use the island as a navigation tool which could temporarily create inconvenience for boaters until the WDFW maps are revised. There are other available landmarks that may be used as alternative navigation aids in the future.

3.3.5.6 Cumulative Impacts

The condition of the study area is a result of past agriculture and settlement, past construction of transmission lines, the Manhattan Project and ongoing environmental cleanup and restoration on and off the Monument. The landscape has a system of lattice type and H-frame transmission lines and abandoned poles within a relatively natural setting on the Monument and within a more disturbed setting on DOE-managed lands. There are no reasonably foreseeable future projects that would adversely degrade the visual quality of the area. The Proposed Action would replace an existing transmission line in its existing corridor then revegetate the disturbed areas. New pole structures and access would not impact areas that would be visible except maintenance crews, park crews, fishermen, and other occasional boaters. The Proposed Action would replace the existing pole structures in place with similarly framed structures, low sheen conductors and would decrease the total number of pole structures; therefore, the Proposed Action would not result in cumulative impacts to visual quality when combined with past, ongoing and future actions.

3.3.6 Waste Management

The evaluation of waste management considers generation and disposal of regulated, radioactive, mixed, and non-regulated wastes from construction of the Benton-Othello transmission line and decommissioning and removal of the existing transmission line.

3.3.6.1 Regulations and Methodology

Waste that is not hazardous (under federal regulations), dangerous (under state regulations), radioactive, or mixed is sometimes referred to as "nonregulated waste" within the Hanford Site (DOE 2015). This waste is still subject to federal and state regulations and is referred to in this EA as municipal solid waste. Construction- or demolition-type waste, considered in this EA to be a subset of municipal solid waste, often consists of inert materials (e.g., cured concrete, used asphalt materials, masonry, ceramics, stainless steel) that do not generate leachate or emissions when disposed of or pose a threat to human health or the environment. If meeting criteria for inert waste (as defined in WAC-173-350-990), these materials can be disposed of in inert landfills, which have fewer requirements than landfills that accept all municipal solid waste.

The State of Washington has developed specific rules and guidelines for the management of chemically preserved wood products when taken out of service per Wood Treated with Other Preservatives (WAC 173-303-071(3)(g)(ii)). "Wood treated with pentachlorophenol or creosote need not be managed as dangerous waste provided it is disposed of in a solid waste landfill permitted under WAC 173-351 (i.e., a lined landfill with a leachate collection system), or reused for normal treated wood applications."

The waste management study area includes the areas where there is a potential to store and dispose of construction debris and structures, conductors, and electrical components as a result of the replacement of the transmission line. This would include the right-of-way, disturbance buffers, and laydown areas. It would also include the areas within the right-of-way where the existing bottoms of the poles (pole butts) and anchors may remain in the ground to minimize soil disturbance and where new pole structures would be constructed.

3.3.6.2 Affected Environment

Some materials in the study area may be classified as hazardous/dangerous. Some materials may be managed as potentially radioactive because the area has not been previously cleared. Monument land has been radioactively cleared except for the ¼-mile wide strip of Monument of the west side of the Columbia River. Most of the materials in the project area consist of wood and steel poles, conductors, and appurtenances, much of which could be commercially recycled. All project-generated wastes on USFWS- and DOE-managed lands would be evaluated and characterized during construction in accordance with state and federal regulations; however, wastes on DOE-managed lands would also need to comply with specific Hanford Site requirements and would be subject to radiological surveys to confirm the absence of DOE-originated radioactivity before being released to a landfill. If a waste stream was determined to qualify as hazardous/dangerous, radioactive waste, or mixed waste, it would be managed in accordance with applicable rules and regulations. Radioactive/non-releasable and mixed (e.g., waste containing lead) waste on DOE-managed lands would be disposed at the Hanford Site.

Since 1999, essentially all municipal solid waste generated at the Hanford Site has been disposed of at off-site municipal or commercial solid waste disposal facilities (DOE 2015). This waste, which includes construction debris, office trash, and demolition debris, currently goes to the Roosevelt Regional Landfill (DOE 2012a), roughly 50 miles southwest of the Hanford Site and has 61.5 percent of the total statewide capacity for disposal of municipal solid waste (Ecology 2014).

In addition to the municipal solid waste going off site for disposal, the Hanford Site operates an inert waste (i.e. wood or concrete) landfill, designated as Pit 9. This facility is managed in accordance with state requirements for an inert waste landfill (WAC 173-350-410) and only accepts wastes meeting applicable criteria as defined by the state (WAC 173-350-990) would include concrete and non-radioactive/non-releasable materials.

The Hanford Site also has active waste minimization and recycling programs. In 2014, almost 2,800 tons of nonhazardous materials were recycled, 61 percent of which consisted of various types of metals and 27 percent of paper materials. Other categories of waste recycled in smaller, but still notable quantities, included cardboard, furniture, plastic bottles, tires, and wood pallets (DOE 2015).

3.3.6.3 Environmental Consequences

3.3.6.3.1 No Action Alternative

The No Action Alternative would require more frequent maintenance and more frequent access as structures continue to deteriorate and fail over time.

Wood structures and other electrical components removed from the USFWS- and DOE-managed lands would continue to generate a waste stream as deteriorated structures and equipment is replaced.

Materials encountered during excavations on DOE-managed land would be surveyed for radioactivity using the graded approach in accordance with Hanford Site requirements and if radioactive, DOE and its contractor would handle the disposal of the material at the Environmental Restoration Disposal Facility (ERDF). Municipal solid waste, including clean construction debris, and other inert waste would be disposed of off-site at the regional landfill. These facilities have large disposal capacities and can handle the small amounts of waste expected to be generated during maintenance of the existing transmission line and, as a result, existing waste management systems should not be affected.

Structures and other electrical components removed from USFWS-managed lands would be evaluated and disposed of properly according to regulatory requirements; however radiological survey is not required for materials removed from the USFWS-managed lands on the Monument.

3.3.6.3.2 Proposed Action

The primary waste streams generated during this proposed project would be the wood and metal utility poles (107 wooden structures and 20 steel structures), metal conductors (lines), and other metal and ceramic electrical hardware that would be removed from the DOE- and USFWS-managed lands. There is the potential for hardware in the existing system to include regulated materials (e.g., lead-tipped bolts) that would require special handling. As the hardware is removed and decommissioned, screening would be required to determine if hazardous/dangerous materials or residual radioactivity is present, and the materials would be handled in accordance with state and federal laws and regulations, and Hanford Site requirements on DOE-managed lands and disposed of at the ERDF.

The Proposed Action would not include handling or disposing of electrical components containing oils and therefore, polychlorinated biphenyls would not be present. Any other trash, debris, or excavated material would be relatively minor and would be managed as described above for the construction phase.

The metal that would be removed and disposed of would mainly consist of galvanized steel, aluminum and copper, which are not dangerous wastes under WAC 173-303. Galvanized steel and copper are not an inert waste under WAC 173-350-990, but aluminum is. Ceramic insulators are also inert waste under WAC 173-350-410. However, metal on the insulators could contain lead and then would be regulated according to WAC 173-303-090(8).

The materials on the DOE- and USFWS-managed lands on the Monument would be collected (or spooled in the case of the conductors) and transported to a laydown area then disposed according to regulatory requirements. For materials removed from DOE-managed lands, including poles, the components would be surveyed for radioactivity in accordance with Hanford Site requirements prior to transport off site. Conductors would be surveyed for residual radioactivity before spooling to ensure a thorough survey of all surfaces. Metal components that are regulated (e.g., lead-tip bolts), metal with residual radioactivity or not radiologically releasable would be disposed in DOE's onsite ERDF. The metal structures, conductors, and other electrical hardware would be recycled if they are not regulated. If confirmed to be free of DOE-originated radioactivity, a recycler would pick up these materials and have them transported to a recycling facility. If any of these materials were found to have no recycling interest or value, they would be disposed of in a permitted landfill for inert construction-type debris or a permitted landfill for municipal solid waste.

Most of the poles would be removed except in a few cases such as at the island structure where poles would be cut off at ground level and the butts would remain in the ground to minimize soil disturbance. The wood poles on DOE-managed lands would be surveyed for residual radioactivity and disposed in ERDF if DOE-originated radioactivity is found. The wood structures may be treated differently than other decommissioning waste because of chemical preservatives. Wood utility poles are typically preserved by treatment with chemicals such as pentachlorophenol, creosote, or inorganic arsenic and chromium. According to a 1988 background document published in the Federal Register, 60 percent of utility poles were preserved with pentachlorophenol, 23 percent with creosote, and 17 percent with inorganic formulations (Ecology 2016).

The weight of a typical wood pole is about 1.8 tons, so the approximately 208 wood-pole structures and cross members would weigh more than 374 tons. This would represent a large amount of waste if disposed of at a landfill but would still be a small portion of the 192 million-ton capacity of the (off-site) Roosevelt Regional Landfill, or the 18 million-ton capacity of the onsite ERDF. Existing waste management actions on the Hanford Site and within the region would not consume a significant percentage of existing available landfill capacity.

Solid waste would be generated during the Proposed Action and those waste materials not appropriate for recycling, or without reasonably available recycling avenues, would be disposed of in on- or off-site landfills.

Fuel, oil, and hydraulic fluid could inadvertently leak or spill at helicopter landing sites. The potential would be minimized by proper servicing of the helicopter prior to and during use. Spill control kits will be located at helicopter landing sites for use, if needed. BMPs that will be implemented to minimize the risk of spills and contamination of soils are described in Section 2.3.

3.3.6.4 Mitigation

Avista would transport non-radioactive poles and components to its company facility where it would be sorted and recycled. Given that wastes of all types are subject to federal and state regulations, and DOE Directives, additional mitigation measures would not be required. These mitigations are included in Table 5-1in Section 5. If DOE grants a realty instrument to Avista for this proposed project, DOE will include a condition that Avista is required to complete these mitigations.

3.3.6.5 Unavoidable Adverse Impacts

There are no unavoidable adverse impacts to the environment as a result of waste generation, storage, and disposal due to the proposed project as a result of the Proposed Action. The Proposed Action would reduce the

amount of radioactive and inert waste in the study area and would be properly disposed of in facilities that have the capacity to handle the amount of generated project.

3.3.6.6 Cumulative Impacts

DOE has been undergoing extensive waste remediation activities involving removal and proper disposal of radioactive materials, dangerous wastes, and solid wastes including inert materials. The Proposed Action by removing the treated wooden poles and potentially radioactive or dangerous materials and properly disposing of them would have a beneficial cumulative effect to cleanup and reduction of waste materials on and off the Monument.

Disposing of solid waste from construction activities to commercial- and DOE-operated facilities would be cumulative to other cleanup activities and infrastructure upgrade projects that also would generate solid waste. However, the cumulative impact would be minor considering that the amount of solid waste that would be generated is relatively small compared to the remaining disposal capacity.

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4. COMPARISON OF THE PROPOSED ACTION AND NO ACTION ALTERNATIVE AND SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The purpose of the proposed project is to ensure safe and reliable electrical service and energy transmission to customers in an efficient manner and at reasonable rates, as required under the RCW 80.28.010 Duties as to Rates, Services, and Facilities – Limitations on Termination of Utility Service for Residential Heating. Table 4-1 compares the No Action and Proposed Action alternatives' abilities to achieve these purposes. Table 4-2 provides a comparison of environmental impacts for the No Action and Proposed Action for topics evaluated in detail.

Table 4-1. Comparison of Alternatives' Responses to Project Purpose and Objectives

Purpose and Objectives	No Action	Proposed Action
To ensure safe and reliable electrical service and energy transmission to customers in an efficient manner and at reasonable rates, as required under the RCW 80.28.010	No temporary access would be granted, and the transmission line would not be rebuilt. Poles would continue to deteriorate, and more frequent unplanned outages would be expected, requiring more frequent maintenance and access to the line. Repairs and pole replacements would occur on an unplanned, emergency basis.	Upgrading the pole structures, conductors and electrical components would reduce unplanned outages, and minimize maintenance and emergency repairs. This approach to rebuilding the transmission line would be a more comprehensive, cost effective and efficient method of ensuring system reliability.
Maintain alignment of transmission lines in existing easement	Emergency structure replacements. maintenance and repairs would be within the existing easement.	Rebuilt transmission line would be within existing easements.
Ensure capacity of transmission lines is equivalent to capacity of the interconnected BPA transmission lines	Conductors would have less capacity than the BPA transmission lines that it ties into resulting in continued overloads and outages.	Conductors would be upgraded to accommodate the BPA transmission lines and would minimize overloads and outages.
Increase transmission line capacity to meet load demands	Conductor capacity would be 53 MW which would not accommodate system-wide load demands. The existing conductors would continue to operate beyond capacity, causing outages, posing a fire risk, and affecting the safety and reliability of the rest of the electrical system. The No Action Alternative would not accommodate electrical transmission from several new renewable energy projects under construction, thus requiring it to operate at a capacity higher than it is currently designed and built.	Conductor capacity would be upgraded to accommodate a minimum of 80 MW to accommodate system-wide capacity and to meet predicted load demands including accommodating electrical transmission from several new renewable energy sources.
Improve structural integrity of system	Due to deteriorating conditions of the existing Benton-Othello Transmission Line and structure, more frequent unplanned outages would be expected, requiring more frequent maintenance and	Installation of new steel structures, conductors, and electrical components would reduce unplanned outages, minimize scheduled and emergency

Purpose and Objectives	No Action	Proposed Action
	access to the line. The overall structure and integrity of the system would continue to decrease with time.	maintenance, and reduce operating costs, due to improved structural integrity.
Minimize the degree to which the system needs to be maintained	There would be ongoing and increasing need for replacing poles, conductors and electrical components as the structures continue to deteriorate and as unplanned outages continue to increase. Repairs to the system would be piecemealed and would not comprehensively address the root of the needed maintenance and repairs.	Installation of new steel structures, conductors, and electrical components and improving access roads would reduce the numbers of poles that need to be maintained. Steel poles would have a longer effective life and would require little maintenance and replacement. Stronger, fire resistant poles would reduce unplanned outages, minimize scheduled and emergency maintenance, and reduce maintenance costs.
Perform rebuild work during time that the outage may be granted on the line (Oct–Mar)	Outages, fires and other causes for emergency maintenance and repairs would be unplanned which could increase maintenance costs, increase safety risks due to the potential to work with live wires. Environmental effects would also be greater due to the unplanned nature of the maintenance and replacements.	Outages, fires and other causes for emergency maintenance and repairs would be unplanned which could reduce costs, reduce safety risks and reduce environmental effects.
Reduce fire risks to Avista's existing electrical system and to the environment	Deteriorated wood poles and more frequent outages due to overloads would continue to cause fire risks to the electrical system and would damage vegetation and habitat. Access roads would not be maintained which could increase fire risk due to vehicles undercarriages encountering vegetation.	Replacing wood poles with steel poles, would increase capacity and reduce outages and fire risk. Mowing and improving access roads and less frequent access due to reduced maintenance needs would also reduce fire risk.
Improve the reliability of the local transmission system and minimize outages	Overall reliability of the system would continue to decrease with time as it deteriorates. More frequent unplanned outages would be expected, requiring more frequent maintenance and access to the line. Overall reliability of the system would continue to decrease with time.	Installation of new structures, conductors, and electrical components would reduce unplanned outages, minimize scheduled and emergency maintenance, and reduce operating costs, improving overall system reliability.
Meet transmission system public safety and reliability standards set by the NESC and NERC	Responding to increasingly frequent emergency repairs under often hazardous environmental conditions (fire or storms) and addressing failures in a piecemeal approach would not be safe for workers and would not improve the overall reliability of the system nor would it meet NESC or NERC standards.	The Proposed Action would reduce the number of poles that must be maintained and reduce the need for maintenance due to having steel poles versus wood poles, thereby reducing exposure of workers to potentially unsafe work conditions including severe weather. Replacing the structures and upgrading the conductors would reduce outages and help meet the standards set by NESC and NERC.

Table 4-2. Comparison of Environmental Consequences

Subject Area	No Action	Proposed Action
Biological Resources	No change in impacts to vegetation, fish, or wildlife because the No Action Alternative includes normal operation and maintenance activities. Emergency repairs and outages would increase as poles deteriorate and capacity is exceeded. Fires would continue and could adversely affect vegetation and habitat.	The Proposed Action would temporarily damage and remove vegetation over 115 acres. After temporary disturbance areas are revegetated, there would be 13.5 acres of permanent loss of shrub-steppe, grassland habitats, wetlands, and bluff habitat; however, removing total poles would provide an additional 3.8 acres of habitat. This would include the removal of some special-status plant species and native plant communities that are supported by these habitats. Construction would temporarily displace wildlife near work areas due to increased noise and construction activity, but reduced risk of overloads, fires and less frequent maintenance would reduce effects in the long term.
Threatened and Endangered Species	Continued fire risk and increasing numbers of emergency pole replacements near the White Bluffs could still adversely affect White Bluffs Bladderpod and its designated critical habitat.	The proposed project would impact approximately 2.3 acres of designated critical habitat for White Bluffs bladderpod, of which 0.2 acres would be permanent impacts from pole structures 22/10 and 22/8. An estimated 448 White Bluffs bladderpod plants could be affected by the proposed project. USFWS determined the project may affect and is likely to adversely affect White Bluffs bladderpod but there is no jeopardy to bladderpod and there would be no adverse modification of the critical habitat. There will be no effects to other federally listed or proposed species or designated critical habitat (USFWS 2018a).
Wetlands	No change in impacts. There would still be temporary impacts to access poles in wetlands and to replace them which would increase as the electrical system deteriorates.	Long-term benefits to wetlands because the steel poles and increased capacity would reduce the frequency of emergency replacements and there would be fewer poles in wetlands and less need to access poles in wetlands. There would be a net gain of 0.6 acres of wetland due to reducing the numbers of permanent poles in wetlands. Temporary impacts are expected.
Cultural Resources and Historic Properties	Emergency pole replacements and access could affect archaeological sites and TCPs through soil disturbance.	Six identified TCPs would be adversely affected. The Hanford Construction Camp overlaps the APE in the northeast corner of the site but results in no adverse effect to it. There would be no adverse effect to the Benton-Othello No. 1 Transmission Line, as the portion on DOE lands is not eligible for the NRHP. All other historic resources would be avoided through work controls. A NHPA Section 106 MOA was prepared to resolve adverse effects.
Manhattan Project National Historical Park	Potential impacts to tours due to unplanned emergency pole replacements and potential use of different pole styles.	There would be no impacts to visitors due to timing of construction when tours are not conducted, and pole structures would be replaced with similar structures (see before and after photos).

Subject Area	No Action	Proposed Action
Visual Quality	Under the No Action Alternative there would be no change in poles; however, emergency repairs could result in replacing structures with different poles.	The replacement of similar H-frame structures would not substantially affect Visual Quality. The existing 20 single-pole steel structures would be replaced with fewer H-frame structures. In the wetlands and along the Columbia River there would be fewer but taller pole structures Removal of the island pole structure would be noticeable, especially by boaters who use it as a navigational aid.
Waste Management	Emergency repairs/replacements would become increasingly frequent and would continue to generate hazardous waste that would require testing and proper disposal. Materials encountered during excavations and construction waste on DOE-managed land would be surveyed for radioactivity. Radioactive materials would be disposed of at the ERDF. Municipal solid waste, including clean construction debris, and other inert waste would be disposed of offsite at the regional landfill. Workers could potentially come in contact with residual radioactivity on material and construction generated hazardous materials during emergency repairs, operation and maintenance.	Waste streams generated would be the wood and metal utility poles (107 wooden structures and 20 steel structures), metal conductors (lines), and other metal and ceramic electrical hardware. Materials encountered during construction and construction waste would be tested for radioactivity, and the materials would be handled according to regulations. Radioactive materials from DOE-managed lands would be disposed of at the ERDF. Municipal solid waste, including clean construction debris, and other inert waste would be disposed of offsite at the regional landfill. Workers could potentially come in contact with residual radioactivity on material and construction generated hazardous materials, but this risk would be reduced through planning, radiological surveys, and proper handling and disposal of waste materials.

5. DOE REAL PROPERTY AUTHORITY AND MITIGATION ENFORCEMENT

This section addresses the laws, regulations, and other requirements if DOE were to grant a realty instrument, and how that realty instrument would be used to enforce the mitigation measures that avoid or minimize environmental consequences for Avista's proposed project. It is assumed that Avista would comply with all requirements applicable to the implementation of the Proposed Action.

5.1 U.S. DEPARTMENT OF ENERGY REAL PROPERTY AUTHORITY

DOE has real property authority under several laws. The primary authorities are:

- The *Atomic Energy Act* (42 USC 2201(g)), Section 161(g) – authorizes DOE to sell, lease, grant, and dispose of such real property as provided in the Act. Section 161(q) allows for easements for rights-of-way.
- *DOE Organization Act* (42 USC 7256), Sections 646(c)-(f)) (together these sections are known as the "Hall Amendment") – authorizes DOE to lease property.
- *DOE Organization Act* (42 USC 7259), Section 649 – authorizes DOE to lease facilities.

5.2 REALTY INSTRUMENT AND ENFORCEMENT OF MITIGATIONS

The transmission line is located within Avista's existing easement on federal property. In order to implement the proposed project, Avista also needs to use federal property outside of its easement to construct temporary access roads to portions of the transmission line, and for temporary material staging and laydown. DOE's action is to decide whether to grant a real estate (or realty) instrument to Avista for this temporary use.

Generally, DOE may grant a realty instrument (e.g. lease, permit, license, or easement) for temporary use of government property. DOE would incorporate conditional language in the realty instrument as a mechanism to avoid or minimize environmental consequences, meet regulatory obligations, and protect mission and operational needs.

For the Proposed Action, as a condition of the realty instrument for use of federal property outside Avista's existing easement, Avista would be required to complete the BMPs, commitments, stipulations, and mitigation measures that avoid or minimize environmental consequences associated with its proposed transmission line rebuild project on the Hanford Site.

Table 5-1 includes the list of mitigation measures, BMPs, and other commitments resulting from this environmental assessment that the realty instrument would reference, and which Avista would be required to complete for the Proposed Action. Avista would also be responsible for any other applicable statutory obligations not included in this list.

Table 5-1. Realty Instrument Mitigation and Environmental Commitments

Category	Description

Biological Resources	Avista will:
	• Conduct, in concert with DOE/DOE contractor and/or USFWS biologists, preconstruction surveys prior to land disturbance or construction to identify the site specific resources that are to be avoided such as rare plants, nesting birds, and snake hibernacula; bird nest surveys will be completed by a qualified DOE/DOE contractor biologist or USFWS biologist within one week prior to the start of any construction activities that occur during nesting season.
	• Install signage, fences, and/or flagging to ensure that vehicles and equipment stay within their designated routes and work areas, and so they will avoid areas with important resources such as high-quality plant communities or special-status species. Avista will adjust disturbance buffers around the new construction areas to eliminate using areas not suitable for construction and to minimize vegetation damage and removal.
	• Restrict land clearing activities, to the extent possible, to the non-nesting season for migratory birds.
	• Prepare a SWPPP and a Spill Prevention Plan to help avoid, minimize and mitigate potential construction impacts; depending on conditions, silt fencing, fiber wattles, and/or concrete washouts may be used.
	• Minimize the risk of fire during construction by:
	  • Complying with applicable USFWS (2009) and DOE (2018c) fire restrictions and guidelines for driving off road, and the operation of machinery in vegetated areas during times with elevated fire danger; and
	  • Ensuring that all vehicles carry fire extinguishers, a shovel, and other fire control equipment to minimize habitat loss in the unlikely event of fire during construction and maintenance activities. Avista will minimize vehicle idling to reduce the risk of fire due to engine temperatures.
	• Control invasive and noxious weeds in construction work areas by:
	  • Using manual, mechanical, and/or chemical methods, as recommended by USFWS (on its managed property) or DOE (on its managed property), for each species prior to construction, if needed, with a focus on species with small, contained infestations to reduce the potential for widespread establishment and the need for long-term management, and at the conclusion of construction in preparation for performing revegetation;
	  • Using vehicle and equipment cleaning stations outside of the action area to minimize the introduction and spread of weeds during construction; this includes cleaning the vehicles and equipment prior to entering and as soon as possible after leaving each work area, and washing the under carriage and tires of vehicles when leaving areas with known infestations of weedy or invasive plant species;
	  • Minimizing or eliminating berms during road grading to prevent the spread of weeds; and
	  • Performing a post-construction noxious weed survey approximately 1 year after construction including all areas disturbed by construction activities to determine if there are new noxious weed infestations, and implement appropriate control measures of noxious weed infestations, if needed.

Category	Description

	• Where possible, cut or crush existing vegetation rather than destroying the vegetation by blading or clearing areas.
	• On existing roads that would continue to be used for operation and maintenance on and off the Monument, restore roads by minimizing the berms, revegetating approximately two feet on either side, and reseeding the roads with low-growing native species.
	• Keep disturbance areas around each pole structure as small as possible, reducing from the more typical 100-foot radius to between a 25-foot and 65-foot radius (in the White Bluffs bladderpod critical habitat) depending on the need for guy wires. Avista will re-contour disturbed areas to match preconstruction conditions.
	• Follow the guidelines in the Hanford Site Revegetation Manual (DOE 2013), prepare a site-specific Restoration Plan to be reviewed by DOE and the USFWS, and restore areas temporarily disturbed by construction as well as the decommissioned portions of the existing Benton-Othello transmission line by:
	  • Replacing shrub-steppe vegetation removed from disturbed sites, and reestablishing or improving conditions seen in the pre-existing plant community;
	  • Reseeding disturbed areas as soon as practical after construction activities are complete;
	  • Planting at the appropriate time to ensure seed germination and seedling survival (planting would generally occur within the period from mid-November to early February);
	  • Using a native seed mix;
	  • Ensuring that culturally important and pollinator-friendly plant species are included in the native seed mixes used for revegetation;
	  • Requesting Tribal input to identify culturally important species for a given habitat;
	  • Ensuring that certified weed-free straw (preferably native grass) is used on revegetation sites; and
	  • Monitoring seed germination and plant establishment of revegetation sites annually over at least a 5-year period (considering native plant cover, plant survival and growth, plant diversity, and weed cover), and replanting areas, if necessary, to meet success criteria, and monitoring for an additional 5-year period.
	• Adhere to the requirements for eagle nest sites and communal night roosts in the Bald Eagle Management Plan (DOE 2017a):
	  • At nest sites, work is not allowed within the 660-foot nest buffer from November 15 until the nest is abandoned or chicks have fledged and no longer need the nest as support (generally late July to August). Avista will monitor eagle activity near the eagle nests along the Columbia River near the Town of Hanford during construction and adhere to access restrictions. If eagle activity is affected, then Avista will stop or modify work in consultation with the DOE or DOE contractor biologist.
	  • At communal night roost sites, 660-foot buffers are in place from November 15 until March 15. During this period, work-related access may be granted between 9 a.m. and 3 p.m. after notification of Hanford Site ecological compliance staff.

Category	Description
	• There are no work restrictions in place within the nest or night roost buffers from October 1 to November 15. • Comply with buffer zones for ferruginous hawk nests in the study area if they are established. On the Hanford Site, nesting ferruginous hawks are protected using WDFW guidelines (WDFW 2004). DOE will establish buffer zones 3,281 feet around active nests and road closure signs will be placed in the roads where they intersect with buffers. Nest areas will be protected from human disturbance within 820 feet between March 1 and May 31, and within 3,281 feet for prolonged activities during the nesting and fledging season (March 1 to August 15) (Nugent 2016). • Instruct helicopter pilots on the potential for bird strikes and terrestrial mammal disturbances based on the time of year and other relevant considerations. This would reduce the risk of bird strikes and impacts on terrestrial mammals during helicopter operations, especially during the migration periods from March to May and late August through November time periods. Transit to and from the project area would be conducted at 3,000 feet above ground level. • Use the Natural Resources Protective Buffer Map for bald eagles and ferruginous hawks (http://www.hanford.govpage.cfm/EcologicalMonitoring) and a 1,300-foot "no-fly" slant distance from nest sites will be maintained by helicopters in order to limit disturbance and avoid nest abandonment by these birds during active nesting and/or roosting times. This slant distance is based on the slant distance thresholds for behavior effects on raptors, including eagles, from aircraft (ORNL 2001). • Use marking devices approved by USFWS to avoid bird collisions along the portion of the line that spans the Columbia River, the Wahluke pond, and the wetlands adjacent to both areas. • Locate helicopter refueling areas at prior-disturbed locations or areas already used for helicopter operations and away from waterways. • Use conservation measures listed in the Biological Opinion issued by USFWS (USFWS 2018a) for the proposed project to minimize impacts to the White Bluffs bladderpod and/or its designated critical habitat.
Wetlands	Avista will: • Access the poles in the wetland by foot and use helicopters to place poles and remove the existing poles from the wetlands and the island structure. • Use erosion and sediment control and spill prevention BMPs such as silt fence, fiber wattles, truck wash areas, and concrete washouts. • Restore temporary accesses and temporary disturbance around the existing and proposed pole locations to pre-construction grades, and replant with native wetland species according to the Hanford Site Revegetation Manual (DOE 2013), which will be applied to both DOE- and USFWS-managed lands on and off the Monument.
Cultural Resources	Avista will: • Plan, coordinate, and conduct the Proposed Project in a manner that protects the cultural and historic resources. • Employ the BMPs specified in Section 2.3 and in compliance with the Hanford Cultural Resources Management Plan (DOE 2003), as appropriate.

Category	Description
	• Implement the mitigations, stipulations, and actions established in the NHPA Section 106 MOA to resolve adverse effects to NRHP-eligible TCPs and properties of religious and cultural significance. • Implement the work controls as established in the Cultural Resources Survey report to avoid known archaeological resources and minimize potential impacts on unknown resources within the construction area to ensure that historic properties are not adversely affected by the proposed project.
Visual Effects	Avista will: • Use a low sheen conductor that would become progressively duller in 2 to 3 years and further minimize visual effects. • Design the proposed project so that there are fewer poles and use self-weathering steel for the poles so they will look similar to the original pole structures.
MAPR	Avista will: • Construct the Proposed Action during the fall and winter when there is low use by visitors and when tours are not conducted. • Coordinate with WDFW and other agencies as needed, to remove the island structure, which is currently used as a navigation tool for boaters.
Waste Management	Avista will: • Transport non-radioactive poles and components to its company facility where it will be sorted and recycled.
Other BMPs	Avista will: • For security, install temporary fencing to prevent theft or unauthorized entry.

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7. AGENCIES AND PERSONS CONSULTED

- Benton County
- Bonneville Power Administration
- City of Richland
- Confederated Tribes and Bands of the Yakama Nation
- Confederated Tribes of the Umatilla Indian Reservation
- National Park Service
- Nez Perce Tribe
- U.S. Department of Energy, Office of Legacy Management
- U.S. Fish and Wildlife Service
- Visit Tri-Cities Washington
- Wanapum Band of Priest Rapids
- Washington State Department of Archaeology and Historic Preservation
- Washington State Department of Ecology
- Washington State Department of Fish and Wildlife
- Washington State University - Tri Cities

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