



Technical Memorandum

Date:	MARCH 4, 2025
To:	Confederated Tribes of the Umatilla Indian Reservation (CTUIR), Nez Perce Tribe (NPT), and Washington Department of Fish and Wildlife (WDFW)
From:	Lauren Zatkos, Wetland Scientist – Wolf Water Resources
Project:	Tucannon River Big Four Floodplain Restoration Project
Subject:	Wetland and OHWM Determination

Introduction

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) in partnership with the Nez Perce Tribe (NPT) and Washington Department of Fish and Wildlife (WDFW) aims to restore floodplain connectivity and instream habitat along an approximately two-mile reach of the Tucannon River (River Miles 42.4 to 44.75; see Figure 1, Attachment 1), referred to as the Tucannon River Big Four Floodplain Restoration Project (the Project). The goal of the project is to restore floodplain connectivity, enhance instream habitat, and support First Foods, as outlined in the Umatilla River Vision (Jones et al. 2008) and support fulfillment of the Treaty Rights of both the CTUIR and NPT.

This restoration effort is designed to benefit several key species in the Tucannon River Basin, including bull trout, lamprey, mussels, and the federally threatened Snake River steelhead and spring Chinook salmon. To achieve these goals the project plans to remove artificial structures such as lakes and levees, address stream power imbalances, and increase habitat and floodplain complexity. By implementing these measures, the project aims to improve the river's natural processes and create a more sustainable system that can better support both wildlife and traditional tribal food sources.

These actions require permitting under the Clean Water Act (CWA) Section 404 and 401. The project team expects to obtain a Section 404 permit through the Nationwide Permit #27 for Aquatic Habitat Restoration, Establishment, and Enhancement Activities. To fulfill regulatory requirements, Wolf Water Resources (W2r) has assisted the project team by completing a wetland determination aimed at mapping the extent of likely jurisdictional wetlands and waters within the Project area and specifically within areas of restoration action that may result in a direct impact. Identifying wetland and ordinary high water mark (OHWM) boundaries will allow the project team to calculate the project impacts necessary to facilitate the Corps' and DEC's review of the Project.

Wolf Water Resources (W2r) scientists determined wetland and OHWM boundaries through a desktop analysis that was field verified through vegetation, hydrology, and OHW observations, as well as exploratory soil plots. This memorandum summarizes site conditions based on desktop analyses and field verification observations.

Landscape Context

The Tucannon River is a 62-mile waterway that drains the northwestern Blue Mountains of southeast Washington (see Attachment 1, Figure 1). It flows in a northwest direction and drains into the Snake River. The Tucannon basin ranges in elevation from about 540 feet (165 meters) above mean sea level (AMSL) at its confluence with the Snake River to about 6,400 feet (1,950 meters) AMSL in the Umatilla National Forest of the Blue Mountains. A USGS Monitoring Station located about 28 miles downstream indicates that river discharge varies annually from approximately 15 cubic feet per second (cfs) to over 7,980 cfs at peak flow. The Tucannon River's watershed supports various fish species, including the only remaining population of spring Chinook salmon in the lower Snake River (CTUIR, 2024), federally threatened bull trout, and federally threatened summer steelhead (WDFW, 2024a).

The entire project area is located within the W.T. Wooten Wildlife Area, a 16,445-acre wildlife management area owned by the Washington Department of Fish and Wildlife (WDFW). The land, including 17 miles of the Tucannon River, was acquired by WDFW between 1941 and 1943, and in the 1950's, eight lakes were excavated within the rivers floodplains to provide additional fishing and recreational opportunities (WDFW, 2024b). One of these excavated lakes (Big Four Lake) is located inside the project area. These lakes have been historically stocked with trout by the WDFW-owned Tucannon Fish Hatchery, located 1.3-miles north and outside of the project area, however, Big Four Lake is no longer actively maintained or stocked. Tucannon Campground 5, a relatively heavily used first-come-first-served campground for car and tent camping, is also located near the center of the project area, west-adjacent to the Tucannon River. Tucannon Road runs along the western edge of the entire project area.

The contributing watershed and project area have experienced a variety of historical impacts, including livestock grazing, agriculture, timber harvest, wildfires, road building, and rural residential development. Notably, channel straightening has had an effect on the river's natural flow. Other impacts include the creation of artificial lakes, the construction of push-up levees and side-cast berms, road and bridge building, clearing, gravel removal, and the School Fire in 2005.

These activities have restricted natural river meandering and caused floodplain disconnection and both vertical and lateral incision, particularly due to infrastructure development along the river, such as Tucannon Road. By addressing the impacts of historical channel modifications and infrastructure development, the project seeks to improve floodplain connectivity, decrease stream power, enhance instream habitat, and support the recovery of threatened fish species in the Tucannon River Basin.

Wetland Determination Methods

Desktop Analysis

Prior to the field investigation, W2r staff reviewed National Wetland Inventory (NWI) data (see Attachment 1, Figure 3), Natural Resources Conservation Service (NRCS) soil data (Attachment 1, Figure 4), and multiple years of aerial imagery for the 190-acre project area to determine hydrologic conditions most likely to sustain wetlands. Soils within the project area consist primarily of Bigelk-Terlough-Newbar complex, 0 to 5 percent slopes, which are comprised of a layer of stony ashy silt loam underlain by additional layers of extremely stony ashy silt loam and extremely stony loam. This soil unit originates from alluvium derived from mixed sources and is considered well drained and not hydric.

The NWI indicates that numerous riverine wetlands may be present within the project area, generally originating along the steep slopes outside of project area boundaries and running north through the project area. One palustrine scrub-shrub wetland, two relatively small palustrine forested wetlands, and one palustrine unconsolidated bottom wetland were identified by the NWI within the project area.

W2r staff created a height above water surface (HAWS) model to identify low-lying areas where wetland hydrology is likely present and generally sustained by riverine hydrology, utilizing 2020 LiDAR of the project area provided by the Washington State Department of Natural Resources Division of Geology and Earth Resources (DNR, 2024). A relative elevation of 2.5 feet above baseflow water surface elevation was used to define initial wetland boundaries that were later field verified and refined by W2r staff. National Agricultural Imagery Program (NAIP) aerials were also reviewed and used to identify additional areas that may support wetland hydrology and vegetation. The OHW of the Tucannon River was estimated using a combination of HAWS results and aerial imagery.

The analysis determined the location of the Tucannon River OHW throughout the project area, as well as numerous riparian wetlands, manmade lakes, fringe wetlands, and wetland swales.

Field Verification

On July 1st – July 5th, 2024, W2r scientists Lauren Zatkos and Mari Lucas conducted a wetland field investigation at the project area to field verify the presence or absence of wetlands identified during the desktop analysis. During the field investigation, vegetation, hydrology, and soil data were collected at twelve sample plots and recorded within wetland data sheets for the Arid West region (Attachment 2). The sample plots were generally collected in low-lying areas identified for removal/fill activity for purposes of floodplain connection, or in areas identified as wetlands within the project boundaries.

A total of seven wetland sample plots and six upland sample plots were established; the location of these plots is shown in Attachment 1, Figure 5. Data was collected at each sample plot using the Routine Determination Method for delineating wetlands described in the U.S. Army Corps of Engineers (Corps) Wetlands Delineation Manual (USACE, 1987) and the methods and criteria described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (USACE, 2008). OHW of waterways was determined using indicators described within the U.S. Army Corps National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams (USACE, 2022).

A qualitative assessment of soils was completed during the field work, but detailed soil data was not collected at all sample plots for two reasons: (1) wetland hydrology and vegetation were sufficient to verify approximate wetland extents and (2) the field investigation was intended to be a rapid verification that covered a large geographic area. See Attachment 2 for sample plot data forms.

Ground-level color photographs were taken to demonstrate site conditions within the Project area and at each sample plot. Photo-point locations are shown in Figure 5 and photos are provided in Attachment 3.

Findings

The desktop analysis was generally accurate in predicting the presence of wetlands directly adjacent to the Tucannon River and associated with the artificial lakes in the floodplain. Additional wetlands were found during the site investigation, which are sustained by lake seepage through existing berms, riverine hydrology in small floodplain swales, and hillslope hydrology expressed at the valley margins.

According to a combination of W2r's desktop analysis and field verification, the project area contains approximately 15.2-acres of wetland and 24.8-acres of waters of the U.S. Within the project area, 11 wetlands and the OHW of the Tucannon River were identified. These approximate wetland and waters areas are mapped in Figure 5 of Attachment 1. Wetlands smaller than 0.2-acres were not field verified or included in mapping due to the size and extent of the project area, unless the small wetland areas were part of a larger complex that extended beyond the project area boundary. W2r observed three distinct hydrologic inputs that sustained these wetland habitats; (1) the Tucannon River or direct streamflow associated with the river, (2) excavated lakes and associated artificial hydrology and seepage that flow through the project area, and (3) natural wetlands associated with drainages coming off the surrounding slopes outside of the project area. The wetlands associated with these hydrological sources are described briefly below.

Wetland A

Wetland A is a 0.12-acre palustrine emergent (PEM) wetland located in the northwestern corner of the project area, along the floodplain terrace west of the Tucannon River. This wetland extends north

out of the project area boundary, so this wetland located partially within the project area boundaries was field-verified and included in mapping. The hydrogeomorphic (HGM) classification of Wetland A is Riverine as it is located in a broad, swale-like depression that is hydrologically connected to the water table of the adjacent river during high flow events, and likely connected via surface flow on an annual or bi-annual basis. The river in this stretch is slightly incised, with water levels that were approximately 3- to 4-feet below the ground surface of the adjacent western terrace at the time of W2r's site visit. Wetland A is 2- to 3-feet below the elevation of the surrounding upland terrace.

Wetland A is dominated by reed canary grass (*Phalaris arundinacea*, FACW) and red-tinge bulrush (*Scirpus microcarpus*, OBL), with a minor amount of mature black cottonwood (*Populus balsamifera* spp. *trichocarpa*, FAC) growing along the perimeter of the wetland. Soils in this wetland are comprised of a thin layer of muck underlain by sandy clay with redoximorphic features. Saturation was measured at 5-inches below the ground surface, and a high water table was measured at 13-inches below the ground surface.

Wetland B

Wetland B is a 0.86-acre PEM wetland located in the northeastern corner of the project area, east of the Tucannon River. This wetland also extends north out of the project area. The HGM classification of Wetland B is Depressional, as the wetland is located in a broad depression at the toe of the eastern slopes, and it receives the majority of its hydrology from seeps along this slope toe. This hydrology likely spills over at times into the Tucannon River to the west, which is incised 3- to 4-feet below the western edge of the wetland.

Wetland B is dominated by reed canary grass and red-tinge bulrush, with minor amounts of shrub-stage smooth-leaf dogwood (*Cornus glabrata*, FACW) and mature black cottonwood. Soils in this wetland are comprised of a thin layer of muck underlain by high plasticity clay with cobble and redoximorphic features. Saturation was present up to the ground surface, and a high water table was measured at 1-inch below the ground surface.

Wetland C

Wetland C is a 3.86-acre palustrine emergent/palustrine scrub-shrub (PEM/PSS) complex located on the terrace west-adjacent to the Tucannon River. The PEM portion spans approximately 2.11-acres of the northern half of the wetland, and the southern PSS portion comprises the remaining 1.75-acres of the wetland. The HGM of Wetland C is Riverine, as a channel of flowing water from the western slopes feeds into Wetland C and becomes impounded by the generally depressional topography of the terrace. During high flow events, it is likely that hydrology in the northern extent of the wetland is connected to surface hydrology of the Tucannon River.

The PEM portion of Wetland C is dominated by reed canary grass, red-tinge bulrush, and patches of broad-leaf cattail (*Thypha latifolia*, OBL). Vegetation in the PSS portion is dominated by narrow-leaf

willow (*Salix exigua*, FACW) and black hawthorn (*Crataegus douglasii*, FAC). At the time of W2r's site investigation, 3-inches of surface water was present near the center of the wetland. Flowing water was observed flowing into the wetland along the western edge of the project area.

Wetland D

Wetland D is a 1.68-acre PEM wetland located west-adjacent to the Tucannon River. The HGM of this wetland is Riverine, as primary hydrology is supplied by overbank flow from the river that ponds within this generally concave area along the floodplain terrace.

The vegetation community within Wetland D is dominated by reed canary grass. A number of small, dry channels were observed throughout the wetland during the site investigation, and areas of inundation can be seen in the August 2022 Google Earth aerial.

Wetland E

Wetland E is a 1.25-acre PEM wetland located along the western edge of the project area. Situated within a broad depression that is fed by precipitation and secondarily by overbank flow from ditches to the west (outside of the Project area), the HGM of this wetland is Depressional.

The vegetation community within Wetland E is dominated by shrub-stage white alder, some common snowberry (*Symphoricarpos albus*, FACU), reed canary, red-tinge bulrush, and stalk-grain sedge (*Carex stipata*, OBL). At the time of the site investigation, soil saturation up to the ground surface was present throughout the wetland.

Wetland F

Wetland F is a 0.46-acre palustrine forested (PFO) wetland located near the central-eastern edge of the project area. The HGM of this wetland is Slope, as it is located in a swale-like feature at the base of the steep slopes that extend east of the project area. The main source of hydrology for Wetland F is numerous seeps that emerge from the southern extent of the wetland. Surface water flows slowly through the wetland to the north and feeds into the Tucannon River along its eastern bank.

Vegetation within this wetland is dominated by mature and shrub-stage white alder (*Alnus rhombifolia*, FACW), reed canary grass, and red-tinge bulrush. Approximately 6-inches of surface water was measured near the center of the wetland during the site investigation.

Wetland G

Wetland G is a 0.84-acre PFO wetland island located between the main channel and a side channel of the Tucannon River, near the center of the project area. As overbank flow from these channels likely annually feeds into and flows through this wetland, the HGM of Wetland G is Riverine.

Vegetation within this wetland is dominated by mature and shrub-stage black cottonwood, mature and shrub-stage white alder, some common snowberry, reed canary grass, and minor amounts of lesser herb Robert (*Geranium robertianum*, FACU). Topography throughout Wetland G is generally undulating with numerous depressions.

Wetland H

Wetland H is a 3.36-acre PEM/PFO wetland that runs generally from south to north along the floodplain terrace west of the Tucannon River. Approximately 0.29-acres of the wetland is PEM, and the remaining 3.07-acres is PFO. This wetland receives hydrology from numerous sources, including a substantial amount of artificial seepage through the northern berm of the Big Four Lake (Wetland I), natural seeps along the toe of the eastern-adjacent slopes, and overbank flow from the Tucannon River during high flow events. Because overbank flooding from the river does occur, the HGM of this wetland is Riverine.

Vegetation within Wetland H is dominated by mature and shrub-stage black cottonwood, mature and shrub-stage white alder, red-tinge bulrush, and reed canary. At the time of W2r's site visit, approximately 4-inches of surface water was flowing south to north along portions of the wetland. This flowing water ponds in some small depressions. Fish were observed swimming through the flowing water in the southern half of the wetland.

Wetland I/Big Four Lake

Wetland I is a 3.41-acre palustrine emergent/palustrine unconsolidated bottom (PEM/PUB) wetland known as Big Four Lake. The PUB portion of this wetland spans approximately 3.12-acres, and the southern PEM portion spans 0.29-acres. Because the main source of surface hydrology within the lake had been diversion of Tucannon River water, and because overbank flooding likely still contributes to its hydrology during high flow events, the HGM of Wetland I is Riverine Impounding.

This lake was excavated in 1954 to serve as a public fishing opportunity and stocked with trout by WDFW. The lake was impacted by the 2020 flood washing out part of the constructed embankment and shifting the main channel of the Tucannon River adjacent to the lake location. This flood also caused incision in the location of the flow diversion structure that fed the lake, making it inoperable. The lake has since been abandoned and is no longer being maintained or stocked by WDFW, as there is no access road to the lake and maintenance equipment was required to be transported over the river to perform lake outlet and berm repairs and stocking activities.

The majority of the lake is unvegetated, and the PEM portion of the wetland is dominated by reed canary grass with a minor amount of shrub-stage white alder and narrow-leaf willow along its perimeter.

Wetland J

Wetland J is a 1.49-acre PFO wetland that generally runs from the southwest to the northeast, south of Big Four Lake. The main source of hydrology is primarily overbank flow from the west-adjacent Tucannon River and thus, its HGM is Riverine. Some of this hydrology flows through Wetland J and into Wetland I.

The vegetation of this wetland is dominated by mature and shrub stage white alder, common snowberry, and reed canary grass. Soil saturation was present at the surface throughout the wetland at the time of the site investigation.

Wetland K

Wetland K is a 0.37-acre PFO wetland, located within a swale west-adjacent to the Tucannon River in the southwestern corner of the project area. This wetland primarily receives hydrology from overbank flow of the river likely on an annual or bi-annual basis, and therefore, its HGM is Riverine.

The vegetation community within this wetland is dominated by mature and shrub-stage white alder and reed canary grass. At the time of the site investigation, small pools of isolated surface water were observed within the wetland.

Wetland L

Wetland L is a 0.72-acre PFO wetland located west of Big Four Lake/Wetland I, west-adjacent to a side channel of the Tucannon River. The Big Four Lake parking lot is southwest-adjacent to this forested wetland. The primary source of hydrology to this wetland is overbank flow from the river, as the wetland had a surface water connection to the river during W2r's field investigation. Thus, the HGM of Wetland L is Riverine.

This wetland is dominated by mature and shrub-stage white alder, field horsetail (*Equisetum arvense*, FAC), reed canary grass, and red-tinge bulrush. Approximately 1- to 3-inches of surface water was measured throughout the majority of the wetland during the site investigation.

Wetland M

Wetland M is a 0.64-acre PEM/PFO wetland located in the southwestern corner of the project area. Approximately 0.42-acres of this wetland is PEM, and the remaining 0.22-acres is PFO. The PEM portion of this wetland continues outside of the project area to the south. While a portion of this wetland's hydrology is sourced from seepage along the northern edge of a WDFW-stocked lake south of the project area, this wetland also receives hydrology from the Tucannon River and therefore, its HGM is Riverine.

Vegetation in the PEM portion of Wetland M is dominated by reed canary grass and broad-leaf cattail. The PFO portion is dominated by mature and shrub-stage white alder, some black cottonwood, reed canary grass, and lesser herb Robert (*Geranium robertianum*, FACU).

Tucannon River

Approximately 11,300-linear-feet of the Tucannon River (2.14-miles) runs from southwest to northeast through the project area. Widths of the channel generally range from 35- to 245-feet, and the overall acreage of the river within the project area is 25.5-acres. Numerous braided side channels were determined via hydrologic modeling during the desktop analysis and verified during the site investigation. The OHW was verified during the site investigation primarily by observation of shelving, breaks in slope, and significant changes in the vegetation community. The river is incised within the project area by varying depths, generally ranging from between 1- to 5-feet below the surrounding floodplain terraces.

Tributaries

Five small tributary channels were determined along the floodplains of the Tucannon River within the project area. These small tributaries originate from the steep slopes to the east and west of the river and are generally ephemeral and/or intermittent in annual flow duration. The lengths of these tributary channels range from 225- to 425-feet within the project area. All tributaries flow directly into the mainstem Tucannon River, and do not run through any determined wetlands. Tributaries 3, 4, and 5 originate along the slopes to the west of the project area and flow through culverts below Tucannon Road before continuing east to the river.

Non-Wetland/Waters Findings

Six sample points were taken within areas of possible project actions to characterize non-wetland habitats. Vegetation communities within uplands in the project area are generally dominated by mature ponderosa pine (*Pinus ponderosa*, FAC), common snowberry, ocean spray (*Holodiscus discolor*, FACU), and a variety of grasses including orchard grass (*Dactylis glomerata*, FACU), tall oat grass (*Arrhenatherum elatius*, UPL), Kentucky bluegrass (*Arrhenatherum elatius*, FAC), and cheatgrass (*Bromus tectorum*, UPL).

Soils in upland areas generally consist of layers of silt loam with rounded gravel and cobble. No hydrology indicators were present in any of the locations of the upland sample points.

Conclusion

In support of this voluntary restoration project, W2r determined wetland and OHW boundaries through a combination of LiDAR data, HAWS modeling, NAIP imagery, and an on-site field investigation. Site observations were used to validate or refine the desktop analysis. Identifying these boundaries will assist the project design team in designing a project that will result in an increase in

aquatic resource functions and values. This will also allow the project team to calculate project impacts to facilitate the Corps' review of the Project for CWA permitting under NWP #27.

Disclaimer

This report documents the observations, best professional judgment, and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a precursor to a Preliminary Jurisdictional Determination (PJD) of wetlands and other waters and used at your own discretion unless reviewed and approved in writing by the Corps.

References

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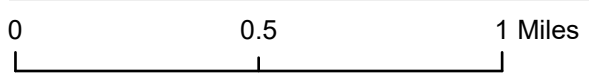
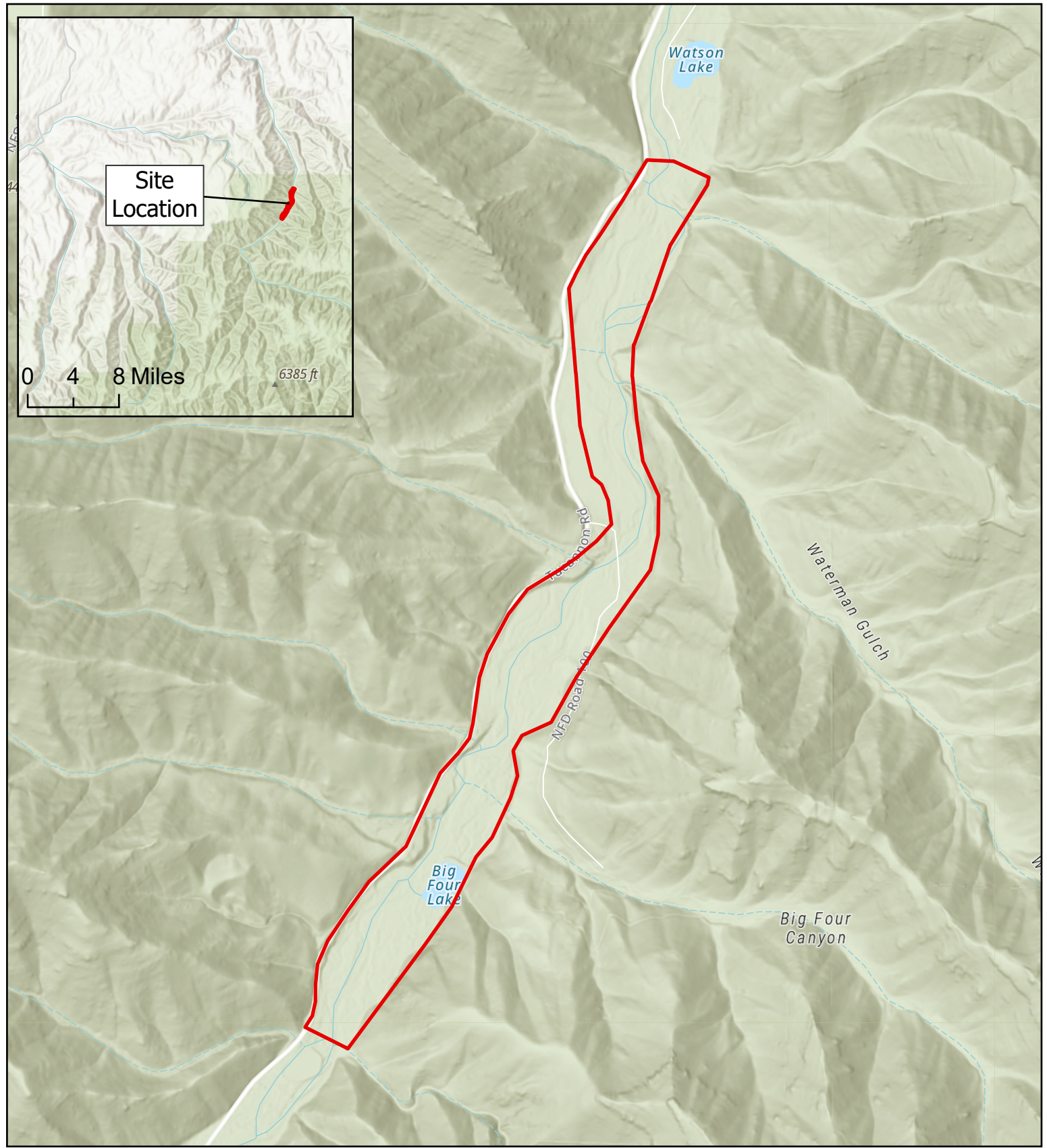
Attachments

- Attachment 1- Approximate Wetland Features and Background Maps
- Attachment 2- Wetland Determination Data Sheets
- Attachment 3- Ground-Level Photo Points

Attachment 1

Approximate Wetland Features and Background Maps

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 Study Area

Tucannon River Big Four Wetland Determination

Figure 1: Site Location

Spatial Reference
 PCS: WGS 1984 Web Mercator Auxiliary Sphere
 GCS: GCS WGS 1984
 Datum: WGS 1984
 Projection: Mercator Auxiliary Sphere

Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, NASA, NGA, USGS, FEMA, Esri, CGIAR, USGS, WSU Facilities Services GIS, Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS
 Data source:





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0 3,000 6,000 Feet



 Study Area
 Tax Lot

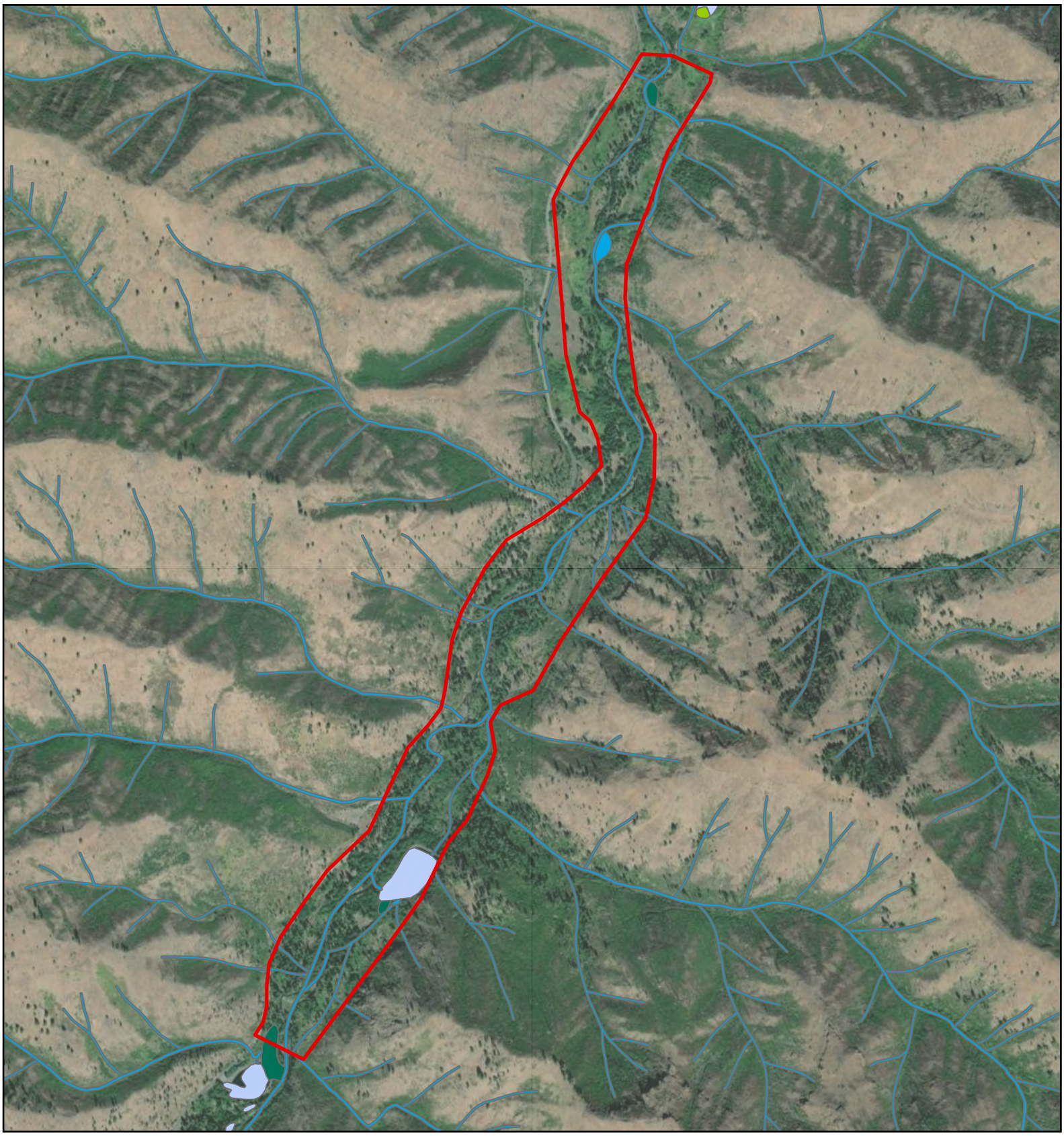
Tucannon River Big Four Wetland Determination

Figure 2: Tax Lot Map

Spatial Reference
 PCS: WGS 1984 Web Mercator
 Auxiliary Sphere
 GCS: GCS WGS 1984
 Datum: WGS 1984
 Projection: Mercator Auxiliary
 Sphere

Esri, NASA, NGA, USGS, FEMA, WSU Facilities Services GIS, Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS
 Data source:





0 2,000 4,000 Feet



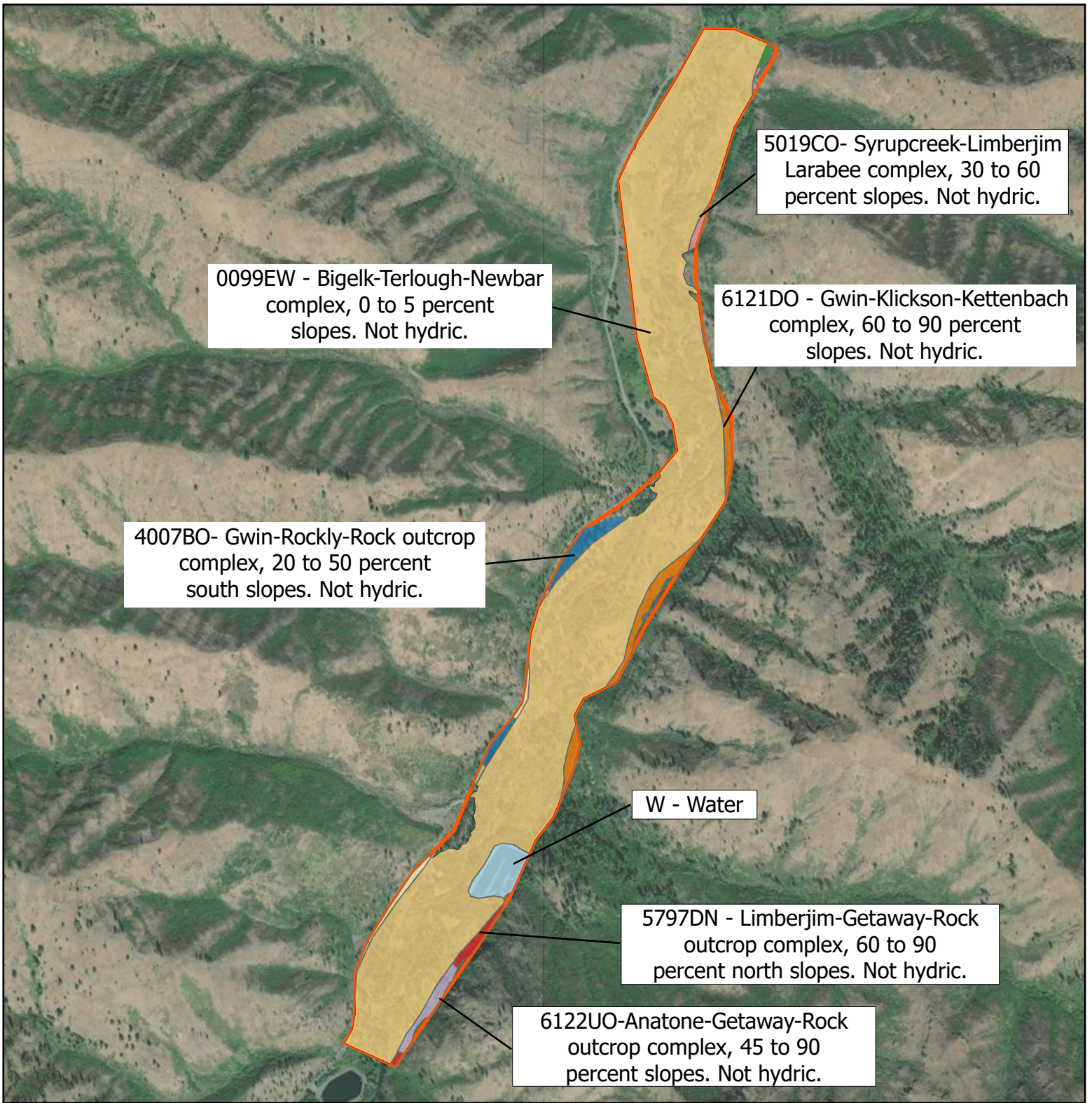
Spatial Reference
 PCS: WGS 1984 Web Mercator Auxiliary
 Sphere
 GCS: GCS WGS 1984
 Datum: WGS 1984

- Study Area
- NWI Wetlands
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Tucannon River Big Four Wetland Determination

Figure 3: NWI Map

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0 0.2 0.4 Miles



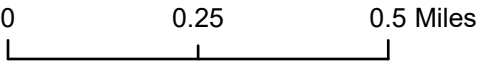
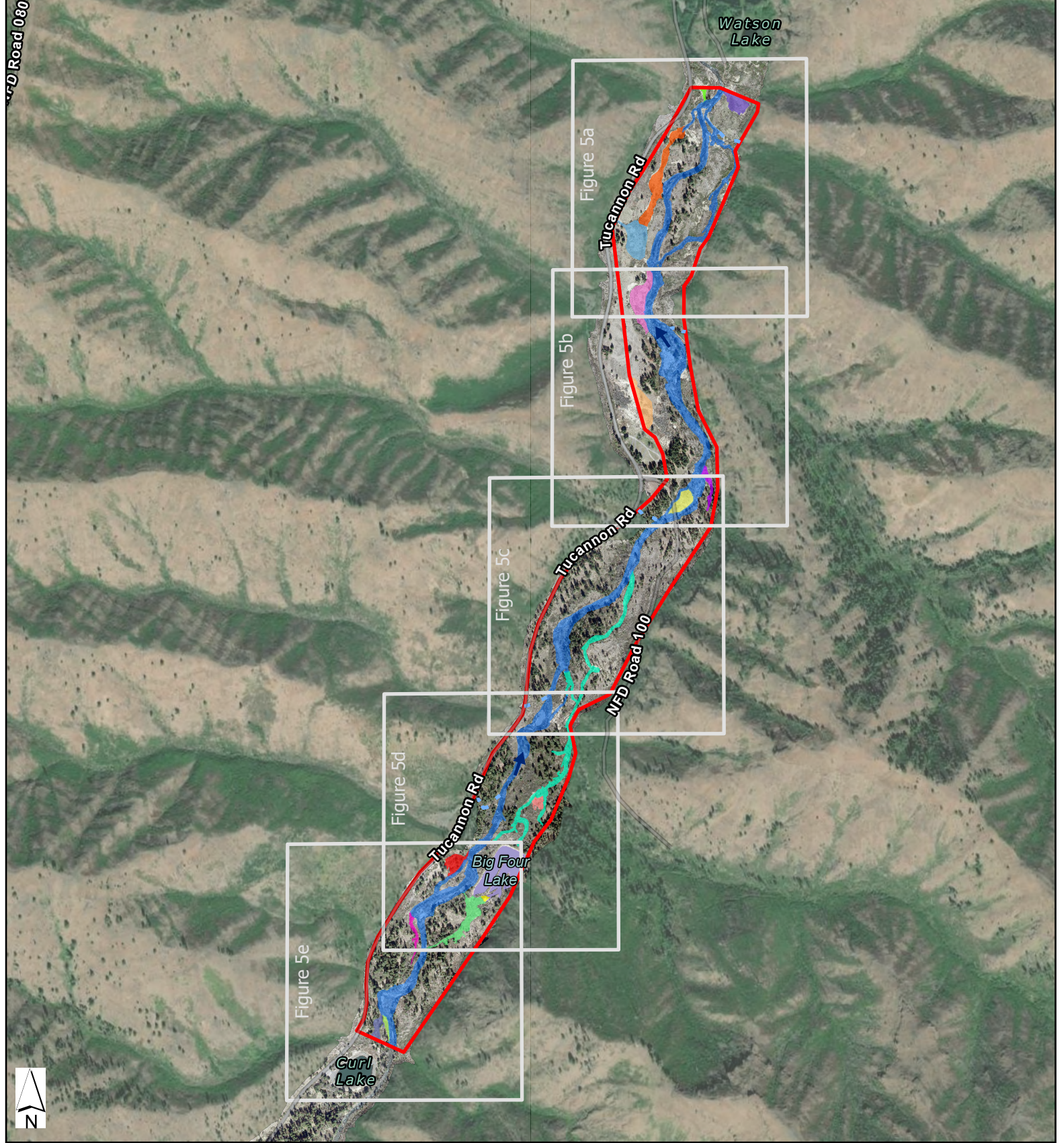
Spatial Reference
 Name: NAD 1983 StatePlane Washington
 South FIPS 4602 Feet
 Datum: North American 1983
 Projection: Lambert Conformal Conic

- Study Area
- NRCS Soil Unit Code
- 0099EW
- 4007BO
- 4159CO
- 4159DO
- 5019CO
- 5797DN
- 6014CS
- 6121DO
- 6122UO
- W

Tucannon River Big Four Wetland Determination

Figure 4: NRCS Soils Map





Sample plot locations, wetland boundaries, and OHW lines were recorded within 1-meter horizontal accuracy in ArcGIS Collector with an EOS Arrow 100 GNSS Receiver. High resolution imagery acquired by W2r (2024). Wetland boundaries were determined, and should be considered approximate.

Spatial Reference
 PCS: NAD 1983 StatePlane Washington
 South FIPS 4602 Feet
 Datum: North American 1983
 Projection: Lambert Conformal Conic

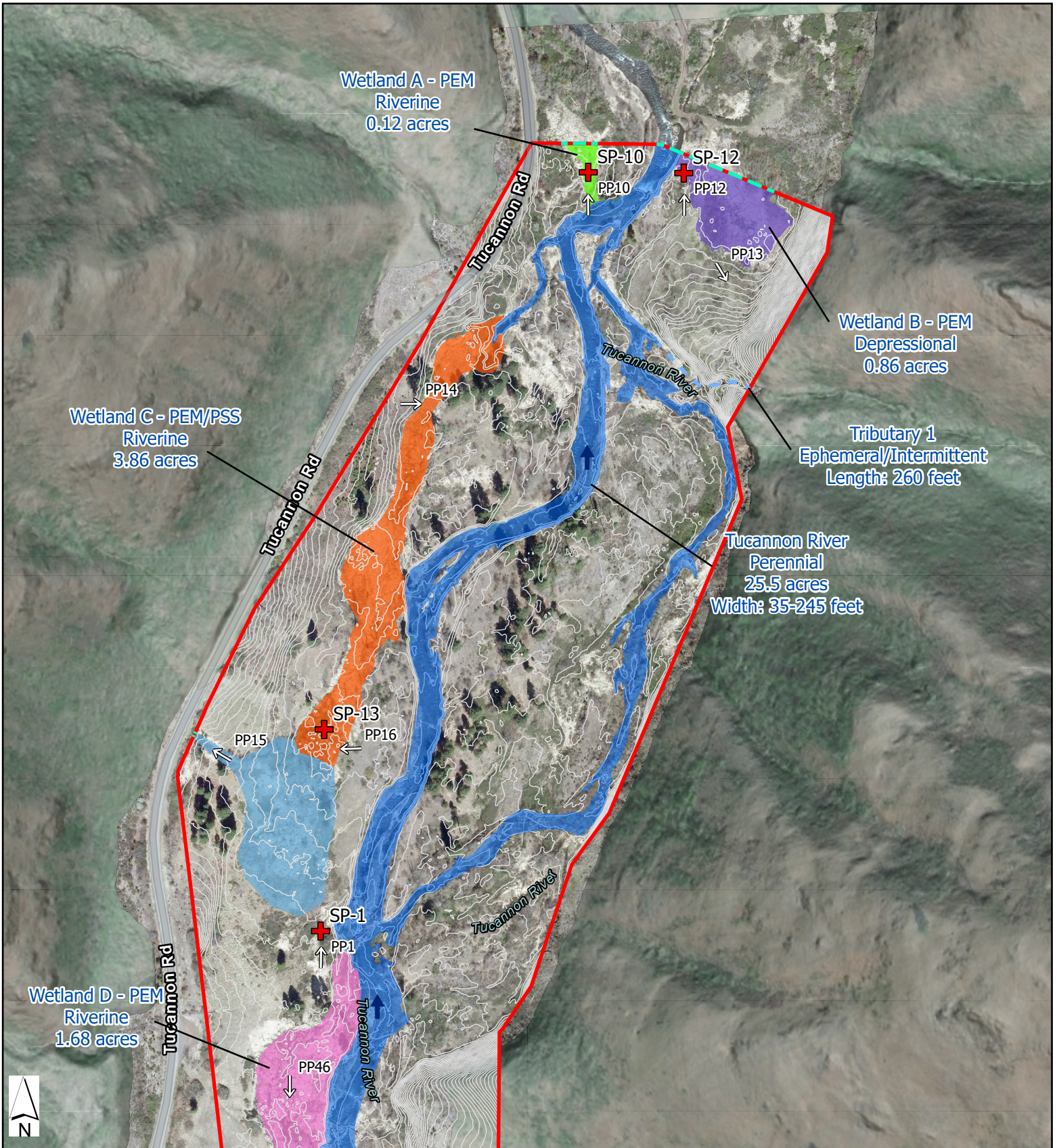
Imagery Source: Maxar, Esri Community Maps

- Project Area
- Page Index
- Aquatic Resources
- Wetland A (PEM) 0.12 ac.
- Wetland B (PEM) 0.86 ac.
- Wetland C (PSS) 1.75 ac.
- Wetland C (PEM) 2.11 ac.
- Wetland D (PEM) 1.68 ac.
- Wetland E (PEM) 1.25 ac.
- Wetland F (PFO) 0.46 ac.
- Wetland G (PFO) 0.84 ac.
- Wetland H (PFO) 3.07 ac.
- Wetland H (PEM) 0.29 ac.
- Wetland I (PEM) 0.08 ac.
- Wetland I (PUB) 3.41 ac.
- Wetland J (PFO) 1.49 ac.
- Wetland K (PFO) 0.37 ac.
- Wetland L (PFO) 0.72 ac.
- Wetland M (PFO) 0.22 ac.
- Wetland M (PEM) 0.42 ac.
- Waters (Tucannon River)
- Small Tributary Channel
- Flow Direction

**Tucannon Big Four Reach
 Wetland Determination**

Figure 5 - Determination
 Map Index





0 300 600 Feet

Sample plot locations, wetland boundaries, and OHW lines were recorded within 1-meter horizontal accuracy in ArcGIS Collector with an EOS Arrow 100 GNSS Receiver. High resolution imagery acquired by W2r (2024). Wetland boundaries were determined, and should be considered approximate.

Spatial Reference
 PCS: NAD 1983 StatePlane Washington
 South FIPS 4602 Feet
 Datum: North American 1983
 Projection: Lambert Conformal Conic

LIDAR (2018) retrieved from Washington State Department of Natural Resources LIDAR Portal

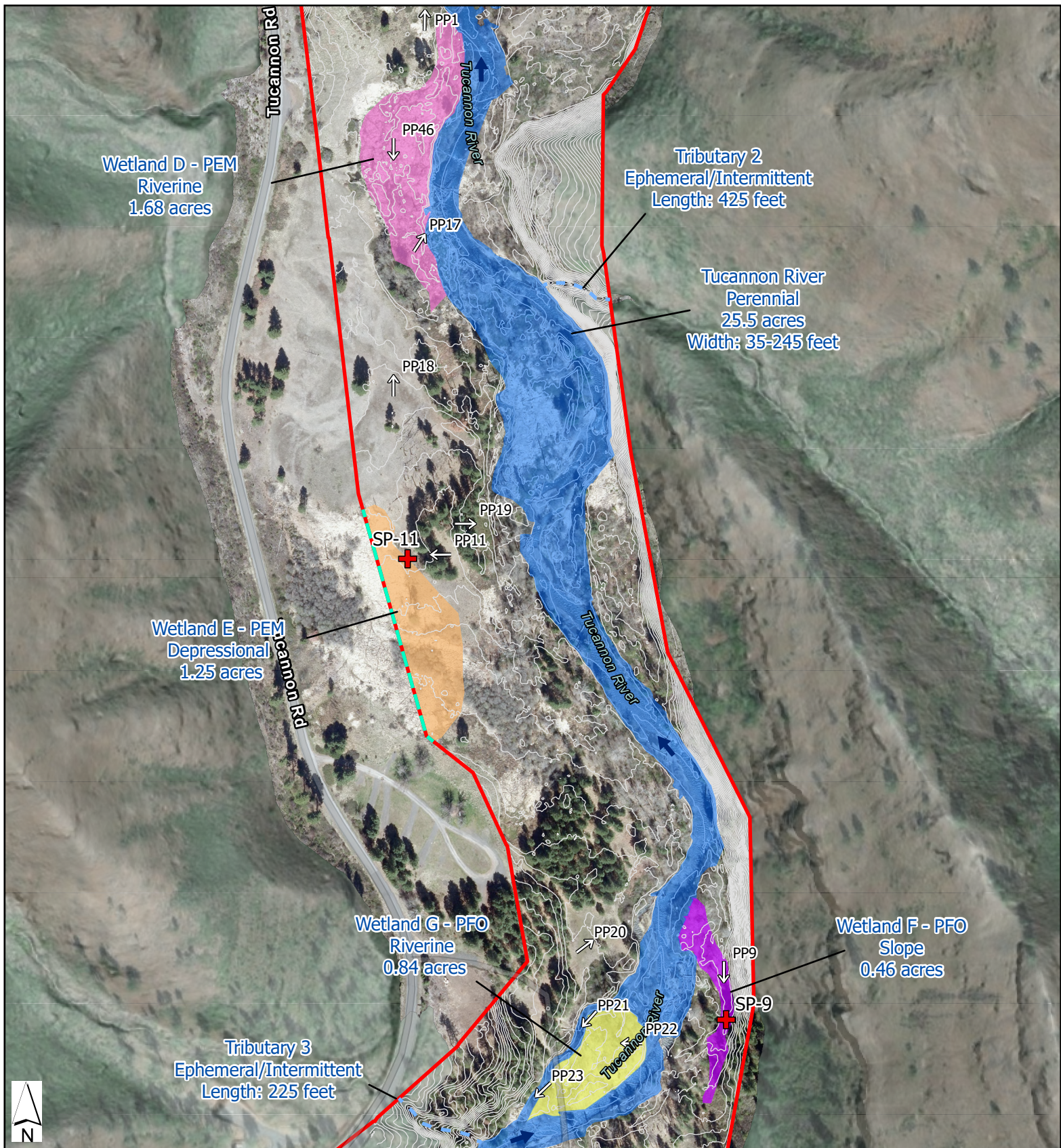
Imagery Source: Maxar, Microsoft, Esri Community Maps Contributors,

- Project Area
- Photo Point
- + Sample Plots
- Feature Continues
- ➔ Flow Direction
- 2ft Contour

- Aquatic Resources
- Wetland A (PEM) 0.12 ac.
 - Wetland B (PEM) 0.86 ac.
 - Wetland C (PSS) 1.75 ac.
 - Wetland C (PEM) 2.11 ac.
 - Wetland D (PEM) 1.68 ac.
 - Waters (Tucannon River)
 - Small Tributary Channel

**Tucannon Big Four Reach
 Wetland Determination**
 Figure 5a - Determination Map





Wetland D - PEM
Riverine
1.68 acres

Tributary 2
Ephemeral/Intermittent
Length: 425 feet

Tucannon River
Perennial
25.5 acres
Width: 35-245 feet

Wetland E - PEM
Depressional
1.25 acres

Wetland G - PFO
Riverine
0.84 acres

Wetland F - PFO
Slope
0.46 acres

Tributary 3
Ephemeral/Intermittent
Length: 225 feet

0 300 600 Feet

Sample plot locations, wetland boundaries, and OHW lines were recorded within 1-meter horizontal accuracy in ArcGIS Collector with an EOS Arrow 100 GNSS Receiver. High resolution imagery acquired by W2r (2024). Wetland boundaries were determined, and should be considered approximate.

Spatial Reference
PCS: NAD 1983 StatePlane Washington
South FIPS 4602 Feet
Datum: North American 1983
Projection: Lambert Conformal Conic

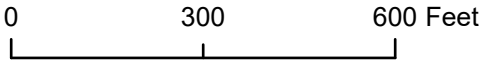
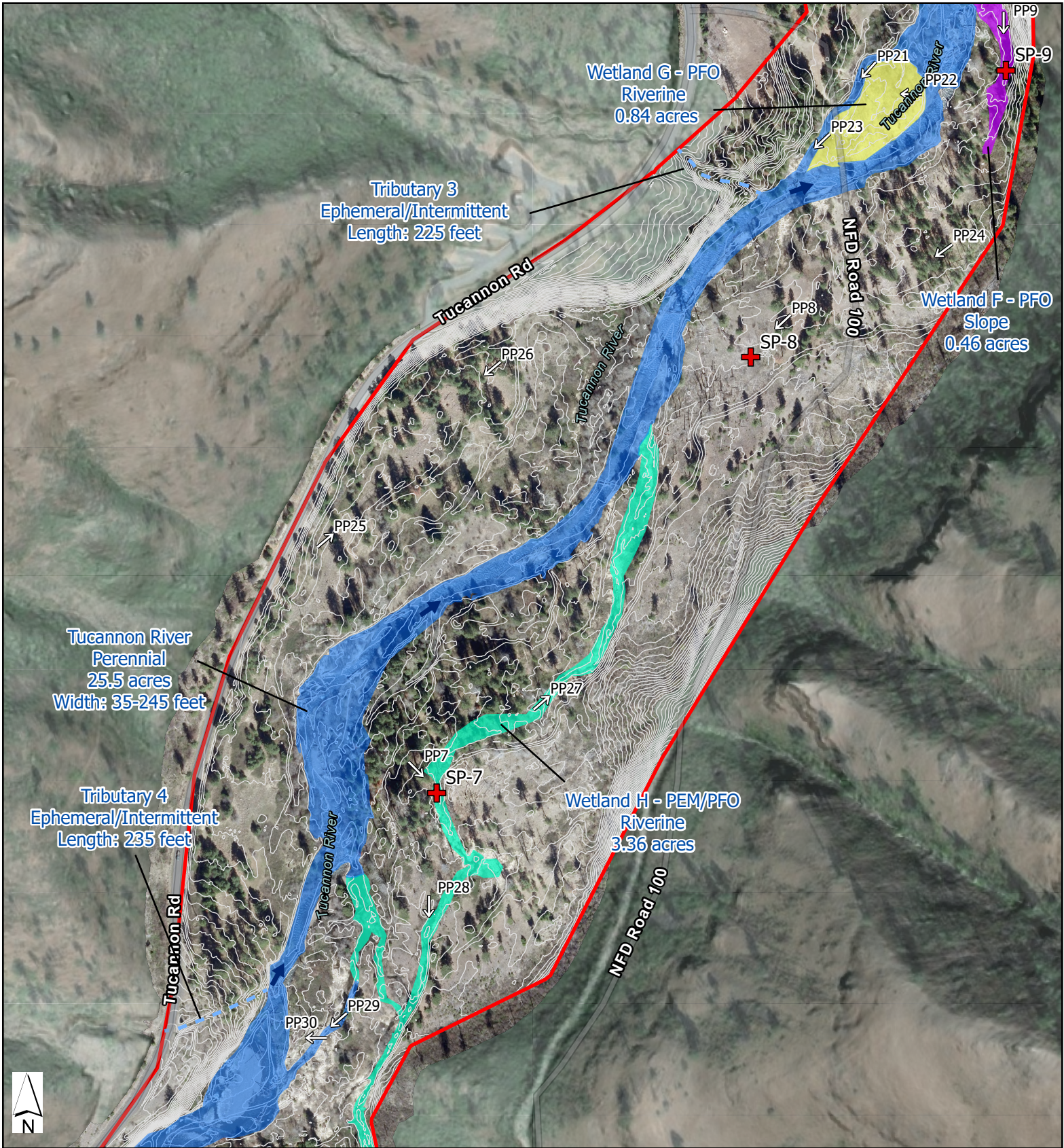
LiDAR (2018) retrieved from Washington State Department of Natural Resources LiDAR Portal
Imagery Source: Maxar, Microsoft, Esri Community Maps

- Study Area
- Photo Point
- + Sample Plots
- - - Feature Continues
- ➔ Flow Direction
- 2ft Contour

- Aquatic Resources
- Wetland D (PEM) 1.68 ac.
 - Wetland E (PEM) 1.25 ac.
 - Wetland F (PFO) 0.46 ac.
 - Wetland G (PFO) 0.84 ac.
 - Waters (Tucannon River)
 - - - Small Tributary Channel

**Tucannon Big Four Reach
Wetland Determination**
Figure 5b - Determination Map





Sample plot locations, wetland boundaries, and OHW lines were recorded within 1-meter horizontal accuracy in ArcGIS Collector with an EOS Arrow 100 GNSS Receiver. High resolution imagery acquired by W2r (2024). Wetland boundaries were determined, and should be considered approximate.

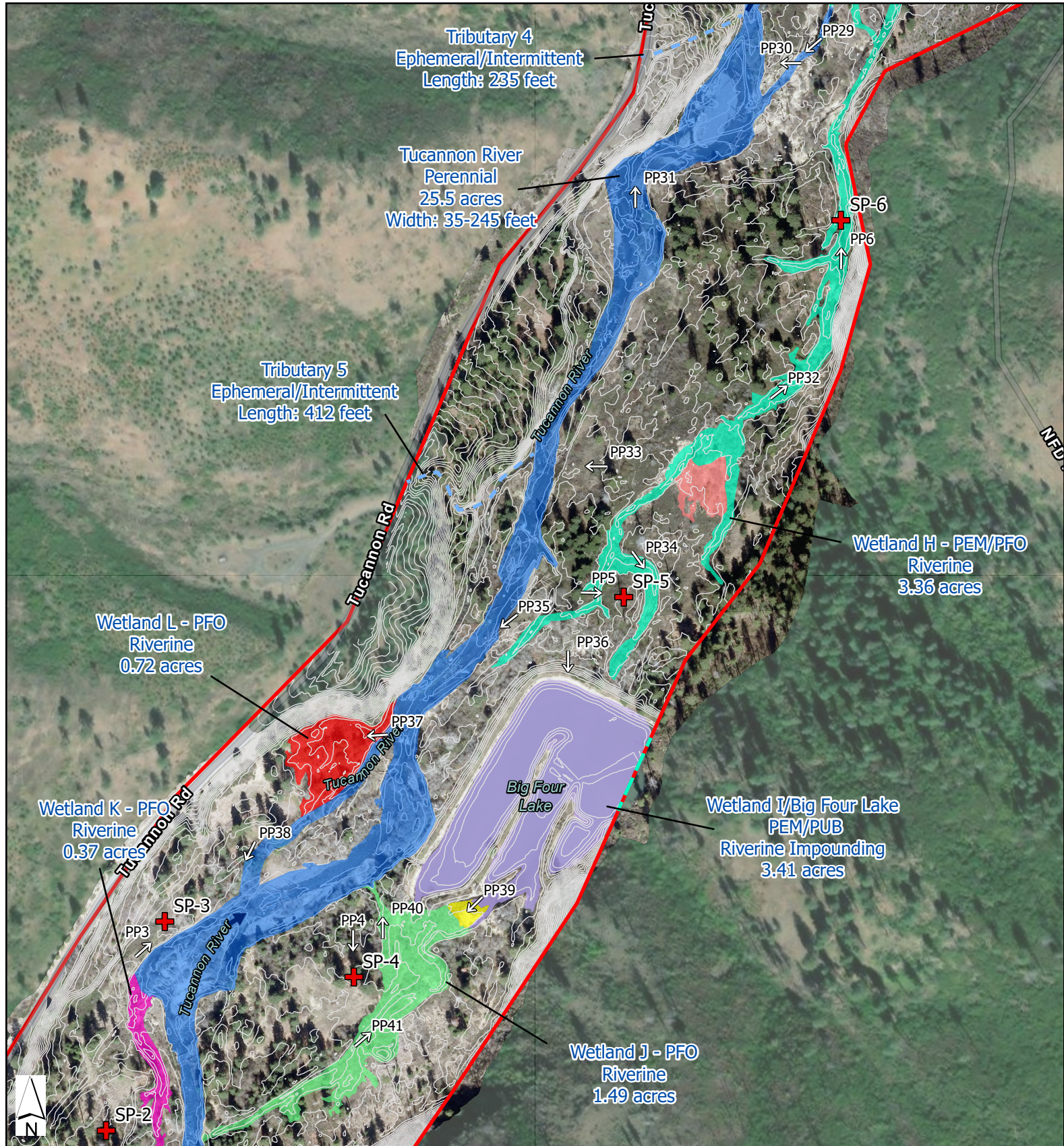
Spatial Reference
 PCS: NAD 1983 StatePlane Washington
 South FIPS 4602 Feet
 Datum: North American 1983
 Projection: Lambert Conformal Conic
 LIDAR (2018) retrieved from Washington State Department of Natural Resources LiDAR Portal
 Imagery Source: Maxar, Microsoft, Esri Community Maps

- Study Area
- Photo Point
- + Sample Plots
- - - Feature Continues
- ➔ Flow Direction
- 2ft Contour

- Aquatic Resources
- Wetland F (PFO) 0.46 ac.
 - Wetland G (PFO) 0.84 ac.
 - Wetland H (PFO) 3.07 ac.
 - Waters (Tucannon River)
 - - - Small Tributary Channel

**Tucannon Big Four Reach
 Wetland Determination**
 Figure 5c - Determination Map





**Tucannon Big Four Reach
Wetland Determination**
Figure 5d - Determination Map

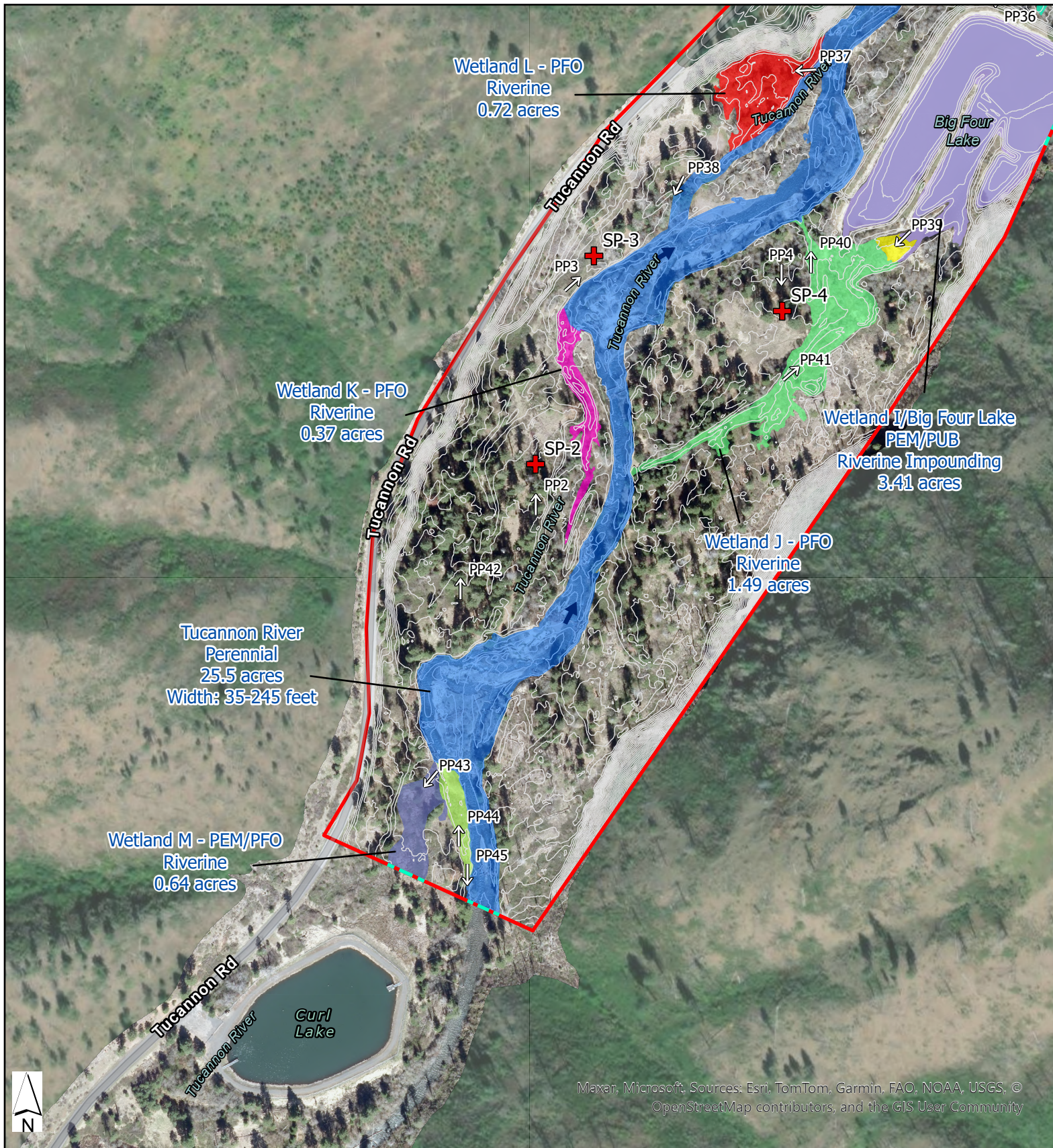
0 300 600 Feet

Sample plot locations, wetland boundaries, and OHW lines were recorded within 1-meter horizontal accuracy in ArcGIS Collector with an EOS Arrow 100 GNSS Receiver. High resolution imagery acquired by W2r (2024). Wetland boundaries were determined, and should be considered preliminary.

Spatial Reference
PCS: NAD 1983 StatePlane Washington
South FIPS 4602 Feet
Datum: North American 1983
Projection: Lambert Conformal Conic
LiDAR (2018) retrieved from Washington State Department of Natural Resources LiDAR Portal
Imagery Source: Sources: Esri, TomTom, Garmin, FAO,

- | | |
|-------------------|--------------------------|
| Study Area | Aquatic Resources |
| Photo Point | Wetland H (PFO) 3.07 ac. |
| Sample Plots | Wetland H (PEM) 0.29 ac. |
| Feature Continues | Wetland I (PEM) 0.08 ac. |
| Flow Direction | Wetland I (PUB) 3.41 ac. |
| 2ft Contour | Wetland J (PFO) 1.49 ac. |
| | Wetland K (PFO) 0.37 ac. |
| | Wetland L (PFO) 0.72 ac. |
| | Waters (Tucannon River) |
| | Small Tributary Channel |





Maxar, Microsoft, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

**Tucannon Big Four Reach
Wetland Determination**
Figure 5e - Determination Map

0 300 600 Feet

Sample plot locations, wetland boundaries, and OHW lines were recorded within 1-meter horizontal accuracy in ArcGIS Collector with an EOS Arrow 100 GNSS Receiver. High resolution imagery acquired by W2r (2024). Wetland boundaries were determined, and should be considered approximate

Spatial Reference
PCS: NAD 1983 StatePlane Washington
South FIPS 4602 Feet
Datum: North American 1983
Projection: Lambert Conformal Conic
LIDAR (2018) retrieved from Washington State Department of Natural Resources LIDAR Portal
Imagery Source: Maxar, Microsoft, Esri Community Maps

- Study Area
- Photo Point
- + Sample Plots
- Feature Continues
- Small Tributary Channel
- Flow Direction
- 2ft Contour

- Aquatic Resources
- Wetland H (PFO) 3.07 ac.
 - Wetland I (PEM) 0.08 ac.
 - Wetland I (PUB) 3.41 ac.
 - Wetland J (PFO) 1.49 ac.
 - Wetland K (PFO) 0.37 ac.

- Wetland L (PFO) 0.72 ac.
- Wetland M (PFO) 0.22 ac.
- Wetland M (PEM) 0.42 ac.
- Waters (Tucannon River)
- Small Tributary Channel



Attachment 2

Wetland Determination Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Reach City/County: Unincorporated/Columbia County Sampling Date: 7/1/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-1
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S10, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3-5%
 Subregion (LRR): LRR-B Lat: 46.27713394 Long: -117.65908051 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slope NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hydic Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks: SP-1 is located on upland terrace, approximately 5ft from top of riverbank. Water surface of adjacent river is incised approximately 6-feet.

VEGETATION – Use scientific names of plants.

Stratum	Plot size	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum	<u>30'</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
1. <u>None</u>					
2. _____					
3. _____					
4. _____					
<u>0</u> = Total Cover					Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
Sapling/Shrub Stratum	<u>15'</u>				
1. <u><i>Symphoricarpos albus</i></u>		<u>50</u>	<u>X</u>	<u>FACU</u>	
2. <u><i>Salix exigua</i></u>		<u>35</u>	<u>X</u>	<u>FACW</u>	
3. <u><i>Populus balsamifera</i> spp. <i>trichocarpa</i></u>		<u>15</u>		<u>FAC</u>	
4. <u><i>Rosa woodsii</i></u>		<u>5</u>		<u>FACU</u>	
5. _____					
<u>105</u> = Total Cover					
Herb Stratum	<u>5'</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u><i>Arrhenatherum elatius</i></u>		<u>20</u>	<u>X</u>	<u>UPL</u>	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
<u>20</u> = Total Cover					
Woody Vine Stratum	<u> </u>				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____					
2. _____					
<u>0</u> = Total Cover					
% Bare Ground in Herb Stratum <u>80%</u>		% Cover of Biotic Crust <u>0</u>			

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Reach City/County: Unincorporated/Columbia County Sampling Date: 7/1/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-2
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S15, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-3%
 Subregion (LRR): LRR-B Lat: 46.25801849 Long: -117.6698761 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slope NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hydic Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks: SP-2 is located on a densely vegetated upland terrace west of the Tucannon River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>17%</u> (A/B)
1. <u>Pinus ponderosa</u>	20	X	FACU	
2. _____				
3. _____				
4. _____				
20 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
1. <u>Symphoricarpos albus</u>	50	X	FACU	
2. <u>Holodiscus discolor</u>	20	X	FACU	
3. <u>Mahonia aquifolium</u>	10		FACW	
4. <u>Acer circinatum</u>	5		FAC	
5. <u>Philadelphus lewisii</u>	10		NOL	
6. _____				
95 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Dactylis glomerata</u>	20	X	FACU	
2. <u>Arrhenatherum elatius</u>	15	X	UPL	
3. <u>Poa pratensis</u>	15	X	FAC	
4. <u>Bromus inermis</u>	10		FACU	
5. <u>Hordeum arizonicum</u>	10		FAC	
6. <u>Dactylis glomerata</u>	5		FACU	
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
75 = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. <u>None</u>				
2. _____				
0 = Total Cover				
% Bare Ground in Herb Stratum <u>25%</u>	% Cover of Biotic Crust <u>0</u>			

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Reach City/County: Unincorporated/Columbia County Sampling Date: 7/2/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-3
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S15, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 5-10%
 Subregion (LRR): LRR-B Lat: 46.25933075 Long: -117.66927338 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slope NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hydic Soil Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Remarks: SP-3 is located in the area of a somewhat abandoned existing dirt access road that runs northeast to southwest along the west side of the Tucannon River. The river east-adjacent to SP-3 is incised approximately 5 to 7ft.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Symphoricarpos albus</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
2. <u>Populus balsamifera spp. trichocarpa</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
<u>40</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Bromus tectorum</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
2. <u>Arrhenatherum elatius</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
3. <u>Bromus hordeaceus</u>	<u>5</u>		<u>FACU</u>	
4. <u>Leucanthemum vulgare</u>	<u>2</u>		<u>UPL</u>	
5. <u>Eriophyllum lanatum</u>	<u>3</u>		<u>NOL</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u> </u>)				
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>	% Cover of Biotic Crust <u>0</u>			
Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Lake City/County: Unincorporated/Columbia County Sampling Date: 7/2/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-4
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S15, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3-5%
 Subregion (LRR): LRR-B Lat: 46.25933075 Long: -117.66927338 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slope NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hydic Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	---	--	--

Remarks: SP-4 is located along a transition zone of upland forest to an upland grass terrace east of the Tucannon River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>Pinus ponderosa</u>	30	X	FACU	
2. _____				
3. _____				
4. _____				
	30 = Total Cover			
Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
1. <u>Symphoricarpos albus</u>	60	X	FACU	
2. <u>Alnus rhombifolia</u>	10		FACW	
3. <u>Rosa woodsii</u>	8		FACU	
4. _____				
5. _____				
	78 = Total Cover			
Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Arrhenatherum elatius</u>	75	X	UPL	
2. <u>Agropyron spicatum</u>	15		UPL	
3. <u>Dactylis glomerata</u>	10		FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	100 = Total Cover			
Woody Vine Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____				
2. _____				
	0 = Total Cover			
% Bare Ground in Herb Stratum <u>0%</u>		% Cover of Biotic Crust <u> </u>		

Remarks:

SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/2	100					Silt Loam	With decaying woods
4-12	10YR 3/3	100					Silt Loam	With rounded gravel & cobble

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Rock at 12".	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (Nonriverine) <input type="checkbox"/> Sediment Deposits (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table approximately 7ft below.

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Lake City/County: Unincorporated/Columbia County Sampling Date: 7/2/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-5
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S15, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3-5%
 Subregion (LRR): LRR-B Lat: 46.25933075 Long: -117.66927338 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slope NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hydic Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks: SP-5 is located on a large, broad, slightly convex area northeast of Big Four Lake, and east of the Tucannon River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
1. <u>Symphoricarpos albus</u>	5	X	FACU	
2. <u>Acer circinatum</u>	5	X	FAC	
3. <u>Holodiscus discolor</u>	3		FACU	
4. _____				
5. _____				
	13	= Total Cover		
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Bromus tectorum</u>	50	X	UPL	
2. <u>Arrhenatherum elatius</u>	30	X	UPL	
3. <u>Achillea millefolium</u>	3		FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	103	= Total Cover		
Woody Vine Stratum (Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____				
2. _____				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>103%</u>	% Cover of Biotic Crust <u>0</u>			

Remarks: Some dead, standing, burnt *Pinus ponderosa*.

SOIL

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/2	100					Silt Loam	With rounded gravel & cobble

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5) (LRR C)</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR D)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p>	<p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> Vernal Pools (F9)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR C)</p> <p><input type="checkbox"/> 2 cm Muck (A10) (LRR B)</p> <p><input type="checkbox"/> Reduced Vertic (F18)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
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³Indicators of hydrophytic vegetation and wetland hydrology must be present.

<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
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Remarks: Rock at 12".

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (Nonriverine)</p> <p><input type="checkbox"/> Sediment Deposits (Nonriverine)</p> <p><input type="checkbox"/> Drift Deposits (B3) (Nonriverine)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>		<p>Secondary Indicators (2 or more required)</p> <p><input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Biotic Crust (B12)</p> <p><input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	<p><input type="checkbox"/> Water Marks (B1) (Riverine)</p> <p><input type="checkbox"/> Drainage Patterns (B10) (Riverine)</p> <p><input type="checkbox"/> Drift Deposits (B3) (Riverine)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p>	<p>Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table approximately 7ft below.

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Lake City/County: Unincorporated/Columbia County Sampling Date: 7/2/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-6
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S15, T9, R41
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 0-5%
 Subregion (LRR): LRR-B Lat: 46.25933075 Long: -117.66927338 Datum NAD 83
 Soil Map Unit Name: Gwin-Klickson-Kettenbach complex, 60 to 90 percent slopes NWI classification: R3UBH
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

Remarks: SP-6 is located in a low-lying swale that runs along the toe of the steep slope east of the river valley, along the east edge of the project area. The swale is densely vegetated and contains channels of running water and scattered pools.

VEGETATION – Use scientific names of plants.

Stratum	Plot size	Absolute % Cover	Dominant Species?	Indicator Status	Notes	
Tree Stratum (Plot size: <u>30'</u>)						
1.	<u><i>Alnus rhombifolia</i></u>	65	X	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66%</u> (A/B)	
2.						
3.						
4.						
5.						
		65 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)						
1.	<u><i>Cornus glabrata</i></u>	15	X	FACW	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>	
2.	<u><i>Symphoricarpos albus</i></u>	10	X	FACU		
3.	<u><i>Alnus rhombifolia</i></u>	8	X	FACW		
4.	<u><i>Holodiscus discolor</i></u>	3		FACU		
5.						
		36 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)						
1.	<u><i>Scirpus microcarpus</i></u>	40	X	OBL		
2.	<u><i>Geranium robertianum</i></u>	25	X	FACU		
3.	<u><i>Carex aquatilis</i></u>	15		OBL		
4.	<u><i>Phalaris arundinacea</i></u>	10		FACW		
5.	<u><i>Glyceria striata</i></u>	3		OBL		
6.						
7.						
8.						
9.						
10.						
		93 = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)						
1.	<u>None</u>				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
2.						
		0 = Total Cover				
% Bare Ground in Herb Stratum <u>7%</u>		% Cover of Biotic Crust <u>0</u>				
					Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks:

SOIL

Sampling Point: SP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/2	95	7.5YR 3/4	5	C	M	Sandy Loam	With rounded gravel
4-13	10YR3/2	95	7.5YR 3/3	5	C	M	Sandy Loam	With abundant gravel

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> X No <input type="checkbox"/>
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Remarks: Rock at 12".

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Thin Muck Surface (C7)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 12" Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 6"	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Plot is 5ft west-adjacent to surface water that is 6-inches deep.

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Lake City/County: Columbia County Sampling Date: 7/2/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-7
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S15, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-3%
 Subregion (LRR): LRR-B Lat: 46.26615906 Long: -117.66207886 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

Remarks: SP-7 is located in a low-lying swale/depression east-adjacent to the Tucannon River near the center of the project area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80%</u> (A/B)
1. <u>Populus balsamifera spp. trichocarpa</u>	5	X	FAC	
2. _____				
3. _____				
4. _____				
	5		= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Populus balsamifera spp. trichocarpa</u>	10	X	FAC	
2. <u>Symphoricarpos albus</u>	5	X	FACU	
3. <u>Rubus laciniatus</u>	3		FACU	
4. <u>Rubus armeniacus</u>	3		FAC	
5. _____				
	21		= Total Cover	
Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Scirpus microcarpus</u>	25	X	OBL	
2. <u>Phalaris arundinacea</u>	15	X	FACW	
3. <u>Carex aquatilis</u>	5		OBL	
4. <u>Carex stipata</u>	5		OBL	
5. <u>Juncus effusus</u>	3		FACW	
6. <u>Glyceria elata</u>	3		OBL	
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	56		= Total Cover	
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. <u>None</u>				
2. _____				
	0		= Total Cover	
% Bare Ground in Herb Stratum <u>44%</u>		% Cover of Biotic Crust <u>0</u>		

Remarks: Dead, standing burnt *Pinus ponderosa*.

SOIL

Sampling Point: SP-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
-								
-								
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
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Remarks: Soils not taken.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Drainage Patterns (B10) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Living Roots (C3)	<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Plowed	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Soils (C6)	<input type="checkbox"/> Shallow Aquitard (D3)	
	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Flowing water present.

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Lake City/County: Unincorporated/Columbia County Sampling Date: 7/2/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-8
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S10, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3-5%
 Subregion (LRR): LRR-B Lat: 46.26883698 Long: -117.65908051 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			

Remarks: SP-8 is located in a slight swale that runs through an upland terrace.

VEGETATION – Use scientific names of plants.

Stratum	Plot size	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)					Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
1.	<u>Populus deltoides</u>	5	X	FAC	
2.	_____				
3.	_____				
4.	_____				
		5	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)					Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1.	<u>Symphoricarpos albus</u>	30	X	FACU	
2.	<u>Populus deltoides</u>	5		FAC	
3.	<u>Sambucus racemosa</u>	5		FACU	
4.	<u>Pinus ponderosa</u>	3		FACU	
5.	_____				
		43	= Total Cover		
Herb Stratum (Plot size: <u>5'</u>)					Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Arrhenatherum elatius</u>	30	X	UPL	
2.	<u>Pteridium aquilinum</u>	10	X	FACU	
3.	<u>Poa pratensis</u>	5		FAC	
4.	_____				
5.	_____				
6.	_____				
7.	_____				
8.	_____				
9.	_____				
10.	_____				
11.	_____				
		55	= Total Cover		
Woody Vine Stratum (Plot size: <u>30'</u>)					
1.	_____				
2.	_____				
		0	= Total Cover		
% Bare Ground in Herb Stratum <u>45%</u>		% Cover of Biotic Crust <u>0</u>			

Remarks:

SOIL

Sampling Point: SP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/2	100						Sandy Silt w/ gravel & cobble

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Vernal Pools (F9)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR C)</p> <p><input type="checkbox"/> 2 cm Muck (A10) (LRR B)</p> <p><input type="checkbox"/> Reduced Vertic (F18)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present.</p>
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<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
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Remarks: Hit rock after 12".

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Biotic Crust (B12)</p> <p><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Water Marks (Nonriverine) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Sediment Deposits (Nonriverine) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>		<p>Secondary Indicators (2 or more required)</p> <p><input type="checkbox"/> Water Marks (B1) (Riverine)</p> <p><input type="checkbox"/> Drainage Patterns (B10) (Riverine)</p> <p><input type="checkbox"/> Drift Deposits (B3) (Riverine)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____</p> <p>Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____</p>	<p>Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Lake City/County: Unincorporated/Columbia County Sampling Date: 7/4/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-9
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S15, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 3-5%
 Subregion (LRR): LRR-B Lat: 46.27058411 Long: -117.65666962 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

Remarks: SP-9 is located in a densely vegetated depression along the toe of the eastern slope along the east edge of the project area.

VEGETATION – Use scientific names of plants.

Stratum	Plot size	Absolute % Cover	Dominant Species?	Indicator Status	Notes
Tree Stratum (Plot size: <u>30'</u>)					
1.	<u><i>Alnus rhombifolia</i></u>	20	X	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2.	_____				
3.	_____				
4.	_____				
		20 = Total Cover			
Sapling/Shrub Stratum (Plot size: <u>15'</u>)					
1.	<u><i>Alnus rhombifolia</i></u>	25	X	FACW	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2.	<u><i>Symphoricarpos albus</i></u>	5		FACU	
3.	<u><i>Rubus armeniacus</i></u>	5		FAC	
4.	_____				
5.	_____				
		35 = Total Cover			
Herb Stratum (Plot size: <u>5'</u>)					
1.	<u><i>Phalaris arundinacea</i></u>	60	X	FACW	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2.	<u><i>Scirpus microcarpus</i></u>	15	X	OBL	
3.	<u><i>Carex stipata</i></u>	5		OBL	
4.	<u><i>Myosotis scorpioides</i></u>	5		FACW	
5.	_____				
6.	_____				
7.	_____				
8.	_____				
9.	_____				
10.	_____				
11.	_____				
		85 = Total Cover			
Woody Vine Stratum (Plot size: <u>30'</u>)					
1.	<u>None</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2.	_____				
		0 = Total Cover			
% Bare Ground in Herb Stratum <u>15%</u>		% Cover of Biotic Crust <u>0</u>			

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four City/County: Unincorporated/Columbia County Sampling Date: 7/3/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-10
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S03, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3%
 Subregion (LRR): LRR-B Lat: 46.28189087 Long: -117.65639496 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: SP-10 is located in the northwestern corner of the project area, in a depression along a low-lying area of the Tucannon River floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Populus balsamifera spp. trichocarpa</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
<u>5</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Populus balsamifera spp. trichocarpa</u>	<u>3</u>		<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
<u>3</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Phalaris arundinacea</u>	<u>70</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Scirpus microcarpus</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. <u>None</u>				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>	% Cover of Biotic Crust <u>0</u>			

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Reach City/County: Unincorporated/Columbia County Sampling Date: 7/1/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-11
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S15, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3
 Subregion (LRR): LRR-B Lat: 46.2735672 Long: -117.6594162 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slope NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Remarks: SP-11 is located along the eastern edge of a wetland that is located along the western edge of the project area; the wetland extends west out of the project area.

VEGETATION – Use scientific names of plants.

Stratum	Plot size	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u>	(Plot size: <u>30'</u>)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80%</u> (A/B)
1. <u>None</u>					
2. _____					
3. _____					
4. _____					
		<u>0</u> = Total Cover			
<u>Sapling/Shrub Stratum</u>	(Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Alnus rhombifolia</u>		20	X	FACW	
2. <u>Symphoricarpos albus</u>		8	X	FACU	
3. _____					
4. _____					
5. _____					
		<u>28</u> = Total Cover			
<u>Herb Stratum</u>	(Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>		40	X	FACW	
2. <u>Scirpus microcarpus</u>		25	X	OBL	
3. <u>Carex stipata</u>		20	X	OBL	
4. <u>Pteridium aquilinum</u>		10		UPL	
5. <u>Typha latifolia</u>		5		NOL	
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
		<u>100</u> = Total Cover			
<u>Woody Vine Stratum</u>	(Plot size: <u>30'</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. <u>None</u>					
2. _____					
		<u>0</u> = Total Cover			

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Lake City/County: Unincorporated/Columbia County Sampling Date: 7/3/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-12
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S03, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3%
 Subregion (LRR): LRR-B Lat: 46.28184891 Long: -117.65551758 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: SP-12 is located in the northeastern corner of the project area along the edge of a large depressional wetland, east-adjacent to Tucannon River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Populus balsamifera spp. trichocarpa</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
<u>5</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Cornus glabrata</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Crataegus douglasii</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Symphoricarpos albus</u>	<u>1</u>		<u>FAC</u>	
4. _____				
5. _____				
6. _____				
<u>16</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Phalaris arundinacea</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Scirpus microcarpus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. <u>None</u>				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>	% Cover of Biotic Crust <u>0%</u>			

Remarks:

SOIL

Sampling Point: SP-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/2	100					Silt Loam	w/ abundant organics, mucky
5-16	10YR 3/1	95	10YR 3/3	5			Clay	w/ cobble

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input checked="" type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: <u>Clay</u> Depth (inches): <u>5"</u>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Drainage Patterns (B10) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input checked="" type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1"</u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0"</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West

Project/Site: Tucannon Big Four Lake City/County: Unincorporated/Columbia County Sampling Date: 7/3/24
 Applicant/Owner: CTUIR State: WA Sampling Point: SP-13
 Investigator(s): L. Zatkos, M. Lucas Section, Township, Range: S03, T9, R41
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3%
 Subregion (LRR): LRR-B Lat: 46.27841187 Long: -117.65898132 Datum NAD 83
 Soil Map Unit Name: Bigelk-Terlough-Newbar complex, 0 to 5 percent slopes NWI classification: Riverine
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Remarks: SP-13 is located in the northern portion of the study area in a broad depression on a terrace east of the Tucannon River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>None</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
<u>0</u> = Total Cover				
<u>0</u> = Total Cover				
<u>0</u> = Total Cover				
<u>0</u> = Total Cover				
<u>0</u> = Total Cover				
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Scirpus microcarpus</u>	75	X	OBL	
2. <u>Phalaris arundinacea</u>	20	X	FACW	
3. <u>Agrostis capillaris</u>	5		FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <u>None</u>				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum _____ % % Cover of Biotic Crust _____ %				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks:

SOIL

Sampling Point: SP-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
-								
-								
-								
-								
-								
-								
-								
-								
-								

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
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Remarks: Soil data not collected.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (Nonriverine)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Thin Muck Surface (C7)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 3" Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Flowing water from the steep slopes outside of (west of) the study area was observed flowing into the western extent of the wetland, which feeds into the rest of the wetland and becomes inundated as topography decreases. Saturation is visible in the northern and southern regions of the wetland in the Google Earth August 2022 and September 2023 aerials.

Attachment 3

Ground-Level Photo Points

Tucannon River Big Four Floodplain Restoration Project



Photo Point 1: Upland SP-1 in northwestern region of the project area, on perched historic floodplain terrace adjacent to the incised Tucannon River; view N.



Photo Point 2: Upland SP-2 located in southwestern region of the project area, west of Wetland K and the Tucannon River, in an area of potential excavation; view N.



Photo Point 3: Upland SP-3 in southwestern region of the project area, west adjacent to the Tucannon River, in the general vicinity of a proposed access road; view NE.



Photo Point 4: Upland SP-4 in densely vegetated area adjacent to an upland grassy clearing, located between Wetland J and the Tucannon River in an area of potential excavation; view S.



Photo Point 5: Upland SP-5 located along a grassy terrace that divides the southern arms of forested Wetland H; view E.



Photo Point 6: SP-6 located in the southern half of forested Wetland H; view N.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 7: SP-7 located in the northern portion of forested Wetland H; view SE.



Photo Point 8: Upland SP-8 on a terrace dominated by Ponderosa pines, east of the Tucannon River in an area of potential excavation; view SW.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 9: SP-9 located near the center of Wetland F; view S.



Photo Point 10: SP-10 located near the center of Wetland A, in the northwestern corner of the project area, west of Tucannon River; view N.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 11: SP-11 along the eastern edge of Wetland E, west of the Tucannon River; view W.



Photo Point 12: SP-12 located in the western region of Wetland B, in the northeastern corner of the project area; view N.



Photo Point 13: Upland slopes located south of Wetland B in the northeastern corner of the project area; view SE.



Photo Point 14: View of the northern region of the PEM portion of Wetland C; view E.



Photo Point 15: Inlet and surface water in the western extent of Wetland C along the western edge of the project area; view W.



Photo Point 16: South-central region of Wetland C, near SP-13, west of the Tucannon River; view W.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 17: Downstream view of Tucannon River along the eastern edge of Wetland D; view NE.



Photo Point 18: Upland grassy terrace located between Wetlands D and E, in an area of potential excavation; view N.



Photo Point 19: Lower-lying terrace above and west of Tucannon River, east of Wetland E; view E.



Photo Point 20: Upland grassy terrace located west of the Tucannon River, in an area of potential excavation; view NE.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 21: Side channel of the Tucannon River along the western edge of Wetland G; view SW.



Photo Point 22: Forested Wetland G located between channels of the Tucannon River near the center of the project area; view W.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 23: Upstream extent of side channel of the Tucannon River along the western edge of Wetland G; view SW.



Photo Point 24: Upland forested terrace dominated by Ponderosa pines south of Wetland F; view SW.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 25: Southern region of a proposed area of excavation west of the Tucannon River, located on an upland terrace; view NE.



Photo Point 26: Northern region of a proposed area of excavation west of the Tucannon River, located on an upland terrace; view SW.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 27: Flowing water through the northern narrow region of Wetland H; view NE.



Photo Point 28: Central region of Wetland H; view S.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 29: Side channel of the Tucannon River near where it connects with an extension of Wetland H; view SW.



Photo Point 30: Upland cobble bar between channels of Tucannon River, in an area of proposed excavation; view W.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 31: Downstream view of Tucannon River, along high eroded and incised banks (river left); view N.



Photo Point 32: Southern region of forested Wetland H; view NE.



Photo Point 33: Upland terrace east of Tucannon River, in area of proposed excavation; view W.

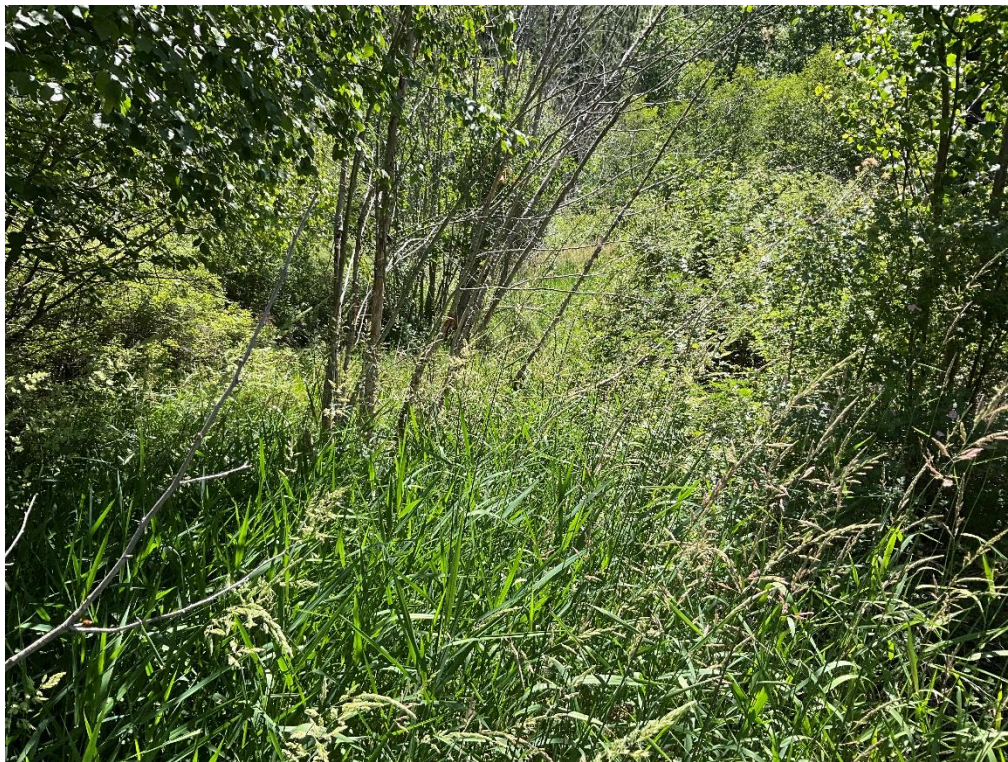


Photo Point 34: Relatively thin swale portion of Wetland H below Big Four Lake, in area of proposed fill; view SE.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 35: Upstream view of Tucannon River downstream of Big Four Lake; view SW.



Photo Point 36: View of Big Four Lake (PUB portion of Wetland I) from northern berm; view S.



Photo Point 37: View of Wetland L near where it connects with a side channel of the Tucannon River, northeast of the Big Four Lake parking lot; view W.



Photo Point 38: Upstream extent of a side channel that flows adjacent to the Big Four Lake parking lot and Wetland L; view SW.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 39: View of PEM portion of Wetland I, south adjacent to Big Four Lake; view SW.



Photo Point 40: View of ephemeral channel that flows through Wetland J and connects with Tucannon River, in area of proposed excavation; view N.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 41: Central region of PFO Wetland J; view NE.



Photo Point 42: Upland forested terrace, west of the Tucannon River in the southwestern region of the project area; view N.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 43: Northern extent of PEM portion of Wetland M in southwestern corner of project area; view S.



Photo Point 44: PFO portion of Wetland M west adjacent to Tucannon River in southwestern corner of project area; view N.

Tucannon River Big Four Floodplain Restoration Project



Photo Point 45: Upstream view of Tucannon River from southern project area boundary; view S.



Photo Point 46: High flow channel through PEM Wetland D, west adjacent to the Tucannon River in the northern half of the project area; view S.