Threatened and Endangered Species Exhibit

Cascade Renewable Transmission

Wasco, Hood River, and Multnomah Counties, Oregon

February 2026

Prepared for
Cascade Renewable Transmission, LLC

Submitted to
Oregon Energy Facility Siting Council

Contents

Tables

Acronyms and Abbreviations

Applicant	Cascade Renewable Transmission (CRT)
EMF	electromagnetic field
ESA	Endangered Species Act
ESU	evolutionarily significant units
FR	Federal Register
HDD	horizontal directional drilling
HDR	HDR Engineering, Inc.
LCR	Lower Columbia River
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OAR	Oregon Administrative Rule
ODFW	Oregon Department of Fish and Wildlife
OR EFSC	Oregon Energy Facility Siting Council
ORBIC	Oregon Biodiversity Information Center
ORS	Oregon Revised Statute
ROW	right-of-way
SPI	sediment profile imaging
USFWS	U.S. Fish and Wildlife Service

1 Introduction

This exhibit provides information about state-listed threatened and endangered plant and wildlife species that may be affected by the proposed Cascade Renewable Transmission Project (Project) as required by Oregon Administrative Rule (OAR) 345-022-0070. In addition, per the Revised Project Order [Section III.I], the Oregon Department of Energy has requested that this exhibit also list state candidate plant species. This exhibit demonstrates that the Project can comply with the Oregon Revised Statues (ORS) covering state-listed threatened and endangered species in the approval standard OAR 345-022-0070:

> ***345-022-0070 Threatened and Endangered Species***
>
> *To issue a site certificate, the Council, after consultation with appropriate state agencies, must find that:*
>
> *(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under ORS 564.105(2), the design, construction and operation of the proposed facility, taking into account mitigation:*
>
> *(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or*
>
> *(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species; and*
>
> *(2) For wildlife species that the Oregon Fish and Wildlife Commission has listed as threatened or endangered under ORS 496.172(2), the design, construction and operation of the proposed facility, taking into account mitigation, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species.*

2 Analysis Area

In accordance with OAR 345-001-0010(59)(a) and pursuant to the Revised Project Order, the analysis area for state threatened and endangered plant and animal species consists of the area within and extending 5 miles from the portions of the Project site boundary containing aboveground components, and 0.25 mile from portions of the site boundary containing buried and in-river components and any downstream area of impact. The site boundary is detailed in the Background Information Exhibit. Most of the Project corridor consists of buried cable both on land and in the riverbed of the Columbia River. Consequently, most of the analysis area is 0.25 mile from the Project boundary. The two converter stations located at the east and west ends of the Project are the only aboveground facilities and the analysis area extends 5 miles from these two locations. The furthest downstream location where Project construction would cause localized turbidity is the area where the cable transitions from the riverbed to the overland section on Hayden Island. The analysis area encompasses in-river areas 0.25 mile downstream of the anticipated temporary turbidity plume from cable installation at this location. The threatened and endangered species analysis area is shown on Figure 1 (in Section 12). A portion of the site boundary in the Columbia River is designated as the micrositing corridor, where Project components are expected to be located. This micrositing corridor ranges in width from approximately 100 to 200 feet, encompasses the substrate data obtained along the full cable route, and includes the expected limits of substrate disturbance for cable installation.

3 Identification of Species (OAR 345-022-0070(3)(a))

(3) To assist the Council in determining whether the standard outline in (1) and (2) has been met, the Applicant must submit Information about threatened and endangered plant and animal species that may be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0070. The applicant must include:

(a) Based on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172(2) and ORS 564.105(2) that may be affected by the proposed facility;

RESPONSE

This section describes the results of the initial desktop information and biological and botanical surveys conducted in support of this exhibit, as required under OAR 345-022-0070. The field surveys for species and habitats were conducted for both the Fish and Wildlife Habitat Exhibit and Threatened and Endangered Species Exhibit simultaneously. During development of a survey plan and prior to conducting surveys, Cascade Renewable Transmission, LLC (the Applicant) consulted with the Oregon Department of Fish and Wildlife (ODFW) regarding the appropriate survey requirements for documenting the presence of state sensitive species, as required in OAR 345-022-0060(3)(d), and the classification of fish and wildlife habitat, as required in OAR 345-022-0060(3)(b).

Consultation consisted of emails and phone conversations with the ODFW area biologists, as described in the Fish and Wildlife Habitat Exhibit.

3.1 Desktop Review

The Applicant conducted a desktop review of Oregon State-listed threatened and endangered species and habitats, species and critical habitat protected under the federal Endangered Species Act (ESA), essential fish habitat, and marine mammals protected under the Marine Mammal Protection Act. This exhibit describes the potential presence and habitat for Oregon State-listed species only, although field survey efforts also considered habitat for federally listed species and habitats. The federally listed species and Project effects are analyzed in the biological assessment prepared for this Project.

Data from various resources were considered to determine the state threatened, endangered, and sensitive species that may occur within the site boundary, including the following:

- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC)
- USFWS Critical Habitat for Threatened and Endangered Species Online Mapper, Environmental Conservation Online System
- National Oceanic and Atmospheric Administration (NOAA) Fisheries Protected Resources Application for ESA-listed species' ranges and critical habitat designations, managed by NOAA Fisheries' West Coast Region

- NOAA Fisheries Geographic Information System (GIS) Data for Essential Fish Habitat
- ODFW, Centralized Oregon Mapping Products and Analysis Support System (Compass)
- Oregon Biodiversity Information Center (ORBIC)

As part of the impact analysis, the Applicant also reviewed published in-water work windows, including the U.S. Army Corps of Engineers' *Approved Work Windows for Fish Projection for Waters Within National Park Boundaries, Columbia River, Snake River, and Lakes by Watercourse* (n.d.) and the ODFW *Oregon Guidelines for Timing on In-Water Work to Protect Fish and Wildlife Resources* (2024). The Applicant also requested known occurrence locations from ORBIC within the analysis area (ORBIC 2022) to derive information on the distribution of species potentially present within the analysis area for the Threatened and Endangered Species Exhibit. Table 1 summarizes state-listed species with potential to occur within the analysis area.

Table 1. State Listed Species with Potential to Occur within the Analysis Area

Common Name	Scientific Name	Federal Status	State Status
Birds			
Northern Spotted Owl	*Strix occidentalis caurina*	T	T
Fish			
Snake River Chinook salmon (fall)	*Oncorhynchus tshawytscha*	T	T
Snake River Chinook salmon (spring/summer)	*Oncorhynchus tshawytscha*	T	T
Lower Columbia River Coho Salmon	*Oncorhynchus kisutch*	T	E
Mammals			
Wolverine	*Gulo gulo*	T	T
Invertebrate Animals			
Fender's Blue Butterfly	*Icaricia icarioides*	T	CS
Monarch Butterfly	*Danaus plexippus*	PT	CS
Vascular Plants			
Willamette Daisy	*Erigeron decumbens*	E	E
Northern wormwood	*Artemisia campestris var. wormskioldii*	SOC	E
Golden paintbrush	*Castilleja levisecta*	DL	E
White rock larkspur	*Delphinium leucophaeum*	SOC	E
Peacock larkspur	*Delphinium pavonaceum*	SOC	E
Water howellia	*Howellia aquatillis*	T	T
Columbia yellowcress	*Rorippa columbiae*	NL	E
White-topped aster	*Sericocarpus rigidus*	SOC	T
Tygh Valley milkvetch	*Astragalus tyghensis*	NL	T
White fairy poppy	*Meconella oregana*	SOC	T

Federal status codes:
DL = Delisted
SOC = Species of Concern
T = Threatened
PT = Proposed Threatened

State status codes:
C = Candidate
E = Endangered
S = Sensitive Species
CS = Conservation Strategy Species

3.2 Field Surveys

The applicant conducted field surveys in 2023 and 2024 to evaluate the potential presence of federal and state-listed species. The Applicant's consultant, HDR Engineering, Inc. (HDR), conducted a wetlands and streams delineation within the analysis area on April 19-21, 2023, November 8, 2023, and March 11-13, 2024, to identify wetlands or Waters of the State (see State and Local Laws and Regulations Exhibit). HDR biologists conducted additional special status species surveys on April 20, 2023, and May 30 and 31, 2024, to identify suitable habitat for listed species within the analysis area. Wildlife and vegetation surveys were conducted to identify important habitats (e.g., riparian areas, tidal marshes, and woodlands, as well as other areas with which state-listed species and ESA-listed species have primary association). Biologists conducted the field investigations mainly by walking the study area within public rights-of-way (ROW) and other legally accessible portions of the study area, and documented vegetation communities, evidence of wildlife presence, and potential habitat for state-listed species and species of concern (see Fish and Wildlife Habitat Exhibit, Attachment 2).

Biologists conducted field surveys, documenting flora and fauna in the Project boundary and in the vicinity of Project sites, and verifying mapped vegetation communities and habitat. Visual observations were recorded within and beyond the Project corridor, where the viewshed from the ROW allowed and included incidental wildlife observations and habitat data. The biologist field team used a Trimble DA2 global positioning system unit capable of submeter accuracy to assist in identifying the site boundaries and record site spatial data. All special-status wildlife species and uncommon species observed while biologists were conducting surveys were recorded as part of baseline habitat surveys. Biologists recorded observations of general wildlife encounters, including the sighting of individuals, scat, nests, etc., whenever observed during habitat surveys and while in-transit in the analysis area to survey locations along the corridor. Pedestrian wildlife surveys were conducted throughout the entire terrestrial portion of the Project boundary and extended to the analysis area where access was possible. Biologists did not survey riparian areas along the Columbia River where the cable route is entirely within the river and no impacts to the shorelines or vegetation would occur; however, biologists did include these riparian areas in the desktop analysis. Also, biologists did not conduct baseline field surveys of fish and aquatic species within the Columbia River; species presence and habitat use were derived from desktop analysis. Surveys for habitats associated with state-listed species and incidental observations of these species were conducted concurrently with habitat, vegetation, and wildlife surveys described in Fish and Wildlife Habitat Exhibit and Attachment 2 to the Fish and Wildlife Habitat Exhibit.

4 Occurrence and Potential Adverse Effects (OAR 345-022-0070(3)(b))

(b) For each species identified under (a), a description of the nature, extent, locations and timing of its occurrence in the analysis area and how the facility might adversely affect it;

RESPONSE

4.1 Fish

4.1.1 Chinook Salmon

Oregon State-listed Chinook salmon (*Oncorhynchus tshawytscha*) from two evolutionarily significant units (ESUs) occur in the Columbia River in the analysis area. These include the Snake River fall-run ESU and Snake River spring/summer-run ESUs. An ESU is a Pacific salmon population or group of populations that is substantially reproductively isolated from other conspecific populations. The Columbia River Chinook salmon populations rely heavily on hatchery production and there are few sustained native, naturally reproducing populations (NMFS 2005a).

The fall-run ESU includes all naturally spawned populations of fall-run Chinook salmon from the mainstem Snake River and below Hells Canyon Dam and in the Tucannon, Grande Ronde, Imnaha, Salmon, and Clearwater rivers, as well as four artificial propagation programs. The Snake River spring/summer-run Chinook salmon ESU includes all naturally spawned populations of spring/summer-run Chinook salmon from the mainstem Snake River and the Tucannon River, Grande Ronde River, Imnaha River, and Salmon River sub-basins, as well as 15 artificial propagation programs.

4.1.1.1 Occurrence in the Analysis Area

Chinook salmon runs are designated based on the timing of adult entry into freshwater. Individuals from several populations of Chinook salmon could occur in the analysis area during the cable installation proposed in-water work window of November 1 to February 28 downstream of Bonneville Dam and November 1 to March 15 upstream of Bonneville Dam[1], as described below.

Adult Snake River fall-run Chinook salmon migrate through the lower Columbia River from April through October, peaking in August and September (Columbia River DART 2024; NMFS 2017a). Adults move quickly through the estuary in deep water on their way to upstream holding and spawning areas. Therefore, Snake River fall-run adults are unlikely to be present during the cable installation work window. Based on fish passage data at Bonneville Lock and Dam, juvenile Snake River fall-run Chinook salmon migrate in the lower Columbia River from February to November, with a peak in May and June (Columbia River DART 2024). Early and late outmigrating juvenile Snake

[1] A request for an in-water work window extension may be made during the permitting phase to minimize effects on spawning Columbia River Chum Salmon downstream of Bonneville Dam.

River fall Chinook salmon may be present during the in-water work window, as well as rearing juveniles using the lower Columbia River.

Snake River spring- and summer-run Chinook salmon use the Columbia River as a migration corridor within the analysis area on their way to upstream holding and spawning areas. Snake River spring/summer-run Chinook salmon adults migrate through the lower Columbia River from March through September (NMFS 2020), with peak occurrence from mid-April to mid-May for spring-run Chinook salmon and from late-June to mid-July for summer-run Chinook salmon (Matthews and Waples 1991). Therefore, migrating adult Snake River spring/summer Chinook salmon are unlikely to be present during the cable installation work window. Juvenile Snake River spring/summer-run Chinook salmon exhibit a stream-type life history and are common in the estuary as yearlings and occasionally as sub-yearlings. They migrate swiftly to the ocean as yearling smolts mainly in spring and migrate as late as October in the analysis area (NMFS 2020); therefore, they are unlikely to be present during the work window. On average, more than 50 percent of Snake River yearling Chinook salmon outmigrants are routinely transported by barge or truck around the Snake River and Columbia River dams and released downstream of Bonneville Lock and Dam.

Chinook salmon spawning habitat includes riffles, tailouts, and the swifter areas in glides containing a mixture of gravel and cobble sizes with flow of sufficient depth for spawning activity (NMFS 2013). Based on available data from agencies and 2024-2025 Project data collected during habitat assessment of the substrate along the cable route, suitable Chinook salmon spawning habitat in the proposed cable route is lacking.

Juvenile active rearing habitat includes relatively slow-water habitat types, often near velocity shears and associated with relatively low-gradient stream channel reaches, including primary pools, backwaters, tailouts, glides, and beaver ponds (NMFS 2013). Inactive rearing habitat includes non-turbulent habitat types, particularly deeper water types within the main channel. Therefore, inactive rearing habitat is present in the analysis area. Some juveniles from populations migrate downstream from their natal tributaries in fall and early winter into larger rivers, including the mainstem Columbia River, where they are believed to over-winter before outmigrating the next spring as yearling smolts (LCFRB 2010). Shoreline and riparian habitat in the analysis area is degraded and many areas are restricted by highways, rail lines, and other development as well as shore armoring and riprap, which degrades potential rearing habitat along the shore.

The Project would occur within ESA-designated critical habitat for the Snake River fall and spring/summer runs, which was designated in 1993 (58 Federal Register [FR] 68543) and includes the mainstem Columbia River in the analysis area (Figure 1 in Section 12). The primary use of the Columbia River in the analysis area is for migration by both adults and outmigrating juveniles, though juveniles expressing the ocean-type life history, which migrate as subyearlings, may remain in shorelines along the lower Columbia River for longer periods as they migrate to the estuary. Analysis of Project impacts to federally designated critical habitat in the analysis area is provided in the biological assessment.

4.1.1.2 Potential Adverse Effects

Chinook salmon use the Columbia River in the analysis area seasonally as a migratory corridor for upstream adult migration and juvenile downstream migration. Construction of the Project would temporarily increase localized turbidity during cable installation (occurring within the proposed in-water work window) and creation of the wet cofferdams for the horizontal directional drilling (HDD) to connect the on-land portion to the in-river portion of the cable. Although in-water construction activities would stir up sediments, increased turbidity would impact only areas in proximity to the hydroplow as it progresses along the riverbed. Sediment surveys conducted in 2024 and 2025 along the in-river cable route determined the substrate consists predominantly of coarse sands and suspended material would settle within minutes.

Because cable installation would occur within the proposed work window of November 1 to February 28 downstream of Bonneville Dam and November 1 to March 15 upstream of Bonneville Dam , only late migrating adults from the Snake River fall-run ESU and possibly early migrating adults from the Snake River spring/summer-run ESU could potentially be present during cable installation. If a work window extension is requested and authorized by state and federal resource agencies, overlap is expected to be similar. As described above, adult Snake River fall-run Chinook salmon typically migrate through the lower Columbia River from April to October, with a peak in August and September. Adult Snake River spring/summer-run Chinook salmon typically migrate through the lower Columbia River from March to September, with a peak in April through mid-May. Juveniles from both ESUs may be present during cable installation, which may temporarily disturb individuals within the migratory corridor; however, individuals are not likely to be deep in the water column and in proximity to the hydroplow operating on the riverbed. Further, although in-water construction activities would stir up sediments, increased turbidity would impact only areas in proximity to the hydroplow given the narrow width of the temporary trench. This turbidity would quickly dissipate, as sandy material quickly drops out of the water column and finer material are diluted by riverine flow (see discussion in Section 8). Adverse biological effects to individuals may result from exposure to elevated noise during vibratory pile driving for the wet cofferdam installation.

The Project will not measurably alter river or shoreline habitat. The Columbia River in the analysis area will continue to be used primarily as a migratory corridor, the same as under current conditions. The proposed cable route is located in or near mid-channel and within the navigation channel through much of its length. The Columbia River in the analysis area experiences high levels of vessel traffic associated with use of the Federal Navigation Channel, and high levels of underwater noise and currents that generate suspended sediments (NMFS 2017b). The narrow micrositing corridor of affected river bottom is not considered high-quality habitat for Chinook salmon and the proposed route avoids important near-shore and more productive habitats, including spawning areas and tributary mouths.

Following installation, effects from operation of the energized cable, including the emission of an electromagnetic field (EMF) and heat from the energized cable, are not expected to adversely affect Chinook salmon. Cable shielding prevents electric fields from emanating outside the cable housing. Although magnetic fields would emanate from the cable through the surrounding substrate, exposure of Chinook salmon to these fields will not disrupt normal behavioral patterns (see discussion in Section 8). Heat generated from the cable buried at a depth of 10 feet in the substrate dissipates as the distance from the cable increases and the substrate is anticipated to return to ambient conditions at approximately 2.3 feet below the riverbed surface and outside of the benthic zone (see Section 8). Therefore, effects of thermal radiation from the operation of the cable for the proposed Project are not anticipated to measurably change the abundance, distribution of benthic organisms, or the availability of potential invertebrate prey for fish species.

Permanent and ongoing impacts to freshwater habitat for salmonids are not expected to significantly reduce the likelihood of survival or recovery of Snake River fall-run and spring/summer Chinook salmon. The greatest Project impact to Chinook salmon would be a temporary degradation of habitat due to elevated in-water noise and localized turbidity. Potential displacement of fish in the micrositing corridor by elevated noise and turbidity would not be permanent and there would be no long-term effects to their use of habitat as a migratory corridor for both adults and juveniles.

4.1.2 Coho Salmon

The Oregon State-listed Lower Columbia River (LCR) coho salmon ESU includes all naturally spawned populations of coho salmon *(Oncorhynchus kisutch)* in the lower Columbia River and its tributaries, from the mouth of the Columbia River upstream to and including the Hood River (in Oregon), the White Salmon River (in Washington), and the Willamette River up to Willamette Falls (NMFS 2005a). The ESU also includes coho salmon from 25 artificial propagation programs (NMFS 2005a, 2013).

Coho salmon occur along the Pacific Coast from Monterey Bay, California, north to Alaska. In Washington, spawning adults are found in most streams of the Columbia River coastal and Puget Sound drainages (Wydoski and Whitney 2003). Most coho salmon spend 3 years living in the ocean before returning to spawn, while a small percentage of males, called jacks, return to natal waters at age 2 (NMFS 2013). Most spawning occurs from November to January, but some occurs as late as March (NMFS 2013). Coho salmon generally occupy intermediate positions in tributaries and typically spawn in small to medium, low- to moderate-elevation streams from valley bottoms to stream headwaters, favoring small, rain-driven, lower-elevation streams characterized by relatively low flows during late summer and increased river flows and decreased water temperatures in winter (LCFRB 2010; ODFW 2010). On their return, adult fish often mill near the river mouths or in lower river pools until the first fall freshets occur (LCFRB 2010). Coho salmon construct redds in gravel and small cobble substrate in pool tailouts, riffles, and glides, with sufficient flow depth for spawning activity (NMFS 2013).

4.1.2.1 Occurrence in the Analysis Area

LCR coho salmon are typically categorized into early- and late-returning stocks. Adult coho salmon enter the Columbia River from June through February (NMFS 2020); therefore, adult coho salmon could be present within the analysis area during the work window for in-river cable installation.

Coho salmon juveniles outmigrate through the lower Columbia River from March through mid-June and rear in the lower Columbia River throughout the year (NMFS 2020). Therefore, other than a few potential early outmigrants, it is unlikely that juvenile coho salmon would be present in the analysis area during the in-water work window for cable installation.

Designated critical habitat for LCR coho salmon includes the entirety of the mainstem Columbia River and the Willamette River in the analysis area. The analysis area functions primarily as a migratory corridor for adults and juveniles.

4.1.2.2 Potential Adverse Effects

LCR coho salmon seasonally use the analysis area as a migratory corridor for both upstream adult migration and juvenile downstream migration. Coho salmon juveniles outmigrate through the lower

Columbia River from March through mid-June and are not expected to be in the analysis area during cofferdam and cable installation. Based on juvenile life history timing, they are not expected to be exposed to effects from vibratory sheetpile installation and removal. Although in-water construction activities would stir up sediments within and downstream of in-water work areas, increased turbidity quickly dissipates and would impact only areas in proximity to the hydroplow as it progresses along the riverbed.

As described above, cable installation associated with the proposed Project conducted within the micrositing corridor during the work window, would overlap with adult upstream migration periods and juvenile rearing and outmigration, and may cause temporary behavior modifications such as displacement or avoidance. The potential adverse effects from the Project on coho salmon are the same as those described for Chinook salmon. As a result, the Project is not likely to cause a significant reduction in the likelihood of survival or recovery of LCR coho salmon.

4.2 Wildlife

Several species of Oregon State-listed wildlife have the potential to occur in the analysis area, as described in Section 3. This section describes these species, their habitat requirements, potential for occurrence, and potential Project effects.

4.2.1 Northern Spotted Owl

Northern spotted owls (*Strix occidentalis caurina*) are believed to have historically inhabited most forests throughout southwestern British Columbia, western Washington and Oregon, and northwestern California, as far south as San Francisco Bay. The primary causes of spotted owl population declines are loss and adverse modification of nesting, roosting, and foraging habitat due to timber harvesting; land conversions; natural disturbances such as fire, windstorms, and insect outbreaks; and competition with encroaching barred owls (USFWS 2023).

The northern spotted owl is strongly associated with old-growth forests that are characterized by multi-storied canopies, several species of trees, sizes, and ages, and standing and downed dead trees. Northern interior forests typically require 150 to 200 years to attain the attributes important for nesting and roosting habitat. Northern spotted owl preferences for old-growth forests and forests with old-growth characteristics have been established in many studies (USFWS 1990). However, the age of forests is not as important a factor in determining habitat suitability as are vegetation and structural components. Suitable owl habitat has moderate to high canopy closure (60 to 80 percent); a multilayered, multi-species canopy dominated by large (greater than 30 inches diameter breast height) overstory trees; a high incidence of large trees with various deformities (e.g., large cavities, broken tops, dwarf-mistletoe infections, and other evidence of decadence); numerous large snags; large accumulations of fallen trees and other woody debris on the ground; and sufficient open space below the canopy for owls to fly (Thomas et al. 1990; USFWS 1990). Spotted owls nest in cavities or platforms in trees, and pairs are typically spaced about 1 to 2 miles apart. Nests are usually found in forests in lower elevations and river valleys, and nest trees typically include Douglas fir (*Pseudotsuga menziesii*), mountain hemlock (*Tsuga mertensiana*), western hemlock (*Tsuga heterophylla*), or Pacific silver fir (*Abies amabilis*) (USFWS 2011).

Spotted owl dispersal habitat does not typically contain the same characteristics as nesting, roosting, or foraging habitat. However, such habitat provides an important linkage among blocks of nesting habitat both locally and over the range of the northern spotted owl. Dispersal habitat, at a minimum, consists of forest stands with adequate tree size and canopy closure to provide some degree of protection to spotted owls from avian predators and to allow the owls to forage at least occasionally. In addition to forest structure, location proximate to home range habitat is an important characteristic of dispersal habitat. The most important habitats support all spotted owl life requisites, whereas some of them provide only certain resources, such as prey, and not others, such as nest sites. Studies have indicated that owls select mature stands in rough proportion to their availability for roosting and use young and pole-sized stands less, indicating the importance of mature forests within the owl's range (USFWS 1990).

4.2.1.1 Occurrences within the Analysis Area

Although some potentially suitable conifer forest is present in the analysis area, that could potentially experience elevated noise from vibratory pile driving and HDD construction activities, much of the area surrounding the Project is highly disturbed with urban and industrial areas, railway and highways, and rural residential and agricultural uses. Small patches of older forest near the cable trenching route in Washington currently function solely as potential foraging or dispersal habitat for transient spotted owls dispersing across the landscape. Some potential dispersal habitat is present in the analysis area in patches of coniferous forest where older trees are interspersed with areas of seral forest that have been logged at different time periods. However, typical nesting habitat is not present. Spotted owl presence, particularly dispersing or foraging individuals, throughout the forested areas surrounding the Project ROW is possible; however, their presence is unlikely.

Critical habitat was designated for the northern spotted owl in 1992, subsequently revised in 2008, and finalized in 2012 (77 FR 14061). Critical habitat is located near the cable route in the analysis area in a small area of forest along State Route 14 (SR 14) in Washington State (Figure 1 in Section 12). No northern spotted owl critical habitat is present in the analysis area in Oregon. Analysis of Project effects on critical habitat are discussed in the biological assessment.

4.2.1.2 Potential Adverse Effects

Although there are no known spotted owl nests in the analysis area, multiple patches of older coniferous forests were observed with suitable characteristics that could be used by northern spotted owls for nesting, foraging, and/or dispersal (Section 4.2.1.1). No suitable nesting, foraging or dispersal habitat would be impacted by ground-disturbing activities, and no nest or roost trees would be removed as part of the Project. Noise would be temporary and would not impact nesting northern spotted owls. Trenching and installing buried cable along SR 14 is the only portion of the Project that occurs within 0.25 mile of potential nesting and foraging habitat, and, if required, this work would be restricted to occur outside of the nesting season (March 1 to September 30) to avoid impacts to northern spotted owls. All remaining Project activities at the converter stations, vibratory pile driving of temporary cofferdams, and cable trenching in Portland and The Dalles are located more than 0.25 mile from any potential nesting and foraging habitat and would have no effect on nesting individuals.

4.2.2 North American Wolverine

The North American wolverine (*Gulo gulo*) is a carnivore that occupies arctic, alpine, and subalpine habitats in the northern portions of the northern hemisphere (Copeland et al. 2010). The species is wide-ranging, with documented long-distance dispersals across habitats far from the high mountains near the timberline where known populations reside in Washington, Idaho, Montana, and Wyoming

(USFWS 2018). The northern Cascade Range in Washington is the southernmost extent of the current wolverine range along the Pacific Coast, although individual wolverines have been found as far south as California and the species is more widely distributed in Washington than once thought (Aubry et al. 2014). These southern occurrences represent less than 4 percent of the greater North American metapopulation, which extends to the far north of Canada and Alaska. Wolverines prefer extensive remote wilderness dominated by coniferous forest as well as high elevations above the tree line. The requirement of cold, snowy conditions means that, in the southern portion of the species' range where ambient temperatures are warmest, wolverine distribution is restricted to high elevations (USFWS 2013b).

4.2.2.1 Potential adverse effects

The analysis area does not include suitable habitat for wolverines and does not overlap with documented occurrences. Because of the lack of suitable habitat and the extensive presence of disturbed and developed areas, including heavily trafficked roadways, transient wolverines are not anticipated to travel into or through the analysis area. Suitable habitat is not present in the analysis area and the Project would have no adverse effects on the North American wolverine.

4.2.3 Fender's Blue Butterfly

Although not included in the Oregon State-listed species, ORBIC manages rare and endangered invertebrates under USFWS authority. A *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington*, which included Fender's blue butterfly, was finalized in 2010 (75 FR 37550). No critical habitat is designated in the analysis area. The Fender's blue butterfly is a subspecies of Boisduval's blue butterfly (*Icaricia icarioides*); both the butterfly and its larval host plant, the Kincaid's lupine (*Lupinus sulphureus ssp. Kincadidii*), are restricted to the upland prairies and oak savannah habitats in the Willamette Valley in western Oregon. Kincaid's lupine is a primary larval hostplant for the butterfly; therefore, it is typically found where the lupine occurs. Eggs are laid in May and caterpillars feed on the host plant until the lupine senesces, usually in early July. The caterpillars drop to the base of the plant and during the fall and winter they enter diapause, from which they reemerge in February or March. They continue growing and enter their adult stage in May, completing their life cycle within 1 year (Black and Vaughan 2005). Given its short adult lifespan, the Fender's blue butterfly has limited dispersal ability. In their 7- to 14-day lifetime, both male and female Fender's blue butterflies are estimated to disperse approximately 0.75 kilometer (0.5 mile) if they remain in their natal lupine patch and approximately 2 kilometers (1.2 miles) if they disperse between lupine patches (Schultz 1998, p. 290).

4.2.3.1 Potential Adverse Effects

Neither the Fender's blue butterfly nor Kincaid's lupine are documented to occur in or near the analysis area. The known range of both species is farther south of the Project, and as the butterfly does not migrate far during its short adult lifespan, it is not anticipated to travel into the analysis area. Suitable habitat is not present in the analysis area and the Project would have no effect on Fender's blue butterfly.

4.2.4 Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) is listed federally as a proposed species with the potential to occur in the analysis area.

Western monarchs typically reach overwintering sites in coastal and Baja California in September and October, with at least some portion of the population migrating to overwintering grounds in Mexico or portions of Nevada and Arizona (WAFWA 2019). In late February or March, changing environmental conditions trigger monarchs to disperse and travel northward or eastward from overwintering sites. The migration of successive generations continues to the north and the east, following the growth of milkweed, the species' larval host plant, and the emergence of suitably warm weather to support larvae development and survival (WAFWA 2019).

Monarch butterfly reproduction is dependent on the presence of milkweed. As a result, habitat use is driven primarily by the presence of milkweed species. Milkweeds serve as the primary food source for caterpillars and provide protective cardenolides, toxic compounds that render the caterpillars unpalatable to many predators (WAFWA 2019). Of the three native species of milkweed in Oregon, two are known to occur in the analysis area: narrow-leaf milkweed and showy milkweed (Xerces Society 2012). Narrow-leaf milkweed was observed during habitat surveys conducted along the Project corridor in May and June 2024.

Although monarch breeding is associated with milkweed, the *Western Monarch Butterfly Conservation Plan* (WAFWA 2019) notes that the presence of milkweeds is not synonymous with monarch presence. Breeding monarchs select habitat based on a range of characteristics needed for successful reproduction (e.g., roosting habitat, vertical structure for shade, distance to water), although these characteristics are poorly understood in the West and require further research. In some areas where habitats have poor native nectar abundance in summer and fall, western monarchs also rely on non-native nectar sources such as non-native thistles and purple loosestrife (*Lythrum salicaria*) (WAFWA 2019).

A study in Idaho and Washington (Waterbury et al. 2019) found that highly productive monarch breeding habitat typically includes moist-soil sites within a matrix of grasslands, wetlands, deciduous forest, and shrub-steppe habitats supporting large, contiguous, and high-density milkweed stands. The presence of naturally occurring or anthropogenically sourced surface or groundwater was a common characteristic of these sites, indicating a preference for areas with increased soil moisture relative to the surrounding landscape. Accordingly, quality monarch breeding habitat in the Columbia Basin of Washington spatially overlaps concentrated areas of irrigated cropland (Waterbury et al. 2019).

Milkweed observations were outside the Project boundary in The Dalles and generally consisted of scattered patches under 100 square feet in size. The Western Monarch and Milkweed Occurrence Database (2023)[2] includes multiple documented occurrences of monarchs and milkweed near the eastern end of the Project corridor in The Dalles area. Based on this information, monarchs may use the eastern portion of the Project and due to the known presence of milkweed in the analysis area, breeding habitat for monarchs is assumed to be present.

Critical habitat has not been proposed or designated for the monarch butterfly.

[2] Western Monarch Milkweed Mapper: https://www.monarchmilkweedmapper.org/

4.2.4.1 Potential Adverse Effects

The only occurrences of milkweed observed during the 2024 surveys were well outside the areas of potential ground disturbance for the Project. Pre-construction surveys would be conducted to map locations of milkweed in or near the Project boundary so that these areas can be avoided during the ground disturbance from cable installation. For these reasons, the Project is not likely to cause a significant reduction in the likelihood of survival or recovery of the monarch butterfly.

4.3 Plants

The following species (Table 2) have been identified as state-listed species within Multnomah and Wasco counties in Oregon. Review of state agency databases and results of the site reconnaissance and field surveys indicate these species do not occur and/or suitable habitat does not exist in the analysis area.

Table 2. Oregon State-Listed Plant Species with Potential to Occur in the Analysis Area.

Name	Federal Listing	State Listing
Willamette Daisey (*Erigeron decumbens*)	Endangered	Endangered
Northern Wormwood (*Artemisia campestris var. Wormskioldii*)	Candidate	Endangered
Golden paintbrush (Castilleja levisecta)	Threatened	Endangered
White rock larkspur (*Delphinium leucophaeum*)	Species of Concern	Endangered
Peacock larkspur (*Delphinium pavonaceum*)	Species of Concern	Endangered
Water howellia (*Howellia aquatillis*)	Threatened	Threatened
Columbia yellowcress (*Rorippa columbiae*)	Not Listed	Endangered
White-topped aster (*Sericocarpus rigidus*)	Species of Concern	Threatened
Tygh Valley milkvetch (*Astragalus tyghensis*)	Not Listed	Threatened
White fairy poppy (*Meconella oregana*)	Species of Concern	Threatened

4.3.1 Occurrence

4.3.1.1 Willamette Daisy

The Willamette daisy (*Erigeron decumbens*) is a state endangered species included in the *Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington* (75 FR 37460).

Willamette daisy can be found on both upland and seasonally flooded bottomland prairies of the Willamette Valley ecoregion in western Oregon. It has been known or suspected to occur in Benton, Clackamas, Douglas, Lane, Linn, Marion, Multnomah, Polk, Washington, and Yamhill counties; however, the historic populations of Clackamas, Washington, and Yamhill counties have not been relocated and may no longer be present. It flowers from June to early July with blooms that are blue-purple to pale pink (ODA n.d.).

Suitable habitat for Willamette daisy is not present within the analysis area. Although a few patches of unmanaged prairies occur in the analysis area vicinity, native prairies are absent. Prairies within the analysis area are heavily impacted by past clearing and grading, and by ongoing weed infestations by shrubs such as Himalayan blackberry (*Rubus armeniacus*) and several herbaceous species that prevent Willamette daisy from establishing. This species was not observed during field surveys.

Because there are no known occurrences of this species within the analysis area and suitable habitat is lacking, the Project is not expected to have adverse effects on this species.

4.3.1.2 Northern Wormwood

Northern wormwood (*Artemisia campestris var. wormskioldii*) is state-listed as endangered. It is known to occur within both Multnomah and Wasco counties. Northern wormwood is restricted to basalt, compacted cobble, shrub steppe vegetation, and sand on the banks of the Columbia River. The historic range extends along the Columbia River from the mouth of the John Day River in Sherman County, Oregon, westward to Bingen, Washington. The species is now believed to be extirpated in Oregon, with only two known extant populations occurring in Washington (ODA n.d.).

Suitable habitat for Northern wormwood is potentially present along the Columbia River within the analysis area. However, this species was not observed during fish and wildlife or wetlands field surveys. Since the species is believed to be extirpated and there are no known occurrences within the analysis area, the Project is not expected to have adverse effects on this species.

4.3.1.3 Golden Paintbrush

Golden paintbrush (*Castilleja levisecta*) is listed as state-endangered and is known to occur within Multnomah County. Golden paintbrush occurs in sandy, well drained soils of glacial origin, in areas influenced by sea spray. The species inhabits flat grasslands, mounded prairies, and steep, grassy bluffs. In the Willamette Valley of Oregon, golden paintbrush is believed to have historically occurred in the well-drained soils of upland prairies that were maintained by fires set by Native Americans. It's historic range included the Willamette Valley of Oregon north to British Columbia. The species is believed to be extirpated in Oregon, where the only known occurrences are in the Puget Trough of Washington and British Columbia (ODA n.d.).

Suitable habitat for golden paintbrush is not present within the analysis area. Because there are no known occurrences of this species within the analysis area and suitable habitat is lacking, the Project is not expected to have adverse effects on this species.

4.3.1.4 White Rock Larkspur

White rock larkspur (*Delphinium leucophaeum*) is a federal species of concern and listed as state endangered. White rock larkspur is known to occur within Multnomah County and is found on the edges of oak woodlands, in dry roadside ditches, on basalt cliffs, along river banks and bluffs, on moist rocky slopes, and in moist lowland meadows. It inhabits loose, shallow soils typically 5 to 7 centimeters deep with a high organic matter content and high level of sand relative to the soils in which other Pacific Northwest delphiniums occur. It grows in a range of conditions, from horizontal plateaus to vertical cliffs and from open, exposed areas to deeply shaded areas. White rock larkspur is restricted to the northern Willamette Valley in Oregon, where it is found at fewer than 20 sites (ODA n.d.).

Suitable habitat for white rock larkspur is potentially present within roadside ditches in the analysis area. However, this species was not observed during field surveys and there are no known occurrences within the analysis area. Therefore, the Project is unlikely to have adverse effects on this species.

4.3.1.5 Peacock Larkspur

Peacock larkspur (*Delphinium pavonaceum*) is a state-listed endangered species known to occur within Multnomah County. Peacock larkspur inhabits low, nearly flat areas in moist, salty soils of the Willamette River floodplain at elevations ranging from 150 to 400 feet. It occurs in native wet prairies, on the edges of ash and oak woodlands, and along roadsides and fence rows. Peacock larkspur is a localized endemic plant restricted to the middle Willamette Valley of Oregon (ODA n.d.).

Suitable habitat for peacock larkspur is present along roadsides and within the Willamette River floodplain, though there are no wet prairies or ash and oak woodlands present within the analysis area. This species was not observed during field surveys and there are no known occurrences of peacock larkspur within the analysis area. Therefore, the Project is unlikely to have adverse effects on this species.

4.3.1.6 Water Howellia

Water howellia (*Howellia aquatilis*) is state-listed as threatened and is known to occur within Multnomah County. Water howellia occurs in small, vernal, freshwater wetlands and ponds that are usually filled with water from late fall through spring, then dry up by the end of the growing season. The species is also found in oxbow sloughs and on the margins of marshy areas. Occupied sites are usually less than 1 meter deep, although the species has been found in water up to 2 meters deep. They can occur in elevations from 10 to 4,501 feet. Howellia occurrences are typically bordered in uplands by mixed deciduous and evergreen species with the waterbodies themselves hosting other herbaceous plants (ODA n.d.).

Suitable habitat is potentially present within wetlands of the analysis area that meet the hydrologic requirements for water howellia. Sauvie’s Island, west of the western converter station over the Willamette River, has a historical population mapped by ORBIC (prior to 1900). However, efforts to relocate the population since it was found have been unsuccessful. The Project would avoid wetlands in Oregon (see State and Local Laws and Regulations Exhibit); therefore, it is not expected to have adverse effects on this species.

4.3.1.7 Columbia Yellowcress

Columbia yellowcress (*Rorippa columbiae*) is a state-listed endangered species that is known to occur within Multnomah County. Columbia yellowcress is associated with moist habitats that experience periodic inundation, including shorelines of lakes and playas, banks of rivers, gravel bars, streams, creeks, marshes, mudflats and swales. It can also occur in anthropogenic wetlands, including roadsides, drainage and irrigation ditches, farm ponds, and low-lying fields. Columbia yellowcress ranges from southern Washington to northern California, with population complexes in the Columbia River Gorge and southern Oregon/northern California (ODA n.d.).

Suitable habitat is present within the analysis area within roadside ditches and drainages, wetlands, and along the Columbia River shoreline. This species was not observed during fish and wildlife or wetlands field surveys. There are two known populations mapped by ORBIC north of Troutdale on the south shore of the Columbia River, about 600 feet and 1,200 feet away from the in-river analysis area border. Another population is mapped east of Warrendale on the south shore of the Columbia River, about 300 feet southeast of the in-river analysis area. The Project would not intersect with these populations.

4.3.1.8 White-topped Aster

White-topped aster (*Sericocarpus linifolius*) is a state-threatened species that is known to occur within Multnomah County. Within Oregon, white-topped aster occupies deep, poorly drained clayey soils, and is found in open, grassy, seasonally moist prairie and savannah habitats at elevations ranging from 90 to 1,250 feet. The species is occasionally found in partially shaded areas under Garry oak (*Quercus garryana*) and Pacific madrone (*Arbutus menziesii*) canopies. White-topped aster is found in the Willamette Valley in Oregon (ODA n.d.).

Suitable habitat is not present within the analysis area as there are no prairies or savannah habitats. There are no known occurrences of white-topped aster within the analysis area. Therefore, the Project is not expected to have adverse effects on this species.

4.3.1.9 Tygh Valley Milkvetch

Tygh valley milkvetch (*Astragalus tyghensis*) is a state-listed threatened species known to occur within Wasco County. Tygh valley milkvetch occupies dry, sandy, rocky soils overlying basalt bedrock on hillsides and valley floors within sagebrush-bunchgrass communities. This taxon is endemic to the Tygh Valley of north-central Oregon in the Columbia Basin ecoregion within the Columbia Plateau Ecoregion. Many occurrences are located along roadsides. Most occurrences are located within a 218-square-kilometer (84-square-mile) area near the confluence of the White River and the Deschutes River (ODA n.d.).

Suitable habitat is present within the analysis area, although the analysis area is outside the known occurrences within Oregon. This species was not observed during field surveys and no known populations are within the analysis area. Due to the distance from the Tygh Valley, the Project is not expected to adversely affect this species.

4.3.1.10 White Fairy Poppy

White fairy poppy (*Meconella oregana*) is a state-listed threatened species known to occur within Wasco County. White fairy poppy is found in open and sunny grassy areas with minimal woody cover and shallow gravelly loam soils. The white fairy poppy commonly associates with bryophytes and small vascular annuals on gradual to steep slopes. Populations require seasonally moist soils, which are supplied primarily by vernal seeps that dry up in summer. The exact habitat requirements are not well understood and the habitat varies across the range of the species. Within the Columbia River Gorge and southern Oregon, white fairy poppy primarily grows on north or west facing slopes at elevations between 200 and 1,200 feet. It is found in open savanna-like meadows, openings with mixed Oregon white oak woodlands, and sometimes coniferous forest dominated by Douglas fir and ponderosa pine (*Pinus ponderosa*). White fairy poppy occurs in a series of disjunct populations from southwestern British Columbia to central California with the main concentrations located in the Puget Sound, Columbia River Gorge, southern Oregon, and Contra Costa County in California (ODA n.d.).

Suitable habitat is not present within the analysis area. There are no open savannah-like meadows, openings with mixed Oregon white oak woodlands, or coniferous forests dominated by Douglas fir and ponderosa pine. There are no known occurrences of the species in the analysis area. Therefore, the Project is not expected to impact this species.

4.3.2 Potential Adverse Effects

No state-listed plants were observed during field surveys within the area of potential ground disturbing impacts from the Project. Columbia yellowcress has known populations near the analysis area, and due to the potential presence of suitable habitat, preconstruction surveys for this species would be conducted to identify occurrences in or near the Project boundary so these areas can be avoided during the ground disturbance from cable installation. No adverse effects are expected for any other state-listed plant species.

5 Avoidance and Minimization (OAR 345-022-0070(3)(c))

(c) For each species identified under (a), a description of measures proposed by the applicant, if any, to avoid or reduce adverse impact;

RESPONSE

5.1 Fish

None of the work on land (i.e., converter stations, transmission elements, HDD pits) outside the Columbia River would permanently impact wetlands, waters, and vegetated riparian areas (see State and Local Laws and Regulations Exhibit). To the extent practicable, all work, including staging areas, has been sited within paved and/or previously distributed areas (e.g., roadway ROWs) or in locations with limited vegetation (e.g., graveled areas). The Applicant has minimized effects on waters through the following actions:

- Siting the cable in the mid-channel of the Columbia River, avoiding near shore and shallow area habitats.
- Accomplishing all in-water work over two seasons during the proposed in-water work windows of November 1 to February 28 downstream of Bonneville Dam and November 1 to March 15 upstream of Bonneville Dam, or alternative windows approved by ODFW, the Washington Department of Fish and Wildlife, USFWS, and the National Marine Fisheries Service (NMFS).
- Using HDD to transition from land to water segments, avoiding disturbance to riparian upland areas.
- Using HDD to install the cable without disturbing the stream beds and banks of the Willamette River, Columbia Slough, and a portion of the Columbia River.
- Planning to monitor suspended sediment and water quality during construction.
- Obtaining and adhering to the erosion control permits for both Oregon and Washington; with the intent to avoid or minimize sediment laden water from entering waters or wetlands.

The cable route in the micrositing corridor in the Columbia River has been designed within or adjacent to the navigation channel to avoid nearshore and shallow water habitats important to fish and invertebrates. Substrate analysis in the micrositing corridor in the Columbia River was conducted in 2025, involving a geophysical survey that consisted of a high-resolution multibeam echosounder, side-scan sonar, sub-bottom profiler, and magnetometer survey.

Woolpert, Inc., conducted hydrogeographic and geophysical surveys between May and July 2025. High-resolution multibeam bathymetric data showed varying terrain, including large sand waves, boulder fields, rocky outcrops and possible bedrock. From river miles 151 to 189, the general bathymetry throughout is predominantly small (1-4 feet) to large (+5 feet) sand waves, boulder fields, and possible bedrock or hard, consolidated material, and just upstream of river mile 188 is a large boulder field. Assessment of the sediment composition of the cable route was conducted in 2024 using geotechnical borings and 17 sample stations. Sediment grain size was predominantly sand with an average of 92.4 percent composition. The second and third most common sediment types were gravel and silt, with 3.3 percent and 2.6 percent composition, respectively.

The Applicant also conducted a sediment profile imaging (SPI) survey to characterize the substrate in the micrositing corridor along the proposed project route in the Columbia River. The SPI survey also collected images of benthic organisms that were visible on the sediment surface. CSA Ocean Sciences Inc. conducted the survey from July 28 through August 7, 2025. This data was used to inform habitat suitability for aquatic species along the micrositing corridor. The Applicant will assess and mitigate for unavoidable impacts to the benthic community in the mitigation plan that is currently under development.

5.2 Wildlife

Projects with a state nexus such as energy facilities subject to the Oregon Energy Facility Siting Council process are required to abide by the ODFW Habitat Mitigation Policy. This requires assessing impacts and seeking ODFW approval of a habitat mitigation plan. The completed biological surveys and analysis of species and habitats in the analysis area, presented in Fish and Wildlife Exhibit, did not identify any state-listed terrestrial species in the Project boundary. As described above, the Project has been sited within paved and/or previously distributed areas (e.g., roadway ROWs) or in locations with limited vegetation (e.g., graveled areas). These areas provide little to no habitat value for wildlife species. The Project avoids forested areas, meadows, wetlands, and streams and no trees are slated to be removed for Project construction. Attachment 3 to the Fish and Wildlife Exhibit is a draft habitat mitigation plan that is currently being developed, with measures to avoid, minimize, and mitigate impacts to wildlife and associated habitat.

5.3 Plants

No state-listed plants were observed within the area of potential ground disturbing impacts from the Project. The Project is sited in roadside alignments and previously disturbed areas and would avoid impacts to habitats where special status plant species potentially occur. As discussed in Section 4.3.1.1, Willamette daisy, golden paintbrush, white fairy poppy, and white-topped aster have no suitable habitat and no known populations within the analysis area. Therefore, the Project is not expected to affect these species. While white rock larkspur, peacock larkspur, water howellia, and Tygh Valley milkvetch have potential suitable habitat within the analysis area, there are no known populations and these species were not observed during surveys. Therefore, the Project is unlikely to adversely affect these species. Similar to northern wormwood, while there is potential suitable habitat in the analysis area, it is believed extirpated (ODA n.d.), and therefore, unlikely to be adversely impacted by the Project. Columbia yellowcress has suitable habitat within the analysis area and there are known populations within a 0.25 mile of the analysis area. Pre-construction surveys for Columbia yellowcress would be conducted to confirm the presence or absence of these species. If individuals are found during pre-construction surveys, these areas would be marked and avoided wherever feasible. If unavoidable, appropriate mitigation would be developed in consultation with ODFW and the Oregon Department of Agriculture.

6 Protection and Conservation Program (OAR 345-022-0070(3)(d))

(d) For each plant species identified under (A), a description of how the proposed facility, including any mitigation measures, complies with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3);

RESPONSE

No state-listed plants were observed within the area of potential ground disturbing impacts from the Project. Columbia yellowcress has known populations near the analysis area, and due to the potential presence of suitable habitat, preconstruction surveys for this species would be conducted to map occurrences in or near the Project boundary so that these areas can be avoided during the ground disturbance from cable installation.

7 Potential Impacts to Plants, including Mitigation Measures (OAR 345-022-0070(3)(e))

(e) For each plant species identified under paragraph (A), if the Oregon Department of Agriculture has not adopted a protection and conservation program under ORS 564.105(3), a description of significant potential impacts of the proposed facility on the continued existence of the species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species;

RESPONSE

The Applicant designed the Project infrastructure to avoid important habitats such as riparian and forested areas, and routed the cable along roadsides and existing development. After avoidance and minimization measures have been implemented, some potential impacts to state threatened and candidate plant species would remain. Columbia yellowcress has known populations near the analysis area, and due to the potential presence of suitable habitat, preconstruction surveys for this species would be conducted by a qualified biologist to identify occurrences in or near the Project boundary so these areas can be avoided during the ground disturbance from cable installation. The Applicant would consult the Oregon Department of Agriculture to get concurrence on these surveys for protocols and timing. Through avoidance, the Project would not result in significant reduction in likelihood of survival or recovery of species and no mitigation is proposed.

Based on the analysis provided above, including mitigation measures, the proposed Project is not likely to cause a significant reduction in the likelihood of survival or recovery of any state-listed plants.

8 Potential Impacts to Animals, including Mitigation Measures (OAR 345-022-0070(3)(f))

(f) For each animal species identified under (A), a description of significant potential impacts of the proposed facility on the continued existence of such species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species;

RESPONSE

This section describes the significant potential impacts of the Project on the continued existence and on the critical habitat of all animal species listed in Table 1. This section also provides evidence, accounting for avoidance, minimization, and mitigation measures, that the Project is not likely to cause a significant reduction in their likelihood of survival or recovery.

8.1 Wildlife

The Applicant will avoid impacts to northern spotted owl and associated critical habitat, foraging and dispersal habitat identified during desktop analysis and field surveys, as previously described in Section 4.2.1. As a result, construction, operation, and maintenance of the Project is not expected to result in a significant reduction in the likelihood of survival or recovery of northern spotted owl or its critical habitat.

The analysis area does not include suitable habitat for wolverines and does not overlap with documented occurrences. Due to the extensive presence of disturbed and developed areas, including heavily trafficked roadways, transient wolverines are not anticipated to travel into or through the analysis area. Therefore, the Project would have no adverse effects on the North American wolverine.

8.2 Fish

Freshwater habitat for fish species in the Columbia River would be temporarily degraded during construction of the Project by short-term, elevated underwater noise and turbidity from cable installation and vibratory installation of the sheetpile cofferdams where cable connections would be made between the in-river and on-land sections (all occurring within the in-water work window of November 1 to February 28 downstream of Bonneville Dam and November 1 to March 15 upstream of Bonneville Dam). A vibratory pile driver would be used to install sheet pile at the four locations where temporary three-sided cofferdams would be used to create a work area for connecting the in-river and landward sections of the cable. Elevated underwater noise produced during vibratory sheet pile installation and removal has the potential to elicit behavioral modifications in fish. NMFS has established impact thresholds for fish from impact installation, which is an impulsive noise, but not from vibratory installation, which is a continuous noise. Impacts on fishes or other aquatic organisms have not been observed in association with vibratory hammers. Although underwater noise from vibratory pile driving is not expected to cause injury or harm to fish within the area impacted by elevated noise, these temporary activities may cause behavioral changes in fish. These can include relatively immeasurable effects or minor effects, such as startling, momentary disruption in feeding, or avoidance of the area. Localized vessel use (including the cable laying vessel, project tugs and barges) would create transient underwater noise at the location where cable installation is occurring as work progresses up or down the river. However, given the extensive use of the Federal Navigation Channel by maritime vessels, the limited number of vessels associated with the Project is not likely to create noise that is measurable above ambient levels. Therefore, underwater noise from the cable laying vessel, or vessel and barge that are deploying the cable is not expected to impact aquatic species.

As part of site characterization, sediment sampling was conducted in the Columbia River in November 2024. The U.S. Army Corps of Engineers Portland Sediment Evaluation Team provided a suitability determination memorandum on July 16, 2025, stating that the dredge prism material is suitable for unconfined, aquatic placement per the *Sediment Evaluation Framework for the Pacific Northwest* guidance without further testing.

The sediment analysis identifies the sediments throughout the project corridor as primarily coarse, heavy sand and sediment modeling shows the sand is not expected to drift or stay suspended in the water column. Suspended sediment is highly correlated to flow on the Columbia River and the work window of November, December, and January is usually a time of moderate flows and sediment transport rates. Using these expected flow conditions, the quantity of sediment potentially suspended by hydroplow operations was estimated. It is assumed that 30 percent of the total trench volume is released into the water column, averaging 5.4 cubic feet per linear foot of trench. At a trenching rate of 300 feet per hour, this equates to approximately 0.45 cubic feet per second of material entering the river. The height to which sediment could plume above the bed during hydroplow operations was conservatively assessed to be 10 feet or less. The maximum suspension time for the finest sediment class is 11.9 minutes. However, most sediment particles settle within 3.5 minutes, after which suspended sediment concentration returns to background levels.

The 2025 high-resolution geophysical survey (see Section 5.1) multibeam bathymetric data showed varying terrain, including large sand waves, boulder fields, rocky outcrops and possible bedrock along the cable alignment in the Columbia River. In addition, a 2025 SPI survey (see Section 5.1) provided data and images of substrate conditions along the cable. The SPI survey data characterized grain-size distribution, benthic community patterns, and habitat quality gradients for fish and invertebrates, such as crayfish, clams and mussels and sediment infauna. The downstream riverbed was dominated by medium to coarse sands (74 percent) and cobbly substrates (17 percent). The upstream riverbed was similarly dominated by medium to coarse sands (70 percent), with cobbly areas (12.5 percent) concentrated between river miles 180 to 190.. Although in-water construction activities would stir up sediments, increased turbidity would impact only areas in proximity to the hydroplow given the narrow width (approximately 24 inches) of the temporary trench. This turbidity would quickly dissipate, as sandy material would quickly drop out of the water column and finer material would be diluted by riverine flow. Based on sediment and flow modelling, suspended sediments resulting from hydroplow operations are anticipated to remain close to the riverbed (10-foot high plume or less) and remain in the water column for 12 minutes for the fine grained material, and 30 seconds or less for coarse grained sands (HDR 2025).

In addition, laboratory analysis results show that the sediment samples do not contain contaminants above agency thresholds. This indicates that the hydroplow activity would have minimal impacts to water quality in the Columbia River. The Project was sited to avoid known contaminated sites; and the U.S. Army Corps of Engineers Portland Sediment Evaluation Team issued a suitability determination memorandum stating the sediment material is suitable for unconfined, aquatic placement. Therefore, temporary or permanent changes to toxic compounds or concentrations within the Columbia River are not expected.

Although the duration of the temporary turbidity plume is short (less than 12 minutes for very fine sand, and less than 1 minute for coarse sand), increased levels of turbidity could have temporary negative impacts on habitat for listed fish species and, if any listed fish species are present within the sediment plume during the time of construction, could affect them directly. Available habitat for bottom-feeding (demersal) species would be temporarily disturbed and altered, slightly reducing the area available for use. The highest concentrations of suspended sediments would be close to the riverbed adjacent to the trench being plowed. This could be a deterrent for some fishes, particularly mid-column (pelagic) species such as salmon, and cause them to avoid the densest part of the plume. The Columbia River is a large water body that provides for increased dilution and reduces the size of the potential mixing zone. Natural currents and flow patterns in the Columbia River routinely disturb sediments. Additionally, the volume of flow through the Project area will help minimize the intensity and duration of any temporary episodic increases in sediment suspension or turbidity.

The Project would not measurably alter river or shoreline habitat, and the Columbia River in the analysis area would continue to be used primarily as a migratory corridor, the same as under current conditions. The proposed cable route is in or near mid-channel and close to or within the navigation channel through much of its length. The Columbia River in the analysis area experiences high levels of vessel traffic associated with use of the Federal Navigation Channel, and high levels of underwater noise and currents that generate suspended sediments (NMFS 2017b). The narrow strip of affected river bottom is not considered high-quality habitat for fish and the project route avoids important near-shore and more productive habitats, including salmon spawning areas and tributary mouths. The installation of cable protection in areas where the cable cannot be buried adequately would alter substrate conditions within the footprint of the material, which is 8 feet wide centered on the cable. Given the cable protection is to occur where there is bedrock, there will be negligible impacts to sediments. After installation, the cable protection concrete or rock could be recolonized and in the short term and has the potential to provide additional habitat complexity.

Current through the cable during operations produces an EMF, which has two components: electric fields (E-fields) and magnetic fields (B-fields). To minimize EMF generated by cables, all cabling is contained in electrical shielding that eliminates any electric field from emanating outside the cable housing; however, magnetic field emissions cannot be reduced by shielding and would emanate from the cable through the surrounding substrate. The proposed cable in the Columbia River would be buried to a depth of at least 10 feet below the substrate wherever possible. The strength of the EMF field dissipates rapidly with distance from the cable. Naturally occurring magnetic fields from the earth are also present and these background levels are approximately 54 microstesla in the Columbia River. The Applicant analyzed magnetic fields generated by a 320- or 400 kilovolt cable that would be used for the Project to determine the strength and extent of generated magnetic fields at burial depths of 0.5 feet, 2 feet, 5 feet, and 10 feet. At burial depths of 5 and 10 feet, the study calculated magnetic field strengths of 17 and 5 microtesla above background, respectively, at the river bottom (see Fish and Wildlife Habitat Exhibit). At 10 feet above the riverbed within the water column, magnetic field strengths ranged from 1 to 5 microtesla above ambient levels under any burial depth. This area of the water column is well below the preferred depths reported for juvenile salmonid outmigration in the Columbia River and Snake River basins in Washington and Oregon. Li et al. (2015) conducted high-resolution three-dimensional tracking of subyearling and yearling Chinook salmon and juvenile steelhead in the Snake River and determined juvenile salmonids primarily occupy midwater habitats, beyond the extent of elevated magnetic fields.

Multiple studies regarding the effects of magnetic fields have included sturgeon and Atlantic salmon (BOEM 2019; Armstrong et al. 2015; Normandeau et al. 2011), and some studies have evaluated responses to magnetic field exposure in coho and Chinook salmon (Klimley et al. 2017; Schultz et al. 2010, Woodruff et al. 2012). For example, Armstrong et al. (2015) conducted a laboratory study on behavior of captive Atlantic salmon, which found no significant differences in approach, traverse, or departure times associated with activation of magnetic fields up to 95 microtesla. Most studies reviewed and available to date found no behavioral responses to magnetic fields similar to those modeled for the Project. Further, notable behavioral responses occurred only when fish were exposed to magnetic fields at much higher strengths than those modeled for the Project, and measured around existing subsea cables. The biological assessment prepared for the Project includes a detailed summary of existing research on salmon and sturgeon, as well as other species similar to those found in the Columbia River. Based on the available scientific literature and the analysis on magnetic field strengths modeled to be generated by the cable, it is unlikely there would be notable effects on salmonids or other fish species due to exposure to magnetic fields from the proposed cable when buried to depths of at least 5 feet. In limited areas where the cable cannot be buried at such depths due to substrate constraints, benthic dwelling species may detect a change in the magnetic field directly over the cable; however, the strength of the field is unlikely to elicit adverse responses based on studies reported in the literature. The cumulative body of empirical evidence supports the conclusion that the Project, as currently designed (i.e., targeting burial depths of 10 feet below the streambed and located away from biologically active areas near tributary mouths and shoreline habitat), poses minimal ecological risk from magnetic field exposure to aquatic species in the Columbia River Basin.

When electric energy is transported, a certain amount gets lost as heat, leading to an increased temperature of the cable surface. This may locally increase temperatures in the environment immediately surrounding the cable. Minor increases in ambient temperature from cables have the potential to cause impacts to benthic organisms (Ospar Commission 2012). A study using field measurements from a wind energy project in the Baltic Sea (Taormina et al. 2018) concluded at the end of their review on thermal effects of submarine cables that considering the narrowness of cable corridors and the expected weakness of thermal radiation, impacts are not considered to be adverse. This was corroborated by several NMFS biological opinions for offshore wind projects on the east coast of the U.S. (NMFS 2021, 2023a, 2023b, 2023c).

The Applicant analyzed the temperature influence from the cable at various burial depths to better understand thermal impacts. The study found that the deeper the burial, the more influence substrate has on heat dissipation. Heat generated from the cable buried at a depth of 10 feet below the riverbed (the proposed burial depth) will return to ambient conditions approximately 2.3 feet below the riverbed surface and outside of the benthic zone. For limited portions of the cable route where the cable is buried at depths of 2 feet or less, the analysis modeled a localized (16-inch diameter) increase in ambient sediment temperatures (3 degrees Celsius); however, temperatures returned to ambient levels at the riverbed. Based on this analysis, thermal increases in the benthic zone and surface water directly above the cable are not likely to measurably change the abundance, distribution of benthic organisms, or the availability of potential invertebrate prey for fish species.

9 Monitoring (OAR 345-022-0070(3)(g))

> *(g) The applicant's proposed monitoring program, if any, for impacts to threatened and endangered species.*

RESPONSE

The Applicant is not proposing to conduct post-construction monitoring for impacts to state-listed and special status wildlife species, as no significant impacts to wildlife species are anticipated. Temporary disturbance to habitat is primarily along roadsides and in areas of low habitat value. The Applicant will revegetate disturbed areas, including trenches and HDD pits along with other on-land work areas. Revegetation in areas of temporary ground disturbance will be initiated as soon as practicable and within the appropriate season to facilitate germination. The Draft Revegetation Plan (Fish and Wildlife Habitat Exhibit, Attachment 4) promotes native plant establishment and provides measures to avoid and minimize the spread of noxious weeds and is expected to improve on existing conditions.

Revegetation monitoring will be conducted as described in the *Reclamation and Revegetation Plan* (Fish and Wildlife Habitat Exhibit, Attachment 4). Monitoring of the revegetation areas will be conducted by a qualified investigator annually for 5 years, with the first monitoring period to occur the first growing season following initial seeding. Revegetation areas will be inspected to determine if the area is meeting and/or on track to meet the success criteria described in the plan. This plan also includes a noxious weed control plan. Following construction, monitoring for noxious weeds will be conducted annually for the first 5 five years to assess weed growth and inform noxious weed control measures. Annual checks for noxious weed infestations will also enable the Applicant to respond to new noxious weeds infestations in a timely manner and ensure the success of the site's revegetation. Based on the success of control efforts after the fifth year of annual monitoring, the Applicant will consult with Oregon Department of Energy and ODFW to design a long-term weed control plan.

10 Conclusions

Based on the information provided above, the Oregon Energy Facility Siting Council may conclude that the Project will not cause a significant reduction in the likelihood of survival or recovery of listed threatened or endangered plant and animal species, and therefore, meets the threatened and endangered species standard under OAR 345-022-0070.

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12 Figures

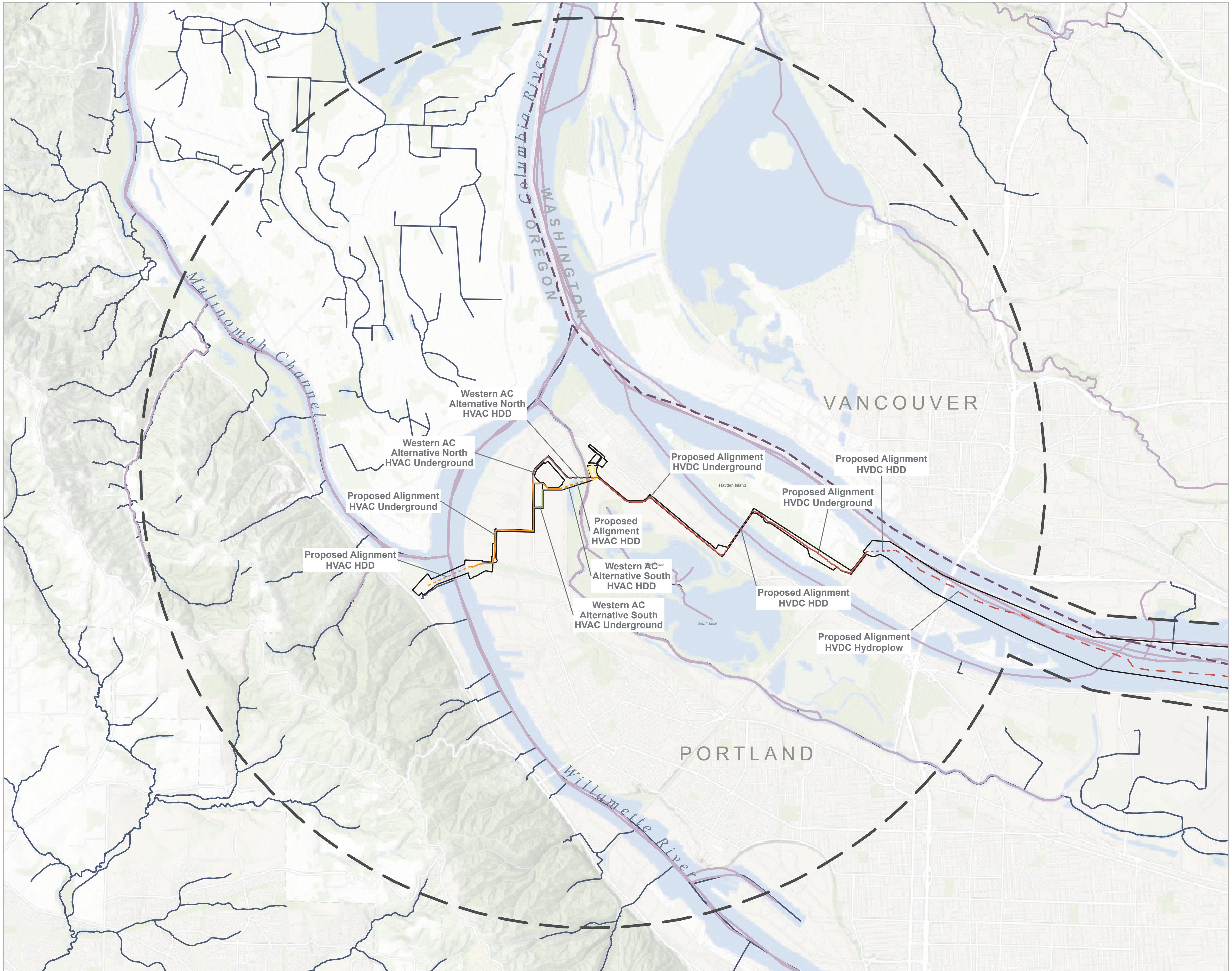

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FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT PAGE 1 OF 10

FOR INFORMATION ONLY - CONCEPT DRAWING

- PROPOSED ALIGNMENT - HVAC HDD
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- WESTERN AC ALTERNATIVE NORTH - HVAC HDD
- WESTERN AC ALTERNATIVE NORTH - HVAC UNDERGROUND
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- WESTERN AC ALTERNATIVE SOUTH - HVAC UNDERGROUND
- PROPOSED ALIGNMENT - HVDC HDD
- PROPOSED ALIGNMENT - HVDC HYDROPLOW
- PROPOSED ALIGNMENT - HVDC UNDERGROUND
- CONVERTER STATION
- OREGON EFSC SITE BOUNDARY
- STATE BOUNDARY
- ANALYSIS AREA (5 MILE BUFFER)
- BULL TROUT (USFWS)
- ANADROMOUS FISH DISTRIBUTION
- ESA-LISTED FISH SPECIES CRITICAL HABITAT (NMFS)
- NORTHERN SPOTTED OWL CRITICAL HABITAT

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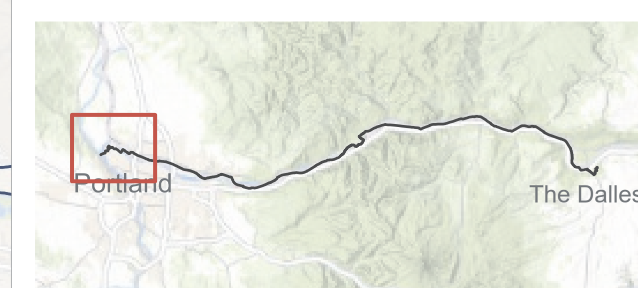

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FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT

FOR INFORMATION ONLY - CONCEPT DRAWING

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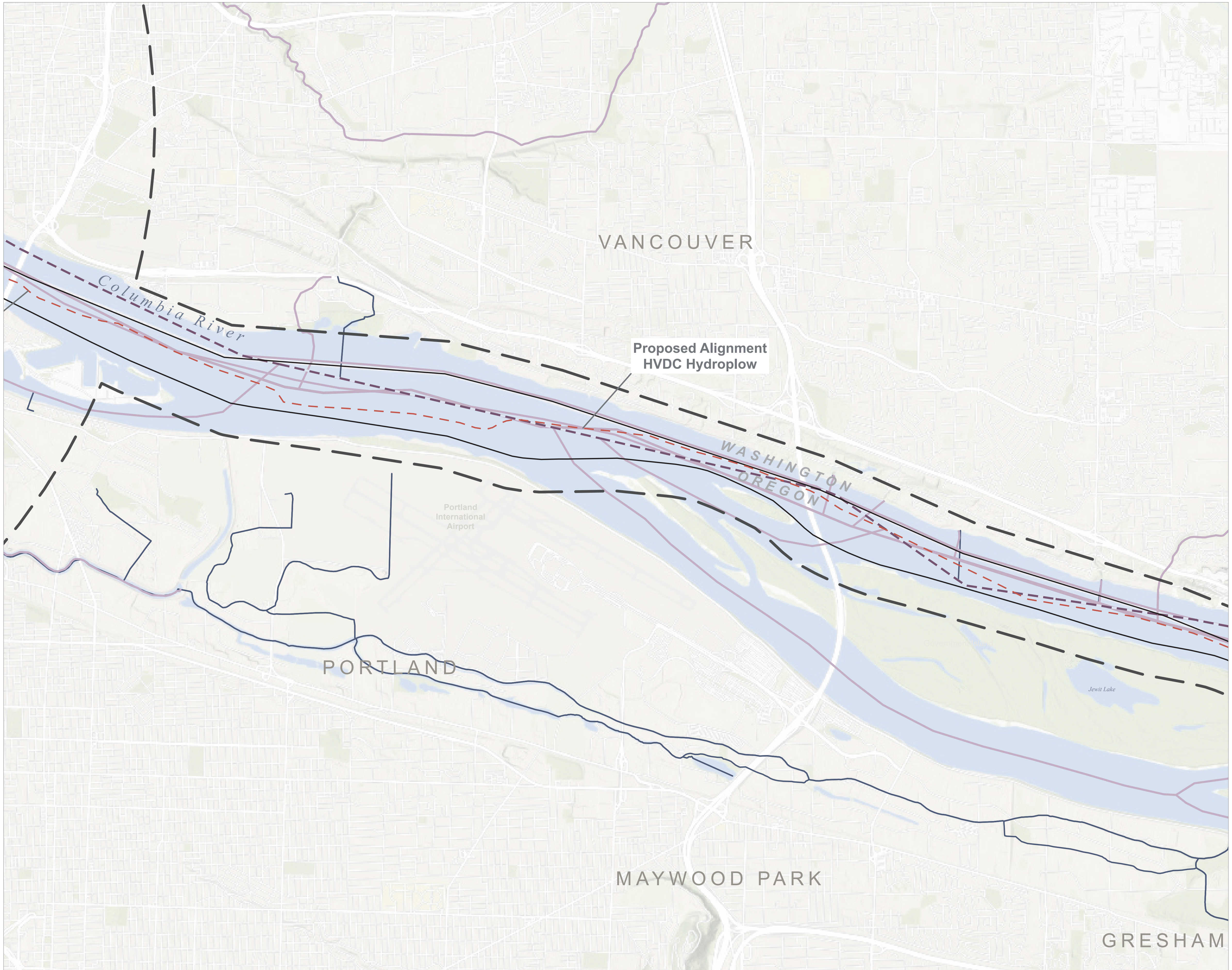
- CONVERTER STATION
- OREGON EFSC SITE BOUNDARY
- STATE BOUNDARY
- ANALYSIS AREA (5 MILE BUFFER)
- BULL TROUT (USFWS)
- ANADROMOUS FISH DISTRIBUTION
- ESA-LISTED FISH SPECIES CRITICAL HABITAT (NMFS)
- NORTHERN SPOTTED OWL CRITICAL HABITAT



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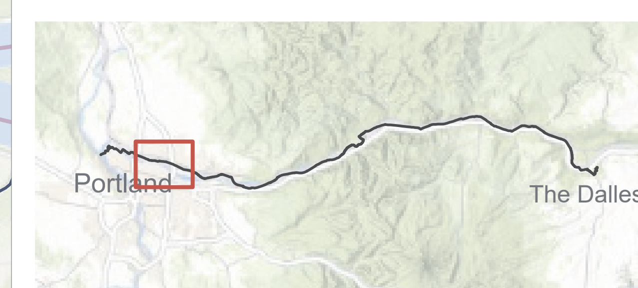

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12/10/2025 NAD 1983 State Plane Oregon North Feet Data Sources: Esri, HDR.

FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT
PAGE 3 OF 10

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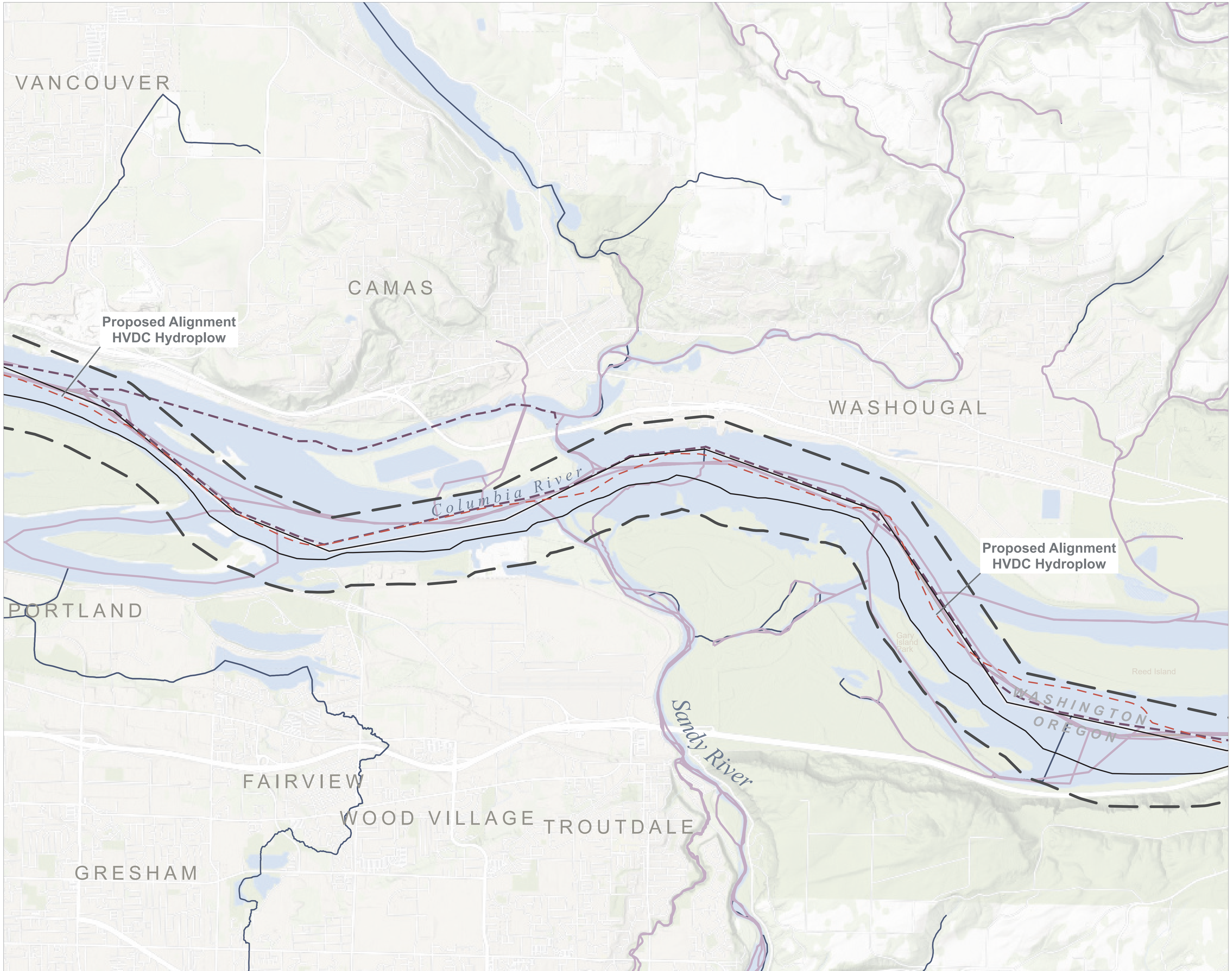

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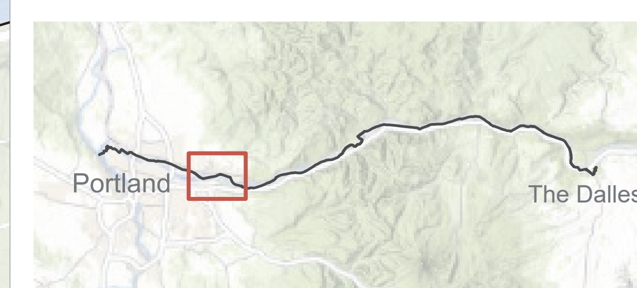
- STATE BOUNDARY
- ANALYSIS AREA (5 MILE BUFFER)
- BULL TROUT (USFWS)
- ANADROMOUS FISH DISTRIBUTION
- ESA-LISTED FISH SPECIES CRITICAL HABITAT (NMFS)
- NORTHERN SPOTTED OWL CRITICAL HABITAT

CASCADE RENEWABLE TRANSMISSION



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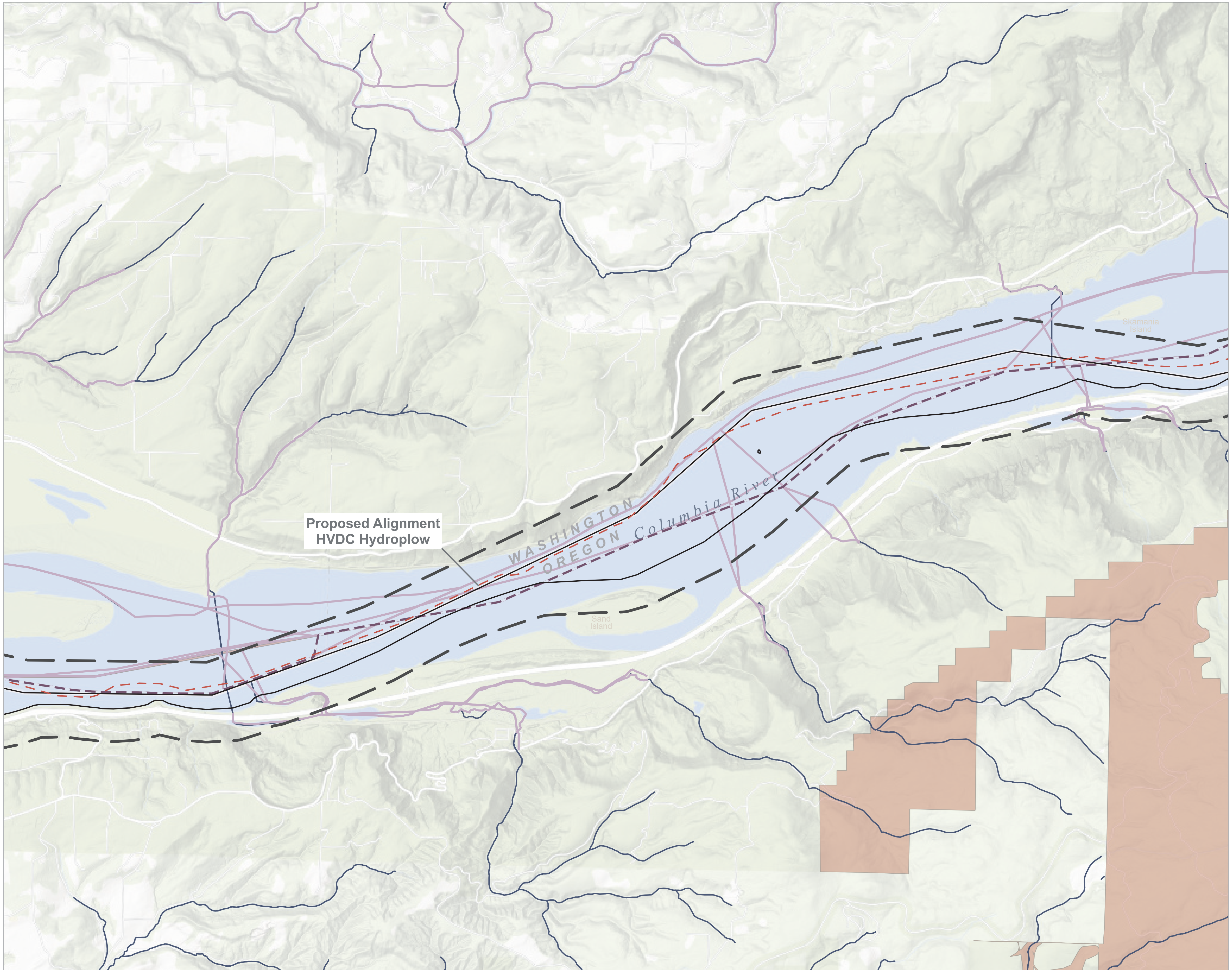

FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT PAGE 4 OF 10

FOR INFORMATION ONLY - CONCEPT DRAWING

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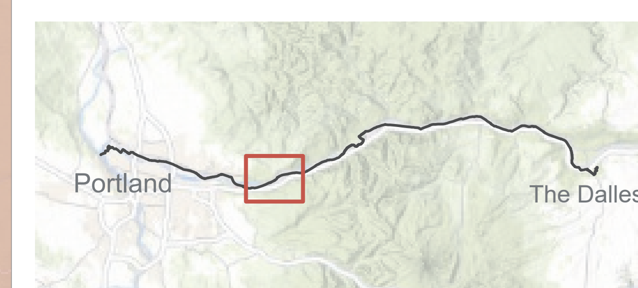
- CONVERTER STATION
- OREGON EFSC SITE BOUNDARY
- STATE BOUNDARY
- ANALYSIS AREA (5 MILE BUFFER)
- BULL TROUT (USFWS)
- ANADROMOUS FISH DISTRIBUTION
- ESA-LISTED FISH SPECIES CRITICAL HABITAT (NMFS)
- NORTHERN SPOTTED OWL CRITICAL HABITAT

CASCADE RENEWABLE TRANSMISSION



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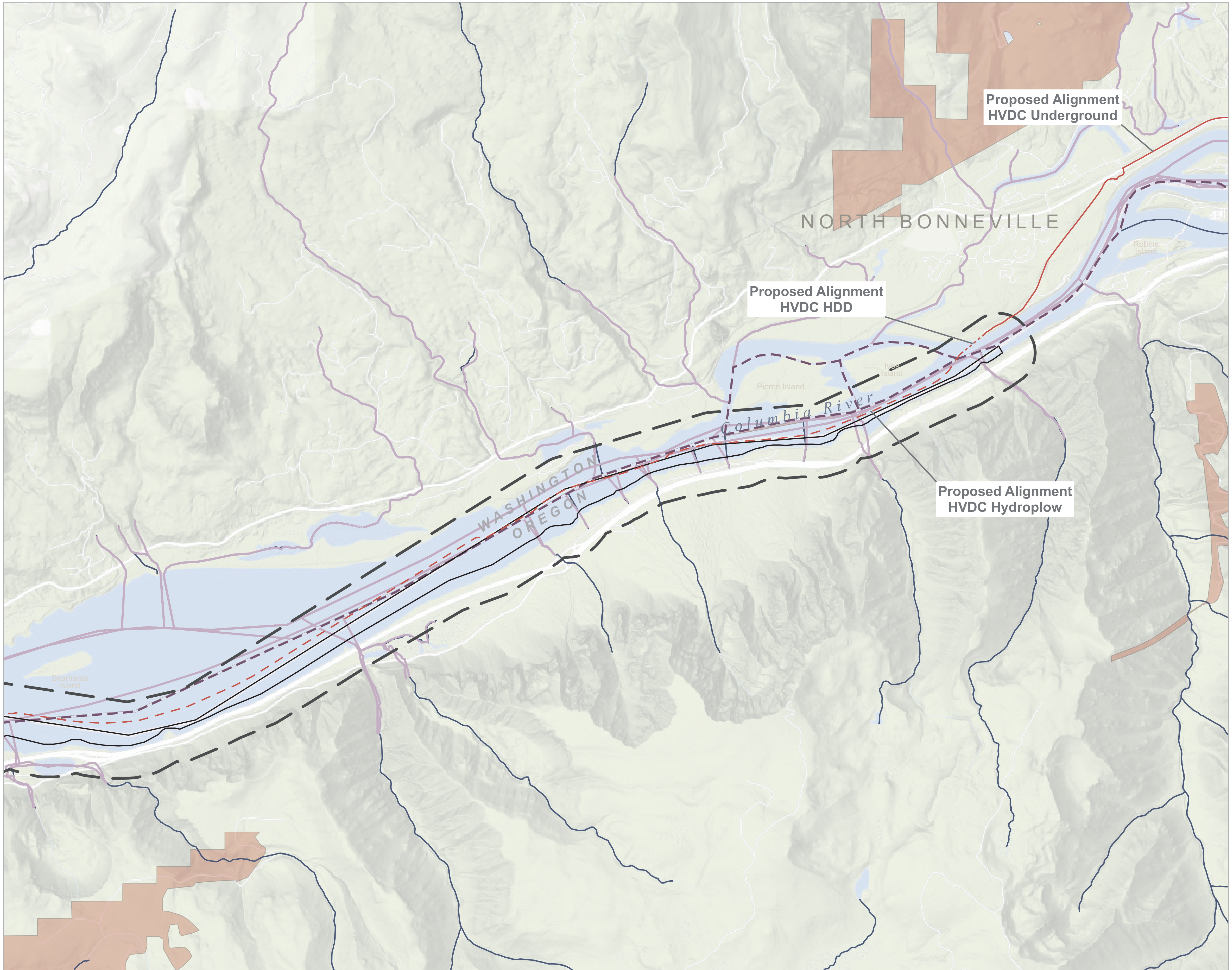

FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT PAGE 5 OF 10

FOR INFORMATION ONLY - CONCEPT DRAWING

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- PROPOSED ALIGNMENT - HVDC HYDROPLOW
- PROPOSED ALIGNMENT - HVDC UNDERGROUND
- CONVERTER STATION
- OREGON EFSC SITE BOUNDARY
- STATE BOUNDARY
- ANALYSIS AREA (5 MILE BUFFER)
- BULL TROUT (USFWS)
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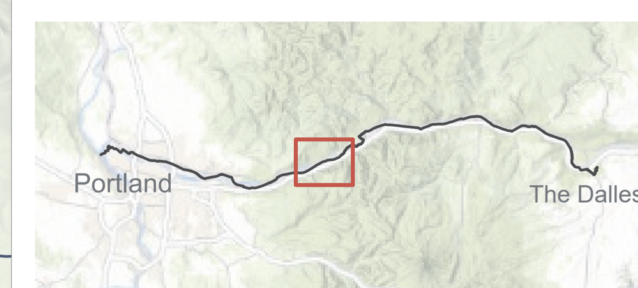
- ESA-LISTED FISH SPECIES CRITICAL HABITAT (NMFS)
- NORTHERN SPOTTED OWL CRITICAL HABITAT

CASCADE RENEWABLE TRANSMISSION



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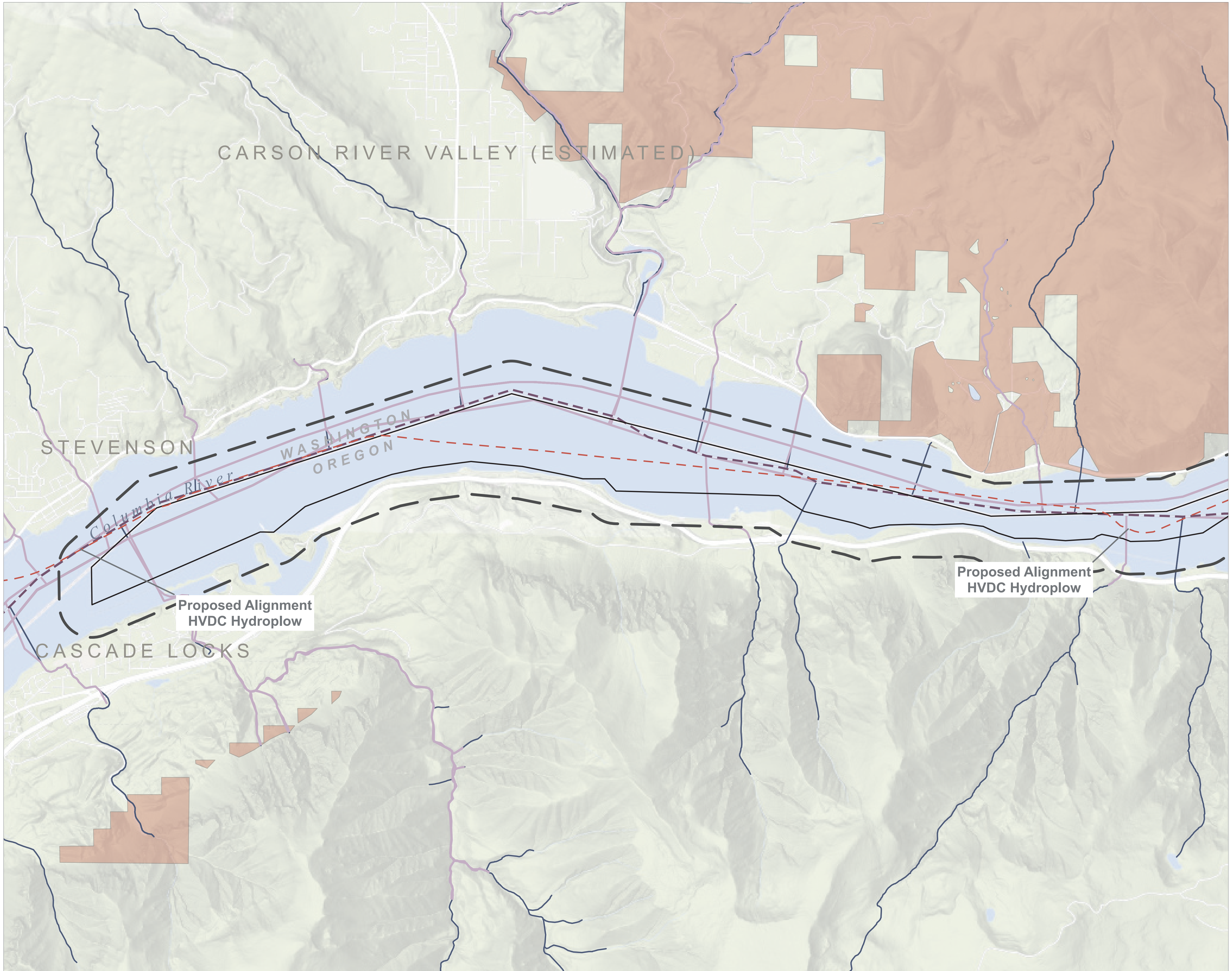

FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT
PAGE 6 OF 10

FOR INFORMATION ONLY - CONCEPT DRAWING

- PROPOSED ALIGNMENT - HVDC HYDROPLOW
- CONVERTER STATION
- OREGON EFSC SITE BOUNDARY
- STATE BOUNDARY
- ANALYSIS AREA (5 MILE BUFFER)
- BULL TROUT (USFWS)
- ANADROMOUS FISH DISTRIBUTION
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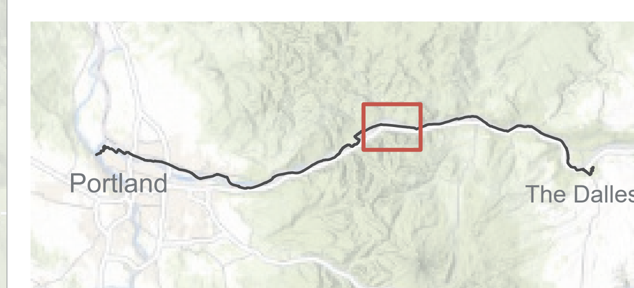
CASCADE RENEWABLE TRANSMISSION



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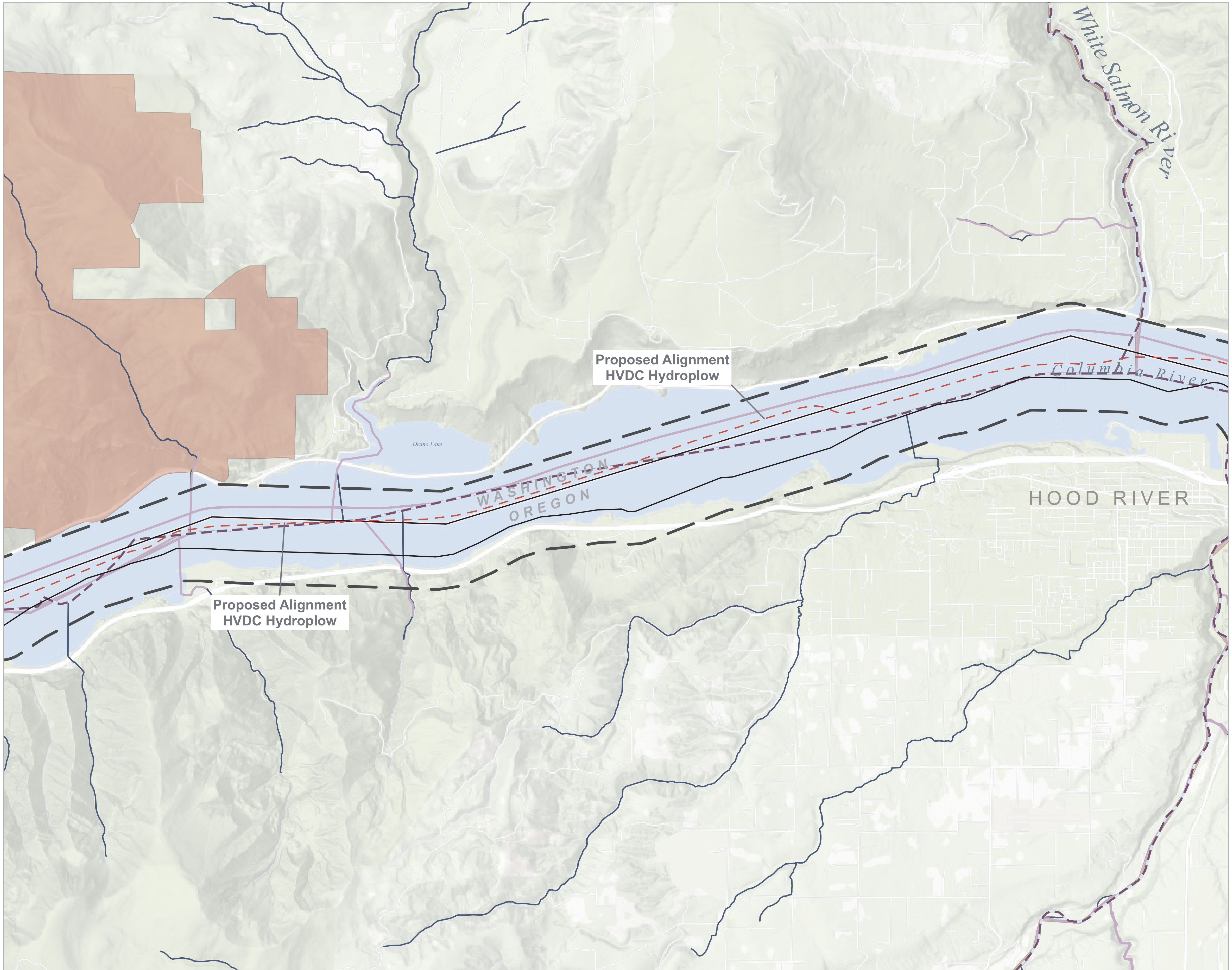
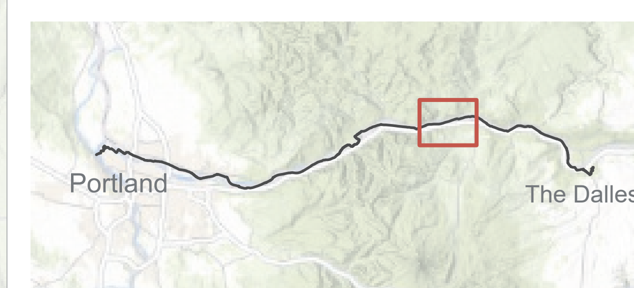


FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT

FOR INFORMATION ONLY - CONCEPT DRAWING

- PROPOSED ALIGNMENT - HVDC HYDROPLOW
- CONVERTER STATION
- OREGON EFSC SITE BOUNDARY
- STATE BOUNDARY
- ANALYSIS AREA (5 MILE BUFFER)
- BULL TROUT (USFWS)
- ANADROMOUS FISH DISTRIBUTION
- ESA-LISTED FISH SPECIES CRITICAL HABITAT (NMFS)
- NORTHERN SPOTTED OWL CRITICAL HABITAT

CASCADE RENEWABLE TRANSMISSION



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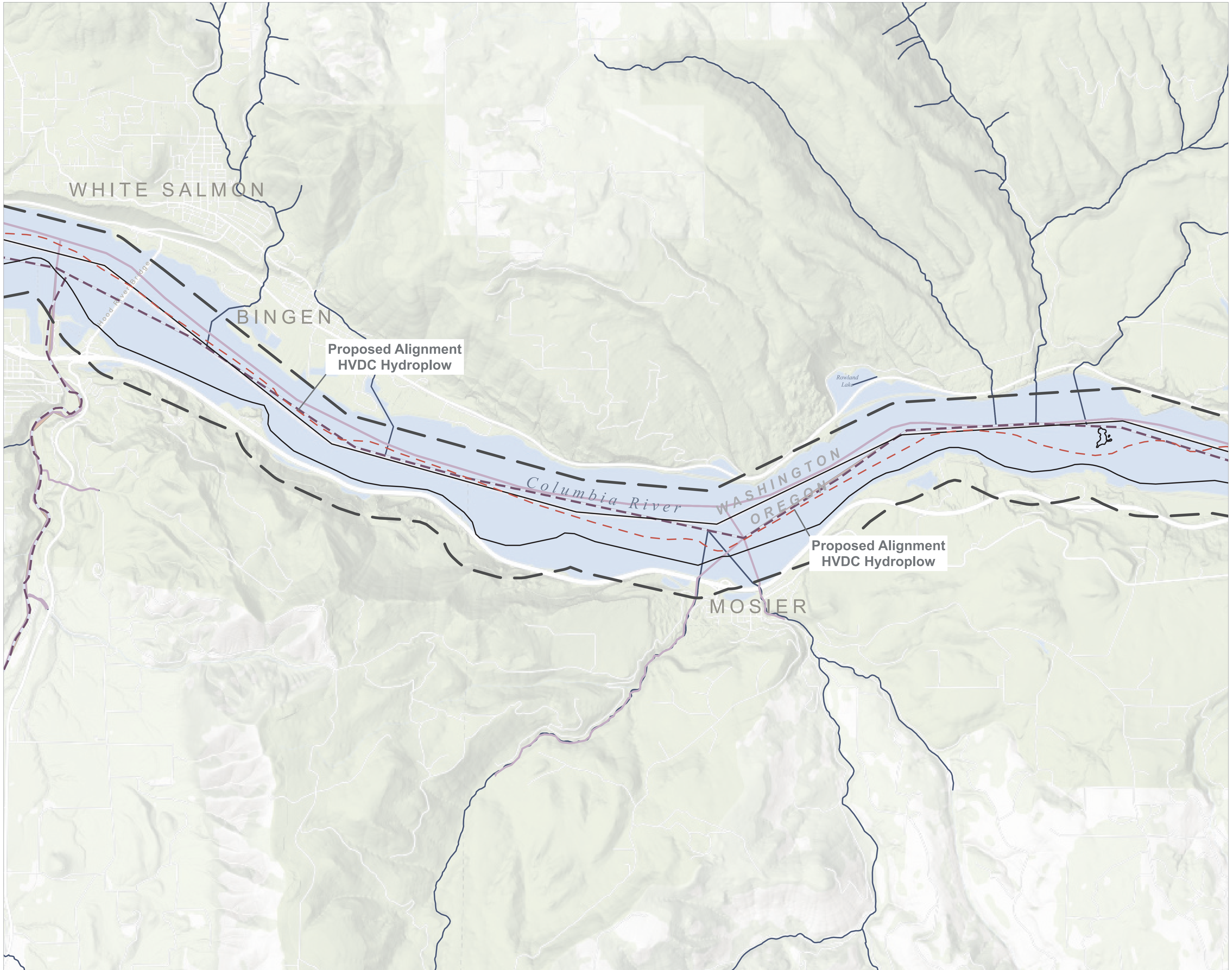
12/10/2025 NAD 1983 State Plane Oregon North Feet Data Sources: Esri, HDR.

FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT PAGE 8 OF 10



FOR INFORMATION ONLY - CONCEPT DRAWING

- PROPOSED ALIGNMENT - HVDC HYDROPLOW
- CONVERTER STATION
- OREGON EFSC SITE BOUNDARY
- STATE BOUNDARY
- ANALYSIS AREA (5 MILE BUFFER)
- BULL TROUT (USFWS)
- ANADROMOUS FISH DISTRIBUTION
- ESA-LISTED FISH SPECIES CRITICAL HABITAT (NMFS)
- NORTHERN SPOTTED OWL CRITICAL HABITAT

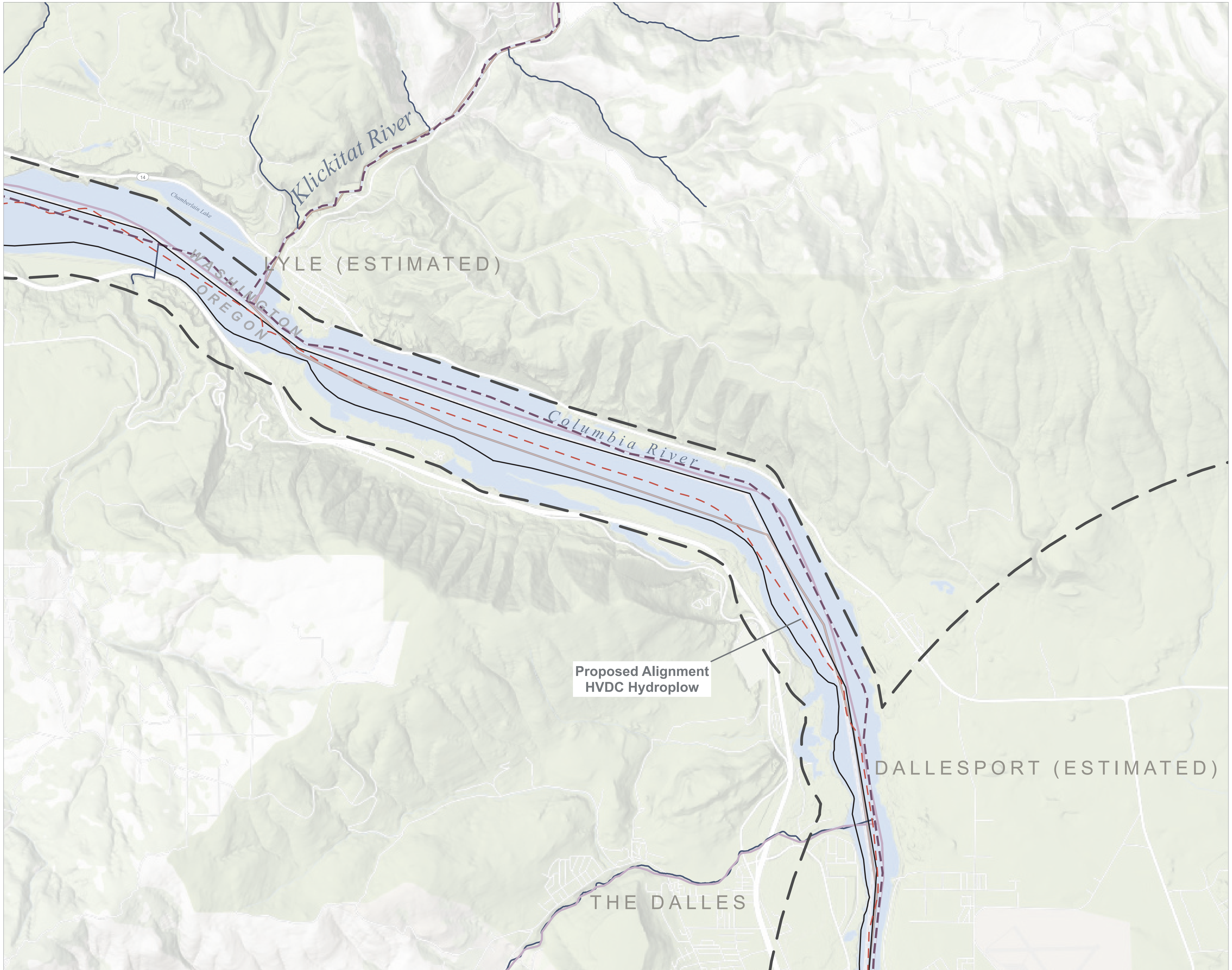
CASCADE RENEWABLE TRANSMISSION

0 1 mi
1:48,000

12/10/2025 NAD 1983 State Plane Oregon North Feet Data Sources: Esri, HDR.

FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT PAGE 9 OF 10

FOR INFORMATION ONLY - CONCEPT DRAWING



PROPOSED ALIGNMENT - HVDC HYDROPLOW
CONVERTER STATION
OREGON EFSC SITE BOUNDARY
STATE BOUNDARY
ANALYSIS AREA (5 MILE BUFFER)
BULL TROUT (USFWS)
ANADROMOUS FISH DISTRIBUTION
ESA-LISTED FISH SPECIES CRITICAL HABITAT (NMFS)
NORTHERN SPOTTED OWL CRITICAL HABITAT

CASCADE RENEWABLE TRANSMISSION

0 1 mi
1:48,000

12/10/2025 NAD 1983 State Plane Oregon North Feet Data Sources: Esri, HDR.

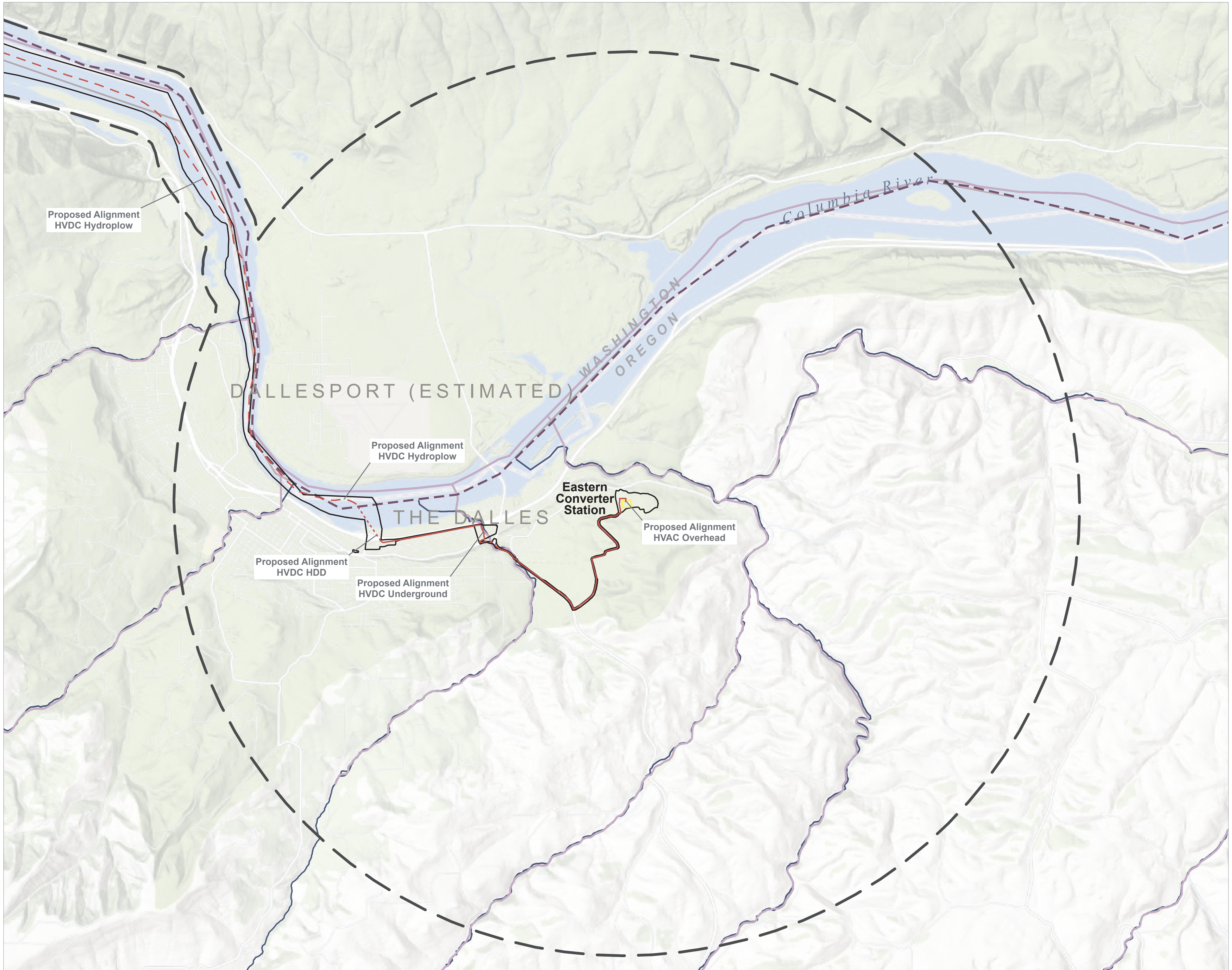
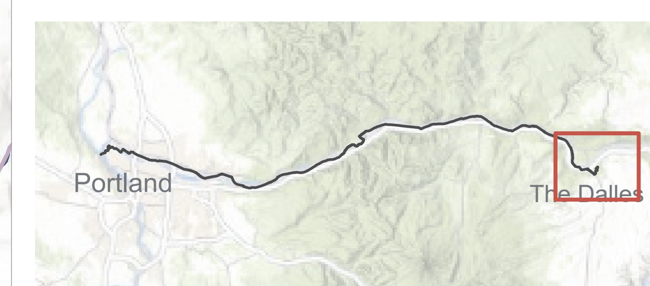


FIGURE 1 ANALYSIS AREA AND CRITICAL HABITAT PAGE 10 OF 10

FOR INFORMATION ONLY - CONCEPT DRAWING

- PROPOSED ALIGNMENT - HVDC HDD
- PROPOSED ALIGNMENT - HVDC HYDROPLOW
- PROPOSED ALIGNMENT - HVDC UNDERGROUND
- CONVERTER STATION
- OREGON EFSC SITE BOUNDARY
- STATE BOUNDARY
- ANALYSIS AREA (5 MILE BUFFER)
- BULL TROUT (USFWS)
- ANADROMOUS FISH DISTRIBUTION
- ESA-LISTED FISH SPECIES CRITICAL HABITAT (NMFS)
- NORTHERN SPOTTED OWL CRITICAL HABITAT

CASCADE RENEWABLE TRANSMISSION



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12/10/2025 NAD 1983 State Plane Oregon North Feet Data Sources: Esri, HDR.