



Critical Areas Report

June 15, 2021



5 Mile Fill Site

King County, Washington

Prepared for

Hos Bros Construction, Inc.

P.O. Box 1788

Woodinville, Washington 98072

(425) 864-3008

Prepared by

Ecological Land Services, Inc.

1157 3rd Avenue, Suite 220A • Longview, WA 98632

(360) 578-1371 • Project Number 1002.02

Signatures

The information in this report was prepared under the supervision and direction of the undersigned:



Mara McGrath
Senior Ecologist

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Introduction

Ecological Land Services, Inc. (ELS) has completed this critical areas report for wetlands and aquatic areas on behalf of the applicant, Hos Bros Construction, Inc. (Hos Bros), for the 5 Mile Fill Site permit expansion. Hos Bros proposes to expand its existing mine, which is located immediately west of the study area. The proposal is to expand the existing operation to mine gravel and backfill with clean fill soil from excavation projects in the area. The existing operation has been an industrial mine and fill site since 1998. Hos Bros leases the existing mine site and will lease the expansion area from the Weyerhaeuser Company.

The 5 Mile Fill Site is in the Snohomish watershed (WRIA 7) and has been impacted by forestry land uses for decades. The study area is comprised of a portion of King County tax parcel no. 1424089001, within Section 14, Township 24 North, Range 8 East of the Willamette Meridian (Figure 1). This report describes six wetlands, one stream, and their buffers within the study area according to the applicable sections of the King County Code (KCC) *Chapter 21A.24, Critical Areas*.

Site Description

The approximately 257-acre study area and its surrounding properties are commercial forest land in the Snoqualmie Tree Farm. The study area ranges in elevation from a low of approximately 960 feet along its west boundary to a high of 1,040 feet along its north boundary. A stream (Tate Creek; Type N/F) is in a steep ravine in the eastern study area. The study area is currently undeveloped and lacks structures except for a network of infrequently used gravel roads.

The adjacent properties are used for commercial forestry and mining. The study area is bordered to the north by the Weyerhaeuser Main Line and commercial forest land; to the south and east by commercial forest land; and to the west by the existing 5 Mile Fill Site and commercial forest land (Figure 2).

WETLANDS

The wetlands in the study area are a mix of depressional and slope wetlands with emergent, scrub-shrub, and forested classes. Two large high quality wetlands and four smaller wetlands are within the study area. The wetlands provide moderate to high habitat functions.

STREAM

The stream, identified as Tate Creek, is a Type F (fish-bearing) stream with a short segment of Type N (non-fish bearing) in its upper reach. A natural barrier to fish passage exists in its upper reach and is identified by a sign (see water type break identified on Figure 2 and Photoplate 15). Upstream of the natural barrier, the stream channel has a lower gradient resulting in a less stable channel and a substrate that consists mostly of silt. The stream channel above the natural

barrier was dry in April 2021. Below the natural barrier, Tate Creek averages 15 feet wide between its ordinary high water marks, and ranges from 2- to 4-feet in depth. In this lower section, the stream channel comes more stable as the gradient increases and the substrate is mostly sand and gravel. Throughout the entire stream corridor, downed logs are abundant in and adjacent to the stream channel.

The riparian corridor is well vegetated with mature native coniferous trees and a dense native shrub layer along the stream channel. The herbaceous understory is sparse due to the heavy shade and where present, native ferns and mosses are common.

Critical Area Inventories

LOCAL CRITICAL AREAS INVENTORY

The King County critical areas inventory identifies a large wetland complex and Tate Creek within the study area (Figure 3; King County GIS 2017). Tate Creek is mapped as an unclassified stream.

NATIONAL WETLANDS INVENTORY

The National Wetlands Inventory (NWI) maps a large palustrine scrub-shrub, seasonally flooded wetland (PSSC) within the western study area and three other unclassified palustrine wetlands (Figure 4; USFWS 2020).

FOREST PRACTICES MAPPING

The Washington Department of Natural Resources maps Tate Creek as Type N in its upper reach above a water type break and Type F below the water type break (Figure 5; WDNR 2020).

SOIL SURVEY

The Natural Resource Conservation Service (NRCS 2019) maps the soils within the study area as described below (Table 1; Figure 6):

Table 1. Mapped Soils

Soil Series	Symbol	Percent Slope	Drainage Class	Landform	Landform Position	NRCS Hydric Designation ¹	Test Plots per Soil Series
Barneston gravelly ash coarse sandy loam	10	0 to 8	Somewhat excessively drained	Eskers, moraines, kames	Summit, shoulder	No	TPs B5 - B6; B9- B10; D1 - D2
Blethan gravelly loam	23	5 to 30	Well drained	Mountain slopes	Toeslope, backslope	No	--
Mukilteo peat	140	0 to 1	Very poorly drained	Depressions	Not Listed	Yes	--
Norma loam	158	0 to 3	Poorly drained	Depressions, drainageways	Not Listed	Yes	TPs-B3 - B4; B7-B8
Seattle muck	231	0 to 1	Very poorly drained	Till plains, valleys, depressions	Not Listed	Yes	TPs A1 - A8; C1 - C2

Soil Series	Symbol	Percent Slope	Drainage Class	Landform	Landform Position	NRCS Hydric Designation ¹	Test Plots per Soil Series
Tokul gravelly medial loam	254	0 to 8	Moderately well drained	Till plains, hillslopes	Toeslope	No	--

¹ NRCS 2020

PRIORITY HABITATS AND SPECIES

The Washington Department of Fish and Wildlife identifies the following priority habitats and species within or near the study area (WDFW 2020a; Figure 7):

- Freshwater forested and scrub-shrub wetlands within the study area;
- Regular concentration of Roosevelt elk within the study area;
- Point location for fisher approximately 0.17 miles east of the study area;
- Ten Creek, with cutthroat, resident coastal cutthroat, and western toad, approximately 0.25 miles northwest of the study area; and
- Freshwater forested and scrub-shrub wetlands 0.40 to 1.0 miles southeast and southwest of the study area.

SalmonScape does not map fish species within the onsite portion of Tate Creek (WDFW 2020b; Figure 8). Resident cutthroat are mapped downstream and south of the study area.

Methods

ELS biologists conducted field visits on 24 February, 25 February, and 16 March 2020 and 5 June 2021 to delineate the wetlands and stream within the study area, assess stream and wetland functions, and collect vegetation, soils, and hydrology data. The weather was cool and dry upon visitation and cool and wet during days preceding the field work. February 2020 had slightly higher than normal total precipitation (4.05 inches total or 0.42 inches above normal) and slightly above normal mean temperatures (+0.2° F) according to the National Weather Service preliminary climate data for the SeaTac Airport¹ (2020). March 2020 had slightly lower than normal total precipitation (3.17 inches total or -0.55 inches below normal) and slightly below normal mean temperatures (-1.7° F).

WETLANDS

Six wetlands, identified as wetlands A through F, were delineated within the study area with uniquely numbered pink *Wetland Delineation* flagging (Figure 2). We followed the Routine Determination Method² for delineating the wetland boundary according to the approved federal

¹ We recognize that the climate data will differ for the study area because it is east and higher elevation than Puget Sound, but accurate climate data for the area is difficult to locate and the trends presented for precipitation and temperature should be similar for the study area.

² Routine Determination Method examines vegetation, hydrology, and soils to determine if wetlands exist in a given area. By definition, wetlands are those areas that are inundated or saturated by surface or ground water at a

manual and appropriate regional supplements³. Wetlands are regulated as “Waters of the United States” by the U.S. Army Corps of Engineers (Corps), “Waters of the State” by the Washington State Department of Ecology (Ecology), and locally by *KCC Chapter 21A.24, Critical Areas*.

Vegetation, soil, and hydrology data were collected from 21 test plots within the study area to verify the presence and boundaries of the wetland (Figure 2; Appendix A). Test plot locations were recorded using a hand-held GPS capable of sub-meter accuracy. Soil colors in test plots were evaluated by hue, value, and chroma using the Munsell Soil Color Chart (Munsell 2000). Plant dominance was based on the 50/20 rule (Corps 2010).

STREAM

Tate Creek’s ordinary high water mark (OHWM) was delineated following *WAC 222-16-030*. Consecutively numbered pink flagging, identified as OHWM 1 through 45, was placed along the stream’s western OHWMs. We collected the OHWM flag locations using a hand-held GPS capable of sub-meter accuracy (Figure 2).

frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (40 CFR §230.3).

³ U.S. Army Corps of Engineers, *Wetlands Delineation Manual* (Environmental Laboratory 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (2010).

Results

We identified six wetlands, identified as Wetlands A through F, within the study area.

DEPRESSIONAL WETLANDS

Wetlands A and C

Two depressional wetlands, identified as Wetlands A and C, are in the western study area (Tables 2 and 3; Figure 2). Wetland A is a large bog complex that extends to the south; Wetland C is a small, associated wetland near the southeast boundary of Wetland A.

Table 2. Wetland A Summary



Feature	Description	
Critical Area	Wetland A - North Unit	
Area	12.8 acres (north unit)	
Ecology Rating	Category I	
Local Rating	Category I	
Habitat Score	8	
Local Buffer	300 feet	
HGM Classification	Depressional	
Cowardin Classification	PFOC, PSSC, PEMC	
Hydroperiod	Seasonally flooded or inundated, occasionally flooded or inundated, saturated only	
Dominant Vegetation	<i>Alnus rubra</i> , <i>Picea sitchensis</i> , <i>Populus balsamifera</i> , <i>Thuja plicata</i> , <i>Tsuga heterophylla</i> , <i>Malus fusca</i> , <i>Rubus spectabilis</i> , <i>Spiraea douglasii</i> , <i>Carex obnupta</i> , <i>Vaccinium parvifolium</i> , <i>Polystichum munitum</i> , mosses	
Soils Indicators	Histosol (A1), Histic Epipedon (A2), & Loamy Mucky Mineral (F1)	
Hydrology Indicators	Surface Water (A1), High Water Table (A2), & Hydrogen Sulfide Odor (C1)	

Table 3. Wetland C Summary

Feature	Description	
Critical Area	Wetland C	
Area	396 sq. ft.	
Ecology Rating	Category III	
Local Rating	Category III	
Habitat Score	6	
Local Buffer	150 feet	
HGM Classification	Depressional	
Cowardin Classification	PEMC	
Hydroperiod	Seasonally flooded or inundated	
Dominant Vegetation	<i>Lysichiton americanus</i> , mosses	
Soils Indicators	Loamy Mucky Mineral (F1)	
Hydrology Indicators	Surface Water (A1)	

Vegetation

Wetland

Wetland A contains forested, scrub shrub, and emergent vegetation classes, whereas Wetland C is emergent only. The **tree stratum** of Wetland A is dominated by primarily facultative coniferous species: red alder (*Alnus rubra*, FAC), Sitka spruce (*Picea sitchensis*, FAC), black cottonwood (*Populus balsamifera*, FAC), western redcedar (*Thuja plicata*, FAC), and western hemlock (*Tsuga heterophylla*, FACU). The **shrub stratum** is comprised of facultative and facultative wetland species: western crabapple (*Malus fusca*, FACW), salmonberry (*Rubus spectabilis*, FAC), and Douglas spiraea (*Spiraea douglasii*, FACW). The **herbaceous stratum** is sparse due to the dense overstory but mosses are diverse and abundant on the ground surface.

Hydrophytic vegetation was met in the wetlands because over 50 percent of the dominant vegetation have obligate, facultative wetland, or facultative indicators (Appendix A).

Upland

The upland vegetation in Wetland A and Wetland C's buffers within the study area is dominated by a **tree stratum** of Douglas-fir (*Pseudotsuga menziesii*, FACU), Sitka spruce, and western hemlock. The **shrub stratum** contains vine maple (*Acer circinatum*, FACU), salal (*Gaultheria shallon*, FACU), false azalea (*Rhododendron menziesii*, FACU), and salmonberry. The **herbaceous stratum** is dominated by sword fern (*Polystichum munitum*, FACU). Like the wetland, mosses are abundant in the upland buffer. Hydrophytic vegetation indicators were not met in uplands (Appendix A).

Soils

Wetland

Evaluated wetland soils are black or very dark brown (10YR 2/1 and 2/2) and are high in organic content. Soil textures in Wetland A included mucky sandy loam, mucky loam, muck, and peat. A thick duff layer up to approximately 4 inches deep was also present. Soils within Wetland C were predominantly gravelly mucky loam. No redoxomorphic features were observed within the soil profiles in either wetland. Most soil profiles were evaluated to a depth of at least 16 inches, although Wetland C's test pit had rocks and roots at 10 inches. The thick layer of organic material near the surface results in hydric soil indicators being met for Histosol (A1), Histic Epipedon (A2), and Loamy Mucky Mineral (F1; Appendix A). The wetland soils are consistent with the mapped soil type (Figure 6).

Upland

Evaluated upland soils adjacent to Wetland A were generally dark brown (7.5YR 3/4) to dark yellowish brown (10YR 3/6) in color with sandy loam, gravelly loam, loamy sand, and silty sand textures. No redoxomorphic features were observed in the upland test pits. All profiles were evaluated to a depth of 16 inches and none met indicators for hydric soils (Appendix A).

Hydrology

Wetland

Wetlands A and C are depressional wetlands that are primarily groundwater fed (Figure 2). A gravel road bisects the north unit of the Wetland A and partially disconnects the surface hydrological connection with the larger wetland unit to the south. A culvert is present but has high water marks on either side of the road that differ by more than 6 inches of elevation. Water infiltrates within Wetlands A and C. Wetland C's hydroperiod is saturated only. Wetland A's hydroperiods are:

- Seasonally flooded or inundated;
- Occasionally flooded or inundated; and

- Saturated only.

Primary wetland hydrology indicators observed within Wetland A included surface water up to 12 inches (A1), high water table (A2), and hydrogen sulfide odor (C1; Appendix A). The presence and extent of the wetlands are consistent with the King County mapping (Figure 3) and are somewhat consistent with the NWI mapping (Figure 4).


Upland

The upland areas lacked positive wetland hydrological indicators and the evaluated soil profiles were dry (Appendix A).

Wetland F

Wetland F is a depressional wetland in the southwest study area (Table 4) that borders a forest road. The wetland, which is well outside of the permit area boundary, is summarized in the table below.

Table 4. Wetland F Summary


Feature	Description	
Critical Area	Wetland F	
Area	0.23 acres	
Ecology Rating	Category II	
Local Rating	Category II	
Habitat Score	6	
Local Buffer	300 feet	
HGM Classification	Depressional	
Cowardin Classification	PSSC	
Hydroperiod	Seasonally flooded or inundated	
Dominant Vegetation	<i>Rubus spectabilis</i> , <i>Spiraea douglasii</i>	
Soils Indicators	Soils were not assessed as this wetland is well outside the proposed permit boundary.	
Hydrology Indicators	Up to 6 inches of surface water was present at the time of the site visits, therefore would meet Surface Water (A1)	

SLOPE WETLANDS

Wetland B

Wetland B is a slope wetland in the north-central portion of the study area (Table 5).

Table 5. Wetland B Summary

Feature	Description	
Critical Area	Wetland B	
Area	6.05 acres	
Ecology Rating	Category II	
Local Rating	Category II	
Habitat Score	8	
Local Buffer	300 feet	
HGM Classification	Slope	
Cowardin Classification	PFOC, PSSC	
Hydroperiod	Seasonally flooded or inundated, saturated only, permanently flowing stream in or adjacent to wetland	
Dominant Vegetation	<i>Alnus rubra</i> , <i>Populus balsamifera</i> , <i>Thuja plicata</i> , <i>Tsuga heterophylla</i> , <i>Rubus spectabilis</i> , <i>Carex stipata</i> , <i>Lysichiton americanus</i> , <i>Oenanthe sarmentosa</i> , <i>Polystichum munitum</i> , <i>Tolmiea menziesii</i>	
Soils Indicators	Histosol (A1), Histic Epipedon (A2), Loamy Mucky Mineral (F1), & Depleted Matrix (F3)	
Hydrology Indicators	Surface Water (A1), High Water Table (A2), Saturation (A3)	

Vegetation

Wetland

Wetland B contains forested and scrub-shrub vegetation classes. The **tree stratum** is dominated by primarily facultative coniferous species: red alder, black cottonwood, western redcedar, and western hemlock. The **shrub stratum** is dominated by salmonberry. The **herbaceous stratum** is dense in places and comprised of sawbeak sedge (*Carex stipata*, OBL), water parsley (*Oenanthe sarmentosa*, OBL), and piggy-back plant (*Tolmiea menziesii*, FAC). Sword fern is present on

hummocks. Hydrophytic vegetation was met because over 50 percent of the dominant vegetation have obligate, facultative wetland, or facultative indicators (Appendix A).

Upland

The upland vegetation in Wetland B's buffer is dominated by red alder, Douglas-fir, western hemlock, and western redcedar in the **tree stratum**. The **shrub stratum** contains vine maple, salmonberry, and red huckleberry (*Vaccinium parvifolium*, FACU). The **herbaceous stratum** is dominated by sword fern and deer fern (*Blechnum spicant*, FAC). Mosses are abundant and diverse in the forested upland. Hydrophytic vegetation indicators were not met in uplands (Appendix A).

Soils

Wetland

Evaluated wetland soils within Wetland B consisted of black to very dark brown (10YR 2/1 and 2/2) peat loams. The thick layer of organic material near the surface results in hydric soil indicators being met for Histosol (A1), Histic Epipedon (A2), and Loamy Mucky Mineral (F1; Appendix A). Test Plots (TP) B5 and B7 consisted of a black (10YR 2/1) organic soil overlying a mineral soil. The dark grey (10YR 4/1) clay loam mineral soil layer within TP-B5 began at 5 inches depth and contained approximately 5 percent brownish yellow (10YR 6/8) redoxomorphic concentrations within the matrix, thus meeting hydric soil indicator Depleted Matrix (F3). All profiles were evaluated to a depth of at least 16 inches (Appendix A). The wetland soils are somewhat consistent with the mapped soil type (Figure 6).

Upland

Evaluated upland soils adjacent to Wetland B generally consisted of dark brown (7.5 YR 3/4) silt loam or silty sandy loam with a duff layer ranging between 3 and 10 inches thick. Test Plot B4 consisted of very dark brown (10YR 2/2) silt loam. No redoxomorphic features were observed in the upland test pits. All profiles were evaluated to a depth of 16 inches and none met the indicators for hydric soils (Appendix A).

Hydrology

Wetland

Wetland B is a slope wetland and receives hydrology primarily from groundwater and some seeps on northwest boundary, which coincides with an area where bedrock and glacial till are close to the surface (Figure 2). Water infiltrates in low gradient areas and drains southeasterly into Tate Creek. The wetland hydroperiods are:

- Seasonally flooded or inundated;
- Saturated only; and
- Permanently flowing stream in or adjacent to the wetland.

Primary wetland hydrology indicators observed within wetland included surface water up to 12 inches (A1), high water table (A2), and saturation (A3; Appendix A). The presence and extent of the wetland is not consistent with the King County (Figure 3) or NWI mapping (Figure 4).


Upland

The upland areas lacked positive wetland hydrological indicators and the evaluated soil profiles were dry (Appendix A).

Wetland D

Wetland D is a slope wetland in the eastern study area, within the western buffer of Tate Creek (Table 6).

Table 6. Wetland D Summary

Feature	Description	
Critical Area	Wetland D	
Area	0.05 acres	
Ecology Rating	Category III	
Local Rating	Category III	
Habitat Score	7	
Local Buffer	150 feet	
HGM Classification	Slope	
Cowardin Classification	PFOC	
Hydroperiod	Seasonally flooded or inundated	
Dominant Vegetation	<i>Picea sitchensis</i> , <i>Tsuga heterophylla</i> , <i>Acer circinatum</i> , <i>Tonlmiea menziesii</i> , abundant mosses	
Soils Indicators	Histosol (A1) & Histic Epipedon (A2),	
Hydrology Indicators	Saturation (A3)	

Vegetation

Wetland

Wetland D contains a forested vegetation class. The **tree stratum** is dominated by Sitka spruce and western hemlock. The **shrub stratum** is dominated by vine maple (*Acer circinatum*, FAC). The **herbaceous stratum** is sparse due to the dense overstory, but like the other well shaded areas within the study area, mosses are abundant. Hydrophytic vegetation was met because 100 percent of the dominant vegetation have obligate, facultative wetland, or facultative indicators (Appendix A).

Upland

The upland vegetation in Wetland D's buffer is dominated by Douglas-fir and western hemlock in the **tree stratum**. The **shrub stratum** is sparse and contains red huckleberry. The **herbaceous stratum** is dominated by sword fern and piggy-back plant. Mosses are abundant and diverse in the forested upland. Hydrophytic vegetation indicators were not met in uplands (Appendix A).

Soils

Wetland

Evaluated wetland soils within Wetland D consisted of black (10YR 2/1) peat loams. No redoximorphic features were observed within the profile. The thick layer of organic material near the surface results in hydric soil indicators being met for Histosol (A1) and Histic Epipedon (A2; Appendix A). All profiles were evaluated to a depth of at least 16 inches (Appendix A). The wetland soils are not consistent with the mapped soil type (Figure 6).

Upland

Evaluated upland soils adjacent to Wetland D consisted of dark brown (10YR 3/3) peat loam to a depth of 16 inches (Appendix A). No redoximorphic features were observed in the soil profile. All profiles were evaluated to a depth of 16 inches and none met the indicators for hydric soils (Appendix A).

Hydrology

Wetland

Wetland D is a slope wetland and receives hydrology from groundwater and seeps (Figure 2). Water infiltrates in low gradient areas and drains easterly into Tate Creek. Tate Creek is lower in elevation than the wetland and does not appear to contribute to the wetland hydrology. The wetland's hydroperiods are seasonally flooded or inundated and its primary wetland hydrology

indicator was saturation (A3; Appendix A). The presence and extent of the wetland is inconsistent with the King County (Figure 3) or NWI mapping (Figure 4).


Upland

The upland areas lacked positive wetland hydrological indicators and the evaluated soil profiles were dry (Appendix A).

Wetland E

Wetlands E is a slope wetland in the southwest study area and borders both sides of a forest road (Table 7). The wetland, which is well outside of the permit area boundary, is summarized in the table below.

Table 7. Wetland E Summary

Feature	Description	
Critical Area	Wetland E	
Area	0.25 acres (approx.)	
Ecology Rating	Category III	
Local Rating	Category III	
Habitat Score	6	
Local Buffer	150 feet	
HGM Classification	Slope	
Cowardin Classification	PSSC	
Hydroperiod	Seasonally flooded or inundated	
Dominant Vegetation	<i>Rubus spectabilis</i> , <i>Spiraea douglasii</i> , <i>Cornus sericea</i> , <i>Equisetum</i> sp., various grasses	
Soils Indicators	Soils were not assessed as this wetland is well outside of the proposed permit boundary.	
Hydrology Indicators	4 to 6 inches of surface water was present at the time of the site visits, therefore would meet Surface Water (A1)	

STREAM

Tate Creek is a Type F stream with a short segment of Type N along its upper reach. The stream originates at the southeast boundary of Wetland B and flows to the Snoqualmie River (Table 8; Figure 2). During site visits in April and June 2021, we observed that the stream channel was dry above a natural fish passage barrier, identified by a *Last Fish* sign (Photoplate 15). Tate Creek drains into the Snoqualmie River approximately 3.75 miles south from the study area. No man-made structures are present along Tate Creek's channel within the study area.

Table 8. Tate Creek Summary

Feature	Description
Critical Area	Tate Creek
WDNR Type	N & F
Local Type	Unclassified
Local Buffer	65 feet for Type N & 165 for Type F
Watershed	WRIA 7 (Snohomish)
Substrate	Sand, silt, gravel
Average Width	17 feet (approx)
Channel Condition	Stable below natural barrier
Gradient	0.02% (within study area)
Fish Access	Fish access mapped in most of stream. Stream type break in upper reach was marked by a <i>Last Fish</i> sign. Channel is seasonally dry above the sign.
Floodplain Connectivity	Below natural barrier, the stream is in stable channel within a steep ravine and has a narrow floodplain.
Water Quality	Category I water on 303(d) list for segment of Tate Creek within study area.
Riparian Conditions	Mature forested canopy and shrub layer. Abundant large woody material in and adjacent to the stream. High quality in-stream and riparian habitat conditions.



Impact Assessment

Based on the hydrologic analysis submitted with this application, we do not anticipate impacts to critical areas within the study area because of the distance from the permit area boundary to the wetlands and stream, the flat hydraulic gradient, and proposed infiltration ponds that will control surface water runoff from the proposed project. Ground water has been monitored monthly since the early 2000s under the previous permit activity and it will continue to be monitored for the duration of the project activities. The hydrologic analysis submitted with this application assesses the surface and ground water impacts in more detail.

WETLANDS

The wetland buffer widths specified by KCC for high impact adjacent land uses will be implemented for full protection for all wetlands. Thus, for Wetlands A and B, 300-foot buffers will be established from their delineated boundaries (Figure 2). Wetlands C and F require 150-foot buffers but fall within the larger 300-foot buffer of Wetland A for even greater protection. For Wetlands D and E, 150-foot buffers will be established. Permanent signs will be installed to demarcate the wetland buffer boundaries from the proposed activity. Based on the hydrologic analysis and distance from the permit area, no impacts to wetlands are anticipated.

STREAMS

Tate Creek

A 165-foot buffer will be maintained between Tate Creek and the permit area boundary (Figure 2). Permanent signs will be installed to demarcate the stream buffer boundary from the proposed activity. King County staff commented on a beaver dam and potential flooding to North Fork Road in the pre-application meeting notes. The beaver dam is located on the outlet to McLeod Lake and not on the Tate Creek corridor. McLeod Lake is south of the study area and drains east toward Tate Creek about 0.35 south of the study area boundary; thus, there is no hydrological connection between Tate Creek and the beaver dam. Based on the hydrologic analysis and distance from the permit area, no impacts to Tate Creek are anticipated.

Ten Creek

Ten Creek is about 450 feet north of the proposed permit area boundary at its closest point. The Snoqualmie Forest Mainline also separates the stream from the permit area. Due to its location north of the permit area and the hydrologic analysis, no impacts to Ten Creek are anticipated.

Conclusions

We identified the following critical areas within the study area: six palustrine wetlands and Tate Creek (Table 9).

Table 9. Critical Areas Summary

Critical Area	Area	Ecology ¹ /County Rating ² ; WDNR ³ /County Type ⁴	Cowardin Classification ⁵	HGM Classification	Standard Buffer ⁶
Wetland A (North Unit)	12.8 acres	I	PFOC, PSSC, PEMC	Depressional	300 feet
Wetland B	6.05 acres	II	PFOC, PSSC	Slope	300 feet
Wetland C	396 sq. ft.	III	PEMC	Depressional	150 feet
Wetland D	0.05 acres	III	PFOC	Slope	150 feet
Wetland E	0.25 acres (approx.)	III	PSSC	Slope	150 feet
Wetland F	0.23 acres	II	PSSC	Depressional	150 feet
Tate Creek	--	Type N / F	--	--	65 / 165 feet

¹ Hruby 2014

² KCC 21A.24.318

³ WAC 222-16-030

⁴ KCC 21A.24.355

⁵ Cowardin *et al.* 1979

⁶ KCC 21A.24.325.A.1 and KCC 21A.24.358

WETLAND CATEGORIZATIONS AND BUFFERS

Wetland A

The north unit of Wetland A is an approximately 12.8-acre palustrine forested, scrub-shrub, and emergent wetland, which receives hydrology primarily from groundwater (Table 2). The wetland A rates as a Category I depressional wetland under Ecology's 2014 wetland rating system (Hruby 2014; Figures 9-10; Appendix B). According to the rating system, Wetland A has high indicators to improve water quality, reduce flooding and erosion, and provide important habitat. In particular, the wetland scored:

- High for improving water quality (8 out of 9 points);
- High for hydrologic functions (8 out of 9 points); and
- High for habitat functions (8 out of 9 points).

Under KCC, Wetland A classified as a Category I Bog (250-foot buffer for high impact land use) and a Category I wetland with a high habitat score (300-foot buffer for high impact land use). In

this case, the Category I wetland with a high habitat score provides the most protection, so it is applied. As a Category I wetland with a habitat score of 8 and high impact adjacent land use, Wetland A requires a 300-foot buffer for high habitat functions (KCC 21A.24.325.A.1).

Wetland B

Wetland B is an approximately 6.0-acre palustrine forested and scrub-shrub wetland, which receives hydrology primarily from groundwater and seeps (Table 4). The wetland rates as a Category II slope wetland under Ecology's 2014 wetland rating system (Hruby 2014; Figures 11-12; Appendix B). According to the rating system, Wetland B has moderate to high indicators to improve water quality, reduce flooding and erosion, and provide important habitat. In particular, the wetland scored:

- Moderate for improving water quality (6 out of 8 possible points for slope wetlands);
- Moderate for hydrologic functions (6 out of possible points for slope wetlands); and
- High for habitat functions (8 out of 9 points).

As a Category II wetland with a habitat score of 8 and high impact adjacent land use, Wetland B requires a 300-foot buffer for high habitat functions (KCC 21A.24.325.A.1).

Wetland C

Wetland C is a small, approximately 396 square foot palustrine emergent wetland off the east boundary of Wetland A. Like Wetland A, Wetland C receives hydrology primarily from groundwater (Table 3). The wetland rates as a Category III depressional wetland under Ecology's 2014 wetland rating system (Hruby 2014; Figures 9-10; Appendix B). According to the rating system, Wetland C has moderate indicators to improve water quality, reduce flooding and erosion, and provide important habitat. In particular, the wetland scored:

- Moderate for improving water quality (7 out of 9 points);
- Moderate for hydrologic functions (6 out of 9 points); and
- Moderate for habitat functions (6 out of 9 points).

As a Category III wetland with a habitat score of 6 and high impact adjacent land use, Wetland C requires a 150-foot buffer for moderate habitat functions (KCC 21A.24.325.A.1).

Wetland D

Wetland D is an approximately 0.05-acre palustrine forested wetland, which receives hydrology primarily from groundwater and seeps (Table 5). The wetland rates as a Category III slope wetland under Ecology's 2014 wetland rating system (Hruby 2014; Figures 13-14; Appendix B). According to the rating system, Wetland D has low to moderate indicators to improve water quality, reduce flooding and erosion, and provide important habitat. In particular, the wetland scored:

- Low for improving water quality (5 out of 8 points);
- Low for hydrologic functions (5 out of 7 points); and
- Moderate for habitat functions (7 out of 9 points).

As a Category II wetland with a habitat score of 7 and high impact adjacent land use, Wetland D requires a 150-foot buffer for moderate habitat functions (KCC 21A.24.325.A.1).

Wetland E

Wetland E is an approximately 0.25-acre palustrine scrub-shrub wetland, which receives hydrology primarily from groundwater and seeps (Table 6). The wetland rates as a Category III slope wetland under Ecology's 2014 wetland rating system (Hruby 2014; Figures 15-16; Appendix B). According to the rating system, Wetland E has low to moderate indicators to improve water quality, reduce flooding and erosion, and provide important habitat. In particular, the wetland scored:

- Low for improving water quality (6 out of 8 possible points for slope wetlands);
- Low for hydrologic functions (7 out of 7 possible points for slope wetlands); and
- Moderate for habitat functions (6 out of 9 points).

As a Category II wetland with a habitat score of 6 and high impact adjacent land use, Wetland D requires a 150-foot buffer for moderate habitat functions (KCC 21A.24.325.A.1).

Wetland F

Wetland F is an approximately 0.23 acre palustrine scrub-shrub wetland that receives hydrology primarily from groundwater (Table 7). The wetland rates as a Category II depressional wetland under Ecology's 2014 wetland rating system (Hruby 2014; Figures 17-18; Appendix B). According to the rating system, Wetland F has moderate indicators to improve water quality, reduce flooding and erosion, and provide important habitat. In particular, the wetland scored:

- High for improving water quality (8 out of 9 points);
- Moderate for hydrologic functions (7 out of 9 points); and
- Moderate for habitat functions (6 out of 9 points).

As a Category II wetland with a habitat score of 6 and high impact adjacent land use, Wetland F requires a 150-foot buffer for moderate habitat functions (KCC 21A.24.325.A.1).

STREAM TYPING AND BUFFER

Tate Creek is a Type N/F water under the *Washington Administrative Code* (WAC) 222-16-030 *Water Typing System*. The majority of the stream is mapped as Type F and requires a 165-foot buffer under KCC 21A.24.358.C. The small section at its upper-most reach is Type N and requires a 65-foot buffer.

PRIORITY HABITAT AND SPECIES

According to the Washington Department of Fish and Wildlife's Priority Habitats and Species (PHS) Report (WDFW 2020a), Tate Creek is identified within the study area (Figure 7). The other mapped occurrences (freshwater wetlands, fish, Oregon toad, fisher) on the PHS report and SalmonScape (WDFW 2020b; Figure 8) are well outside of the study area. Refer the *Wildlife Assessment* in Appendix C.

Limitations

ELS bases this report's determinations on standard scientific methodology and best professional judgment. In our opinion, local, state, and federal regulatory agencies should agree with our determinations. However, the information contained in this report should be considered preliminary and used at your own risk until it has been approved in writing by the appropriate regulatory agencies. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report.

References

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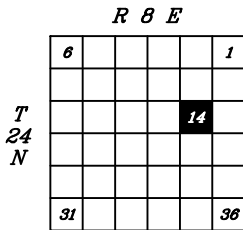
Figures & Photoplates

WASHINGTON



47.5694° Latitude
-121.7501° Longitude

LOCATION MAP



NOTE:
Quadrangle topographic map from USGS.

PROJECT VICINITY MAP

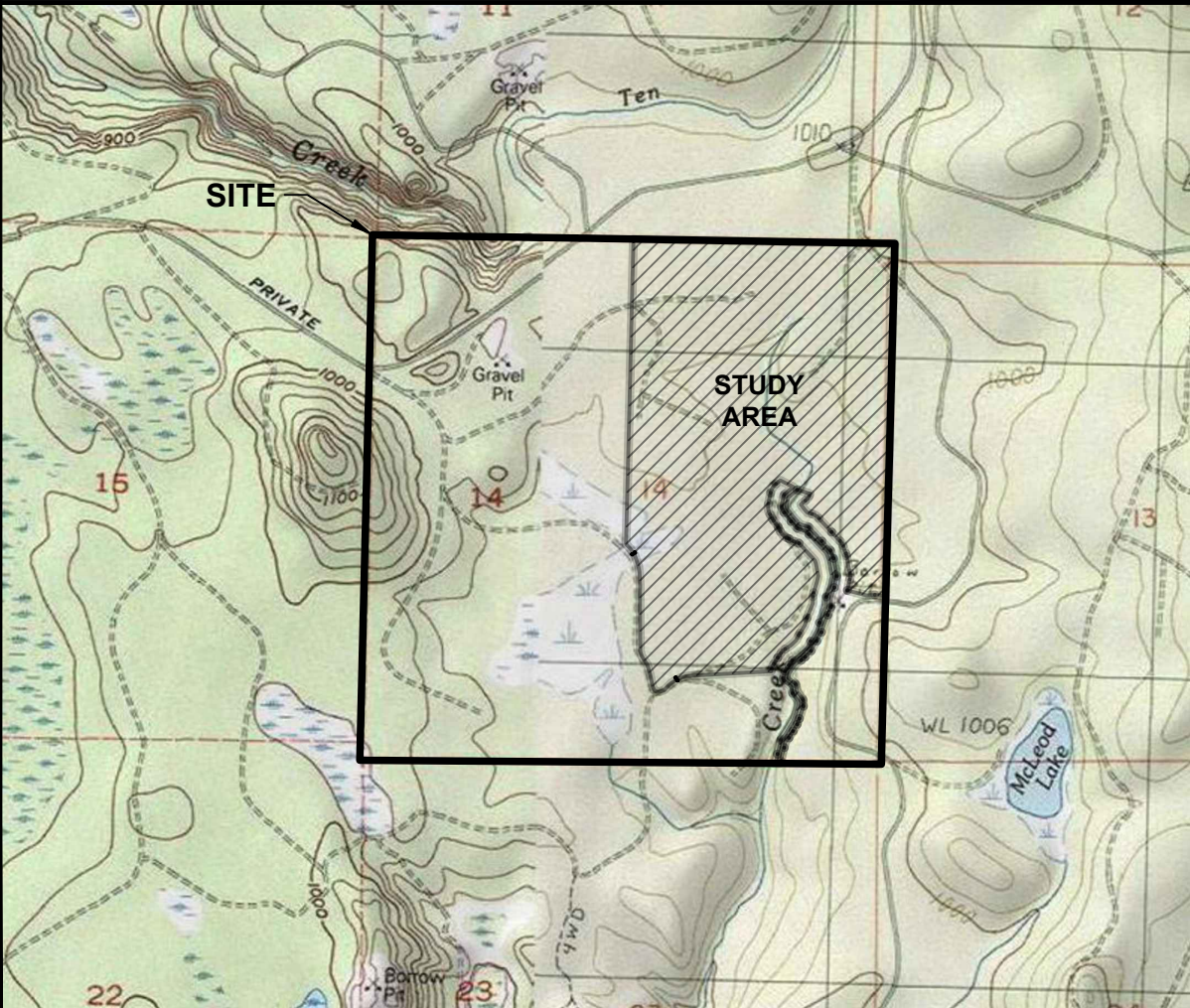
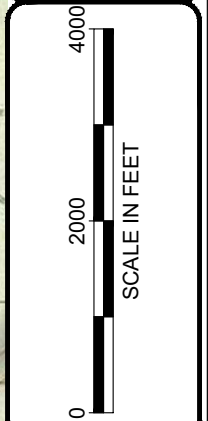


Figure 1
VICINITY MAP
5 Mile Fill Site

Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
DWN: JLL
REQ. BY:
PRJ. MGR: MM
CHK:
PROJECT NO: 1002.02

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
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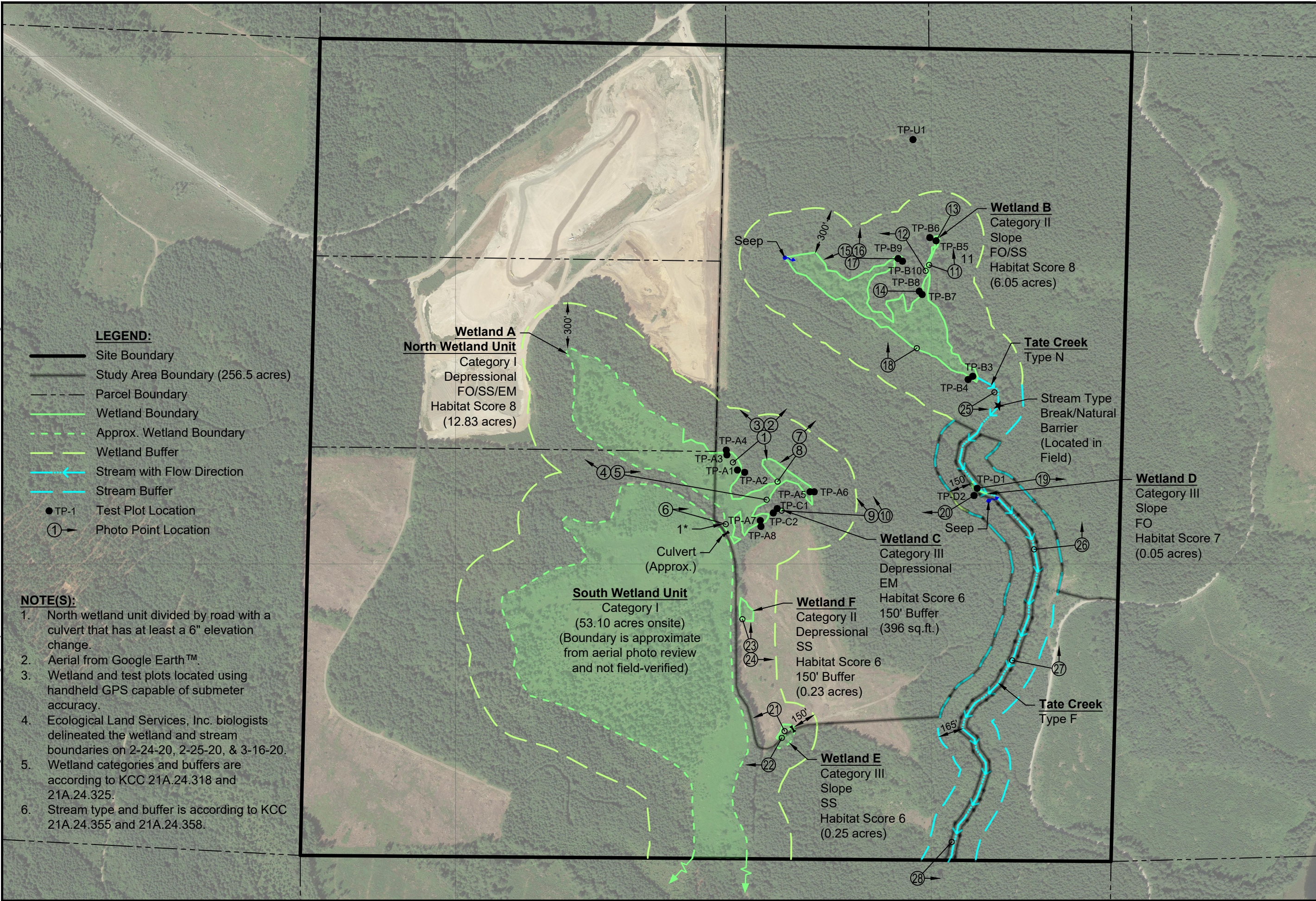


Figure 2
EXISTING CONDITIONS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
DWN: JLL
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Ecological Land Services

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SCALE IN FEET

W N E S

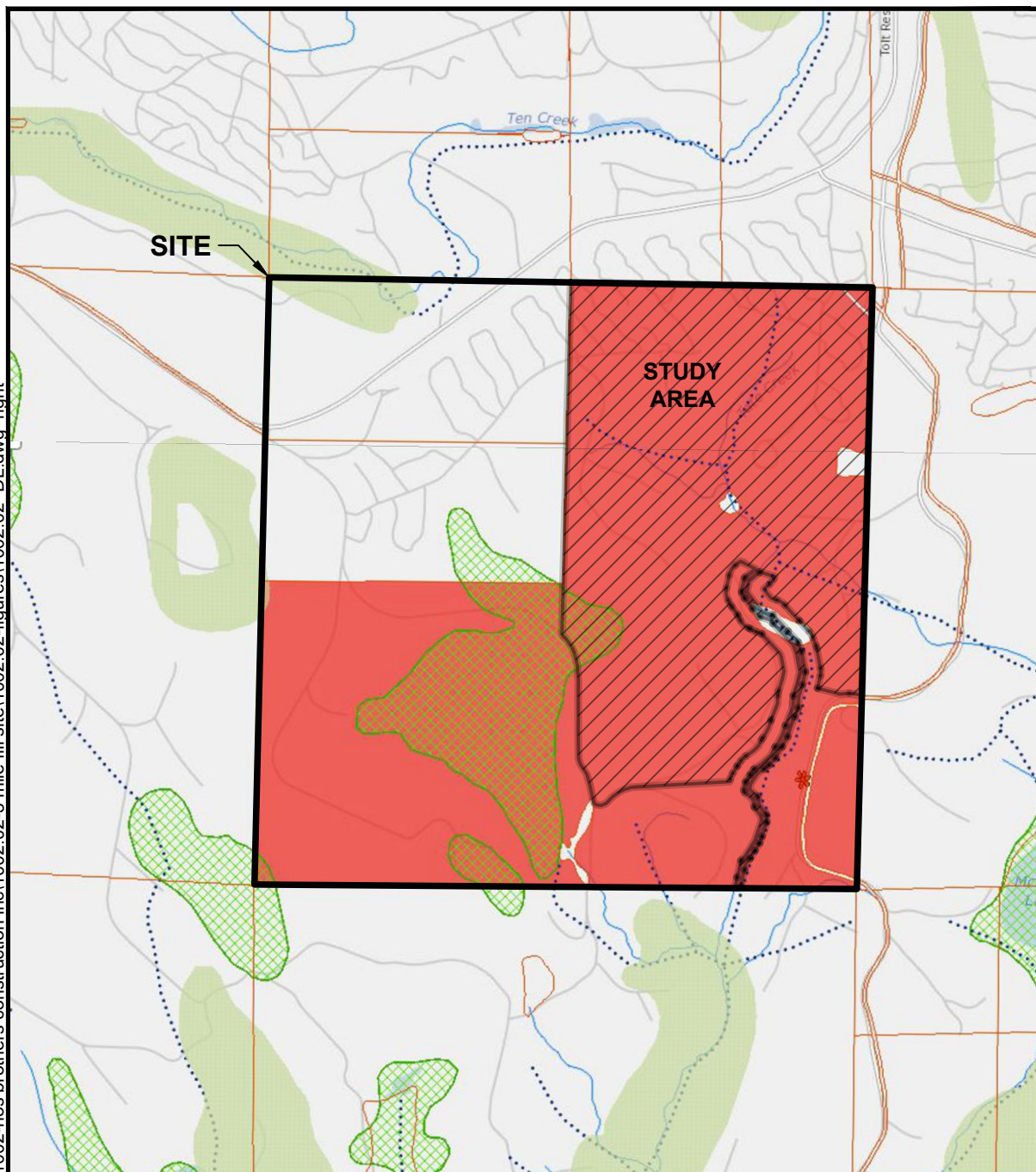
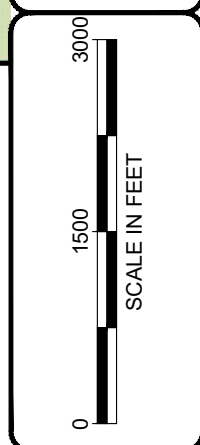


Figure 3
KING COUNTY CRITICAL AREAS
 5 Mile Fill Site
 Hos Bros Construction, Inc.
 King County, WA
 Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
 DWN: JLL
 REQ. BY:
 PRJ. MGR: MM
 CHK:
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NOTE(S):
 1. Map provided on-line by King County at web address: <https://gismaps.kingcounty.gov/iMap/>

Property Layers

Parcels



Environmentally Sensitive Areas

Potential landslide hazard areas (2016, see explanation: -->)



Erosion hazard (1990 SAO)



Seismic hazard (1990 SAO)



Coal mine hazard (1990 SAO)



Stream (1990 SAO)

class 1



class 2 perennial



class 2 salmonid



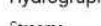
class 3



*** unclassified



Wetland (1990 SAO)



Sensitive area notice on title



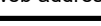
Hydrography and Hydrology

Streams

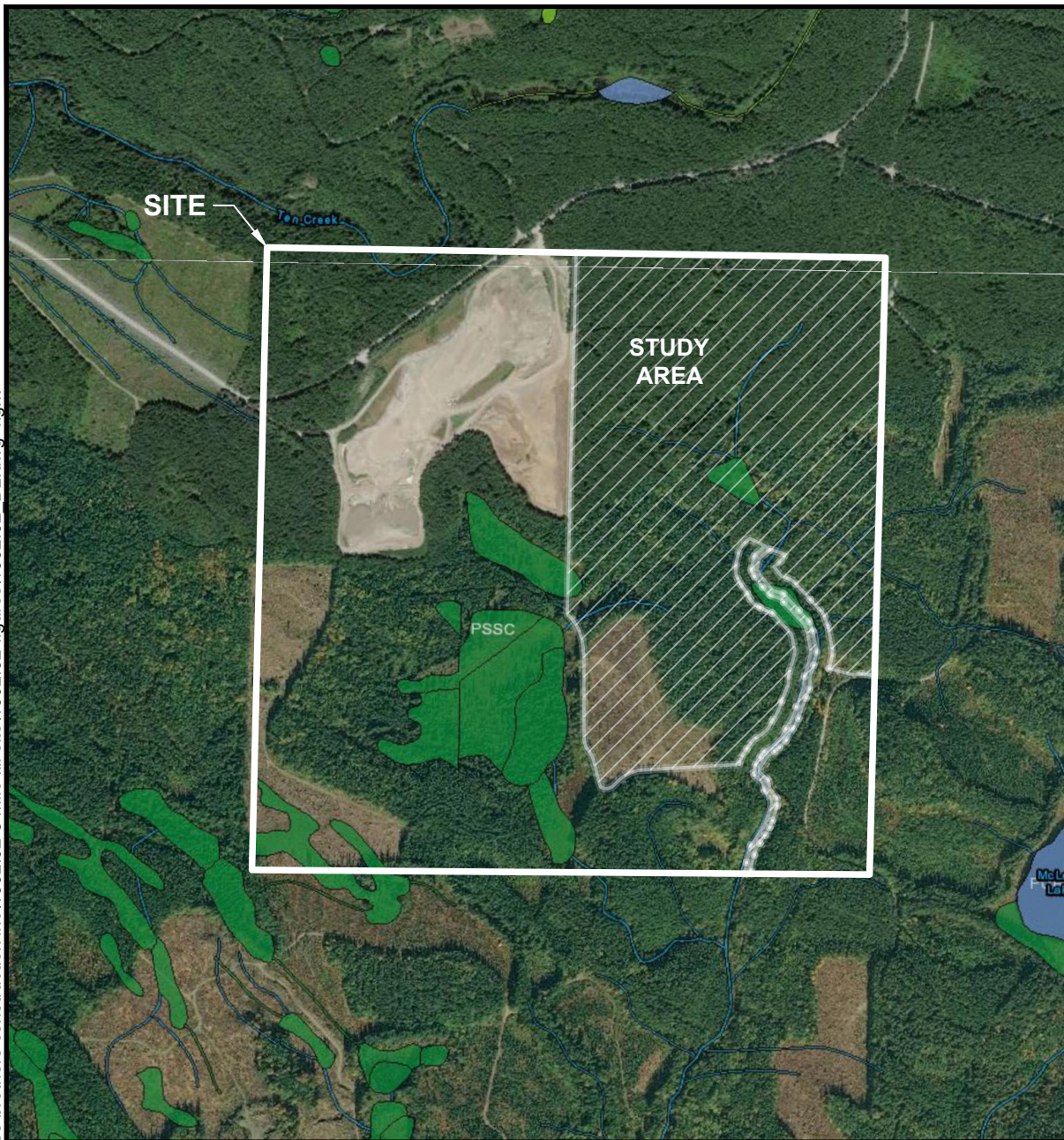


Noxious Weeds

All noxious weeds (current survey year)



tansy ragwort



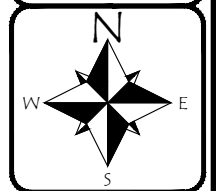
LEGEND:

- Freshwater Forested/Shrub Wetland
- Riverine
- Freshwater Pond

PSSC Palustrine, scrub-shrub, seasonally flooded.

NOTE(S):

1. Map provided on-line by US Fish & Wildlife Service at web address: <http://www.fws.gov/wetlands/data/index.html>



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1002.02

Figure 4

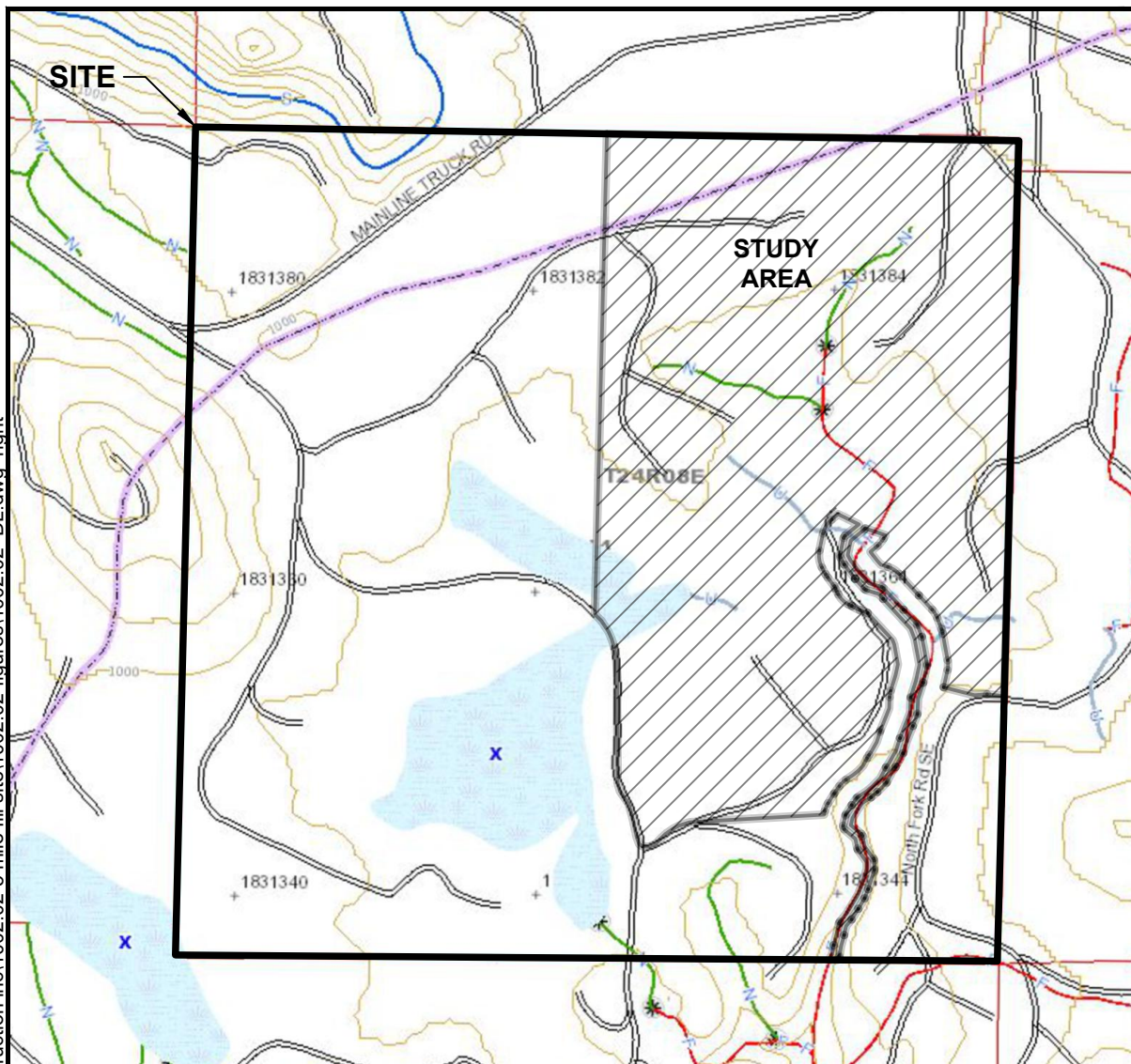
NATIONAL WETLANDS INVENTORY

5 Mile Fill Site

Hos Bros Construction, Inc.

King County, WA

Section 14, Township 24N, Range 8E, W.M.



County Boundary
County Boundary



Tribal Cultural Resources Contacts
Tribal Cultural Resources Contacts



Contours - 40ft. Interval
Contours - 40ft. Interval



Fire Shutdown Zones
Fire Shutdown Zones



Water Bodies
Water Bodies

- Flats/Gravel Bars
- Ice
- Man Made Features
- Open Water
- Wet Area

Streams
Streams

- Type S
- Type F
- Type N, Np, Ns
- U, unknown
- X, non-typed per WAC 222-16

WRIA
WRIA



WAU
WAU



Trails and Railroads
Trails and Railroads

- Trail
- Railroad
- Railroad Grade

Roads
Roads

- Unpaved Road/Surface Unknown
- Paved Road

Water Type Break
Water Type Break



Section Survey Lines
Section Survey Lines



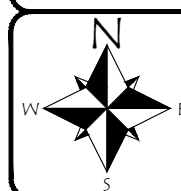
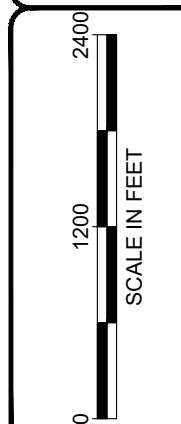
Townships
Townships



NOTE: Map provided on-line by Washington State
Department of Natural Resources at web address:
<http://fortress.wa.gov/dnr/app1/Fpars/viewer.htm>

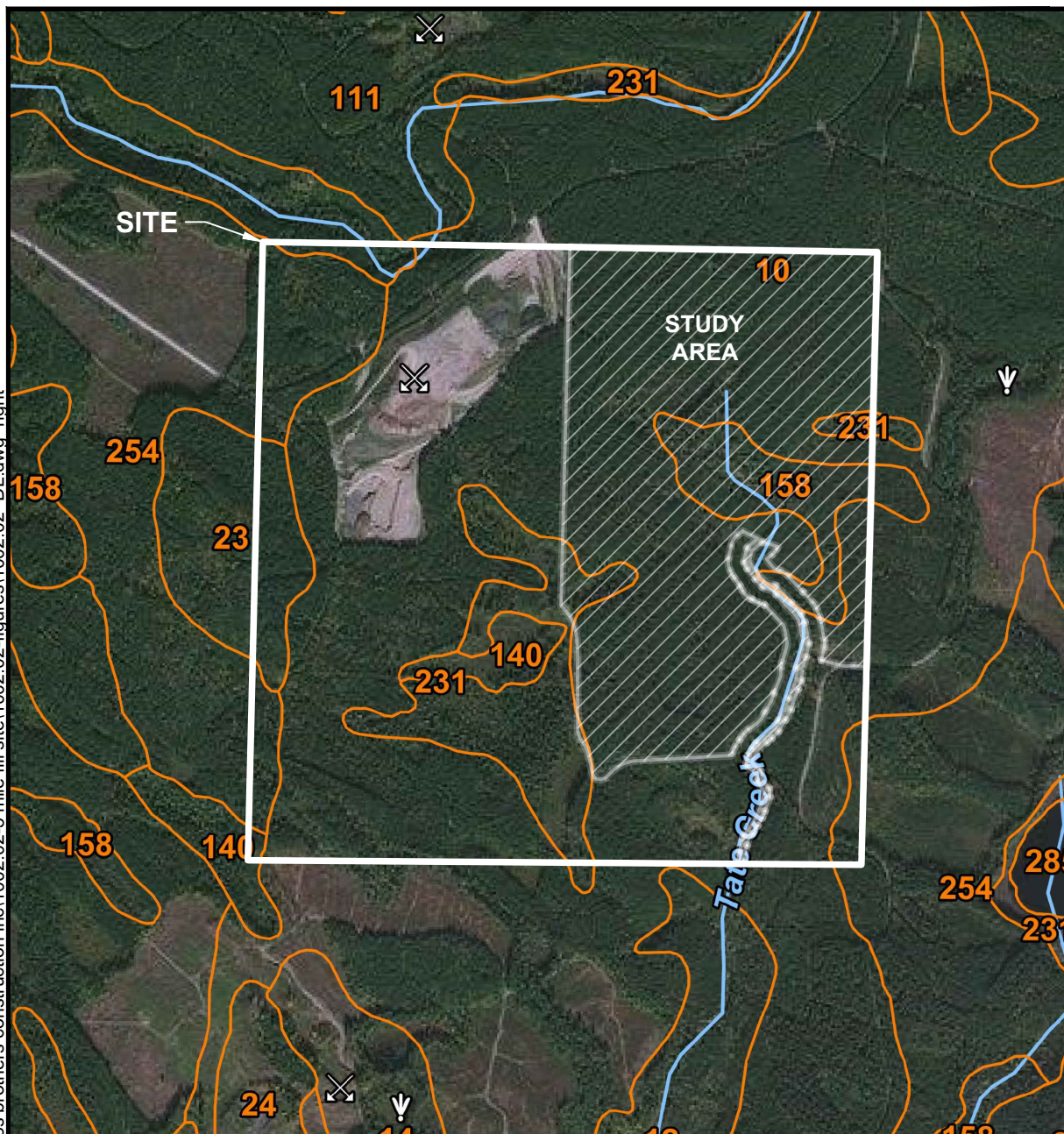


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PRJ. MGR: MM
CHK:
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Figure 5
FOREST PRACTICES WATER TYPING
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.



LEGEND:

- Site Boundary
- 10** Barneston gravelly ashy coarse sandy loam, 0 to 8 percent slopes. Not hydric.
- 23** Blethen gravelly loam, 5 to 30 percent slopes. Not hydric.
- 140** Mukilteo peat, 0 to 1 percent slopes. **Hydric.**
- 158** Norma loam, 0 to 3 percent slopes. **Hydric.**
- 231** Seattle muck, 0 to 1 percent slopes. **Hydric.**
- 254** Tokul gravelly medial loam, 0 to 8 percent slopes. Not hydric.

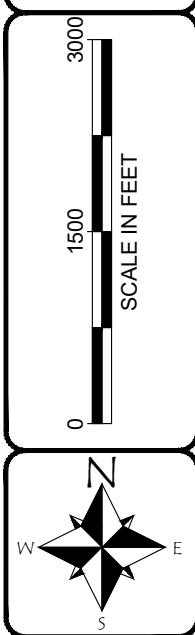
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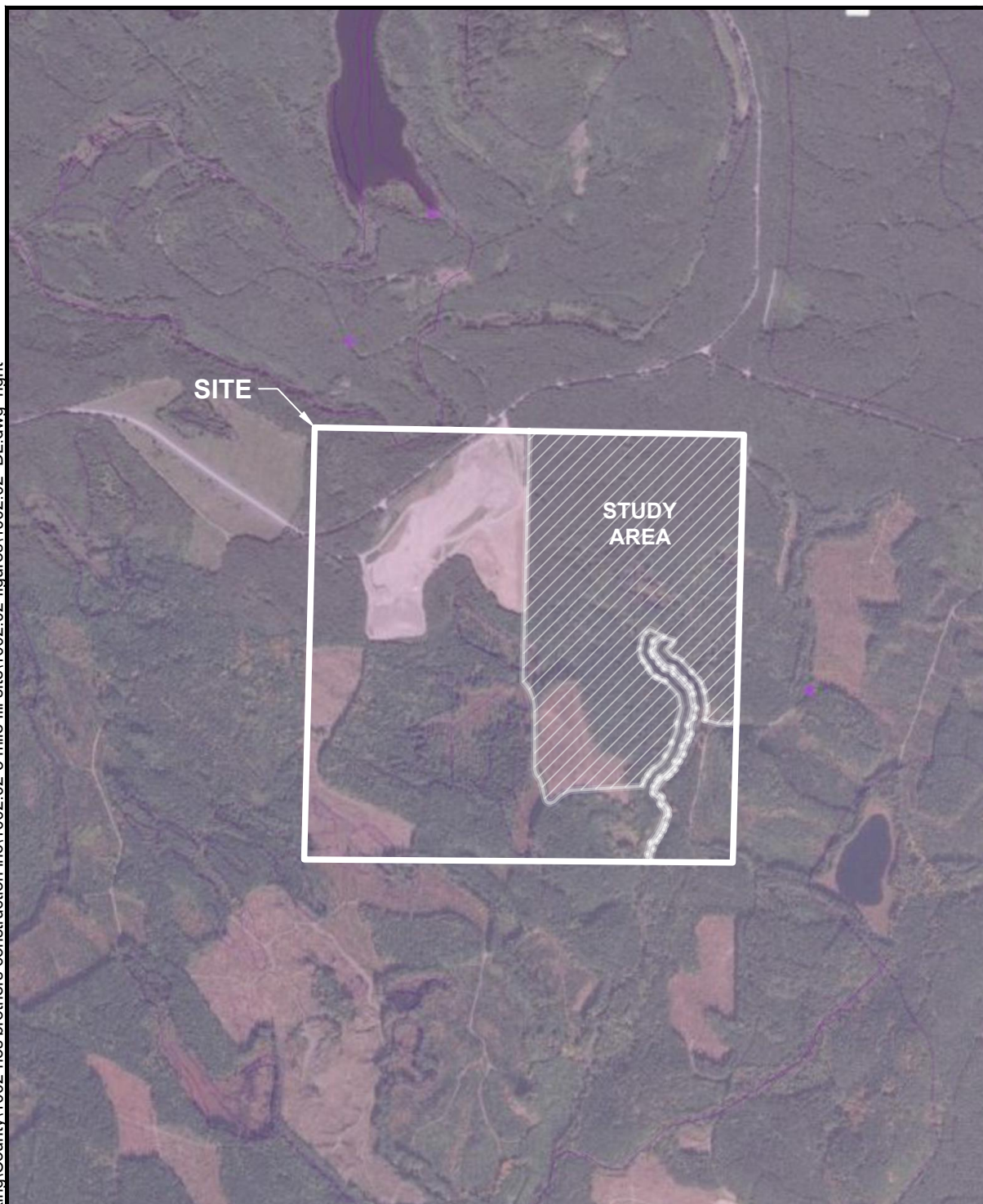
1. Map provided on-line by NRCS at web address:
<http://websoilsurvey.nrcs.usda.gov/app/>

Figure 6
SOIL SURVEY
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.






DATE: 6/15/21
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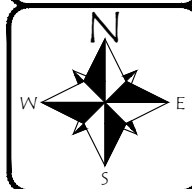




LEGEND:

-  Resident Coastal Cutthroat, *Oncorhynchus clarki*, Occurrence/Migration
-  Cutthroat, *Oncorhynchus clarki*, Occurrence
-  Freshwater Forested/Shrub Wetland, Aquatic Habitat
-  Wetlands, Aquatic Habitat
-  Elk, *Cervus elaphus*, Regular Concentration

NOTE: Map provided on-line by Washington State
Department of Fish & Wildlife at web address:
<http://apps.wdfw.wa.gov/phsontheweb/>



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Figure 7
PRIORITY HABITAT AND SPECIES
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

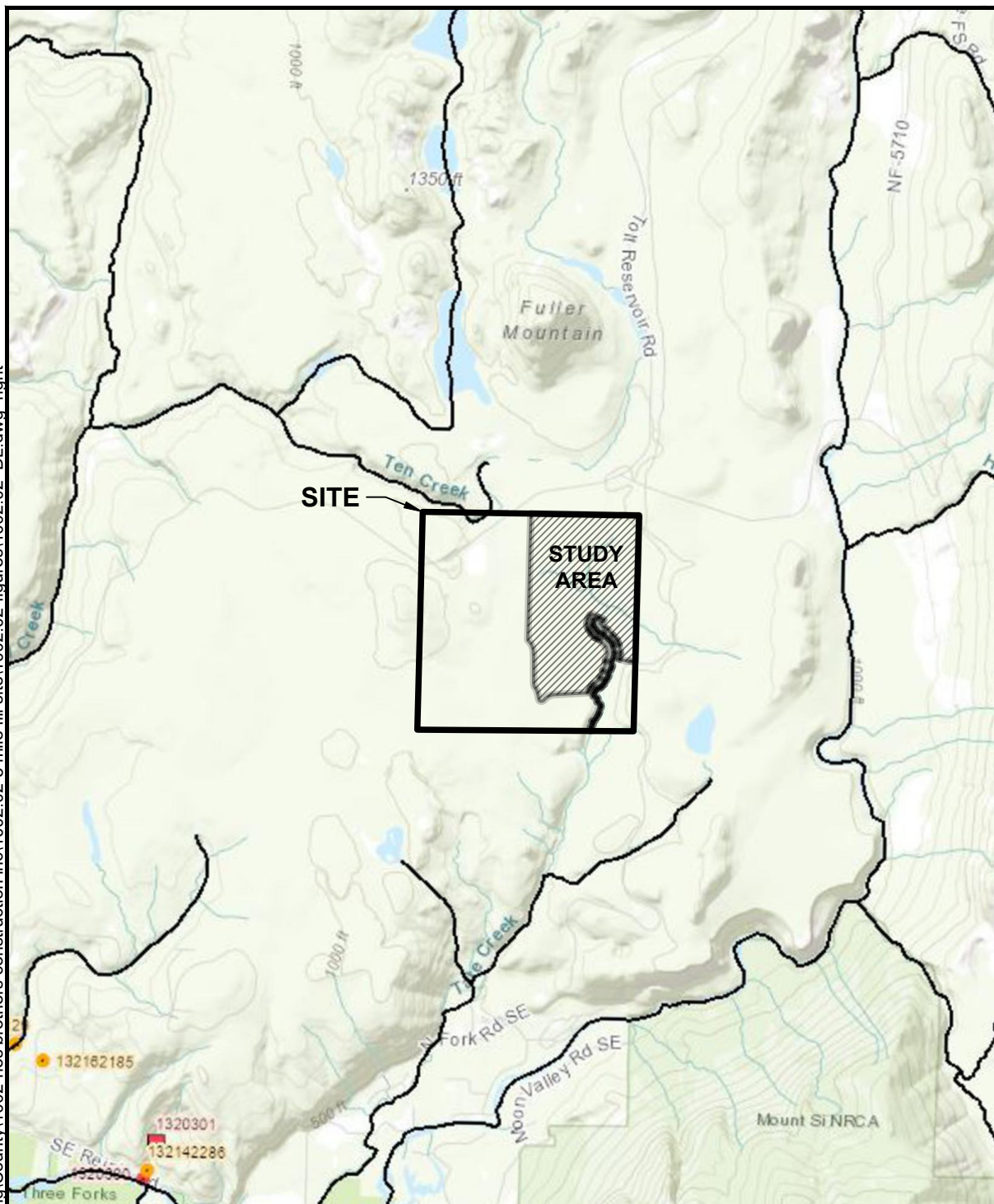


Figure 8

SALMONSCAPE
5 Mile Fill Site

Hos Bros Construction, Inc.
King County, WA

Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
DWN: JLL
REQ. BY: PRJ. MGR: MM
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**Ecological
Land Services**

Fish Passage

Culverts	Dams	Other Barriers
<ul style="list-style-type: none"> ● Total Blockage ● Total Blockage, Fishway Present ● Partial Blockage ● Partial Blockage, Fishway Present ● Unknown Blockage ● Unknown Blockage, Fishway Present 	<ul style="list-style-type: none"> ■ Total Blockage ■ Total Blockage, Fishway Present ■ Partial Blockage ■ Partial Blockage, Fishway Present ■ Unknown Blockage ■ Unknown Blockage, Fishway Present 	<ul style="list-style-type: none"> ▼ Total Blockage ▼ Total Blockage, Fishway Present ▼ Partial Blockage ▼ Partial Blockage, Fishway Present ▼ Unknown Blockage

Fish Distribution

All SalmonScape Species

—

NOTE: Map provided on-line by Washington State Department of Fish & Wildlife at web address:
<http://apps.wdfw.wa.gov/salmonscape/map.html#>

SCALE IN FEET

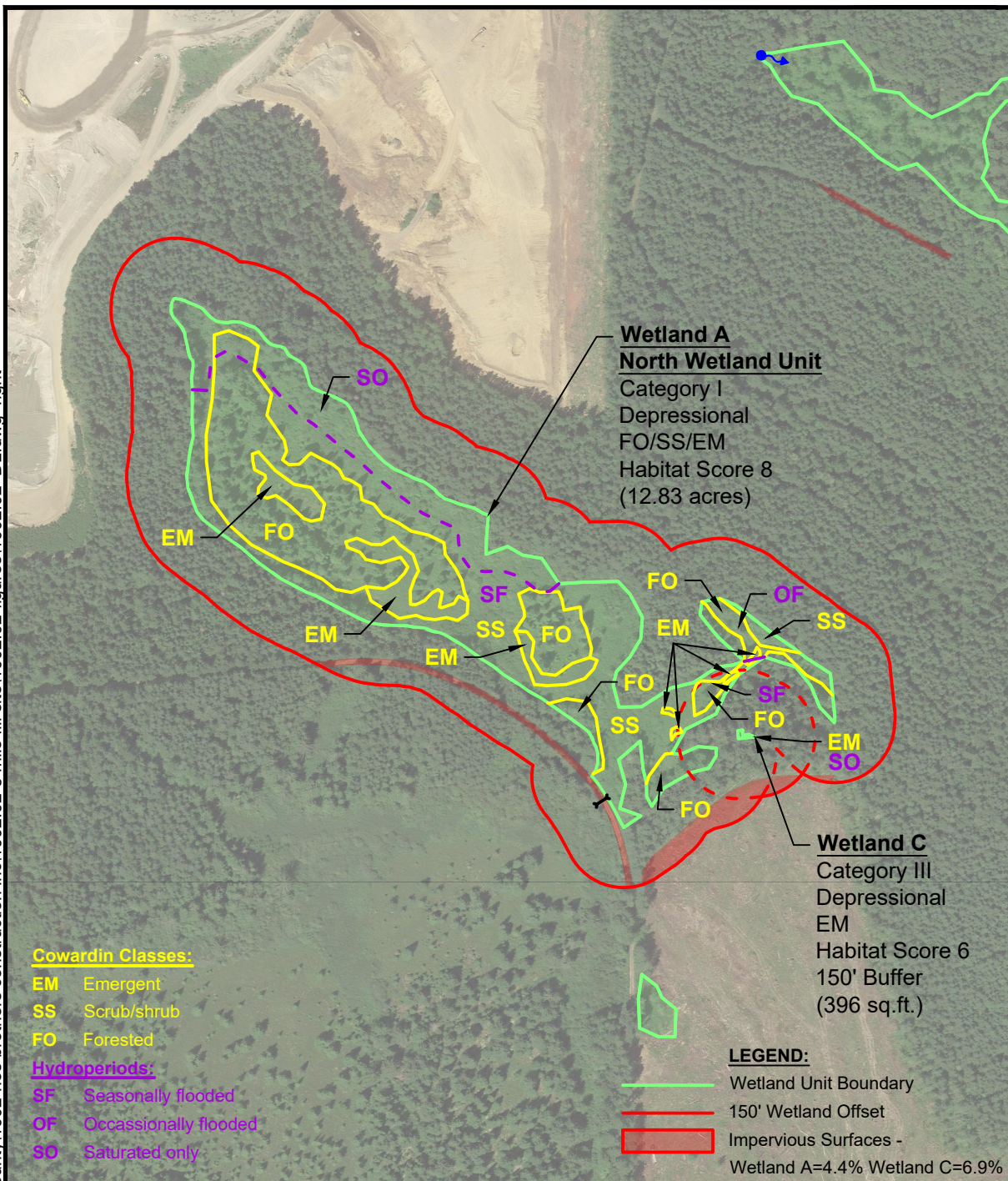
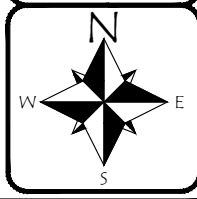
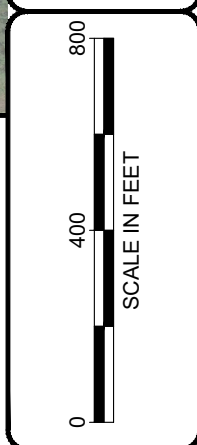


Figure 9
WETLAND RATING -150 OFFSET-WETLAND A & C
 5 Mile Fill Site
 Hos Bros Construction, Inc.
 King County, WA
 Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
 DWN: JLL
 REQ. BY:
 PRJ. MGR: MM
 CHK:
 PROJECT NO:
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Ecological Land Services



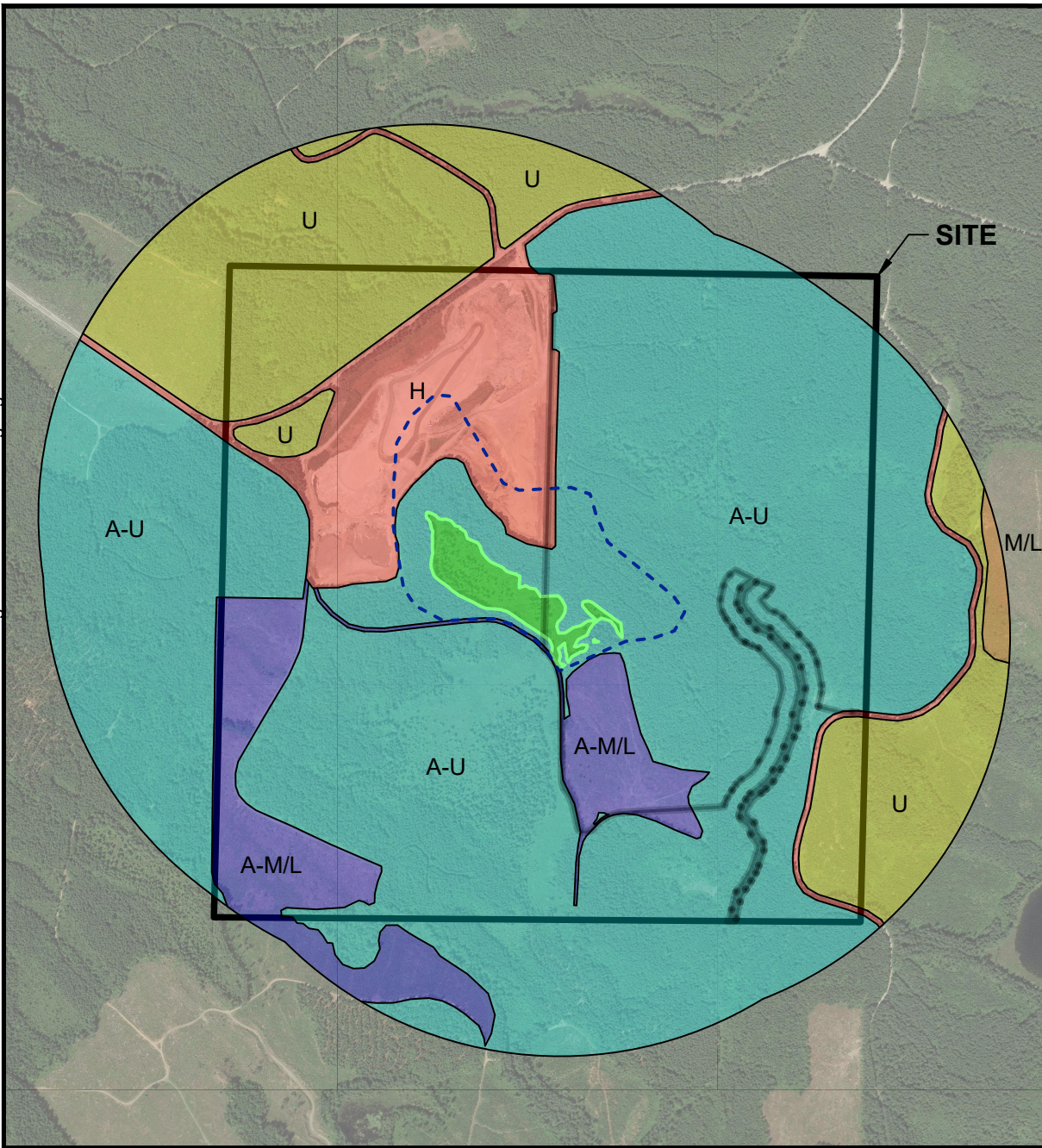
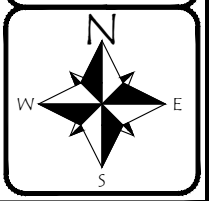
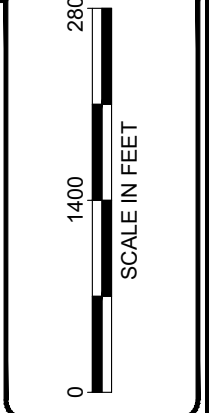


Figure 10
WETLAND RATING -1 KM OFFSET-WETLAND A & C
 5 Mile Fill Site
 Hos Bros Construction, Inc.
 King County, WA
 Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
 DWN: JLL
 REQ. BY:
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 CHK:
 PROJECT NO:
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Ecological Land Services



LEGEND:

- Site Boundary
- Wetland Unit Boundary
- - - Contributing Basin
(5.3x area of wetland)

H2.1 Accessible Habitat

A-U	A-U (64.5%)
A-M/L	A-M/L (07.6%)

H2.2 Undisturbed Habitat

U	U (18.4%)
M/L	M/L (00.5%)

H2.3 Land Use Intensity

H	H (09.0%)
---	-----------

H 2.1. Accessible Habitat Equation

$$\% \text{ [A-U] habitat } \underline{64.5\%} + [(\% \text{ [A-M/L] intensity land uses})/2] \underline{03.8\%} = \underline{68.3\%}$$

H 2.2. Total Undisturbed Habitat Equation

$$\% \text{ [A-U] + \% [U] habitat } \underline{82.9\%} + [(\% \text{ [A-M/L] + \% [M/L] land uses})/2] \underline{04.1\%} = \underline{87.0\%}$$

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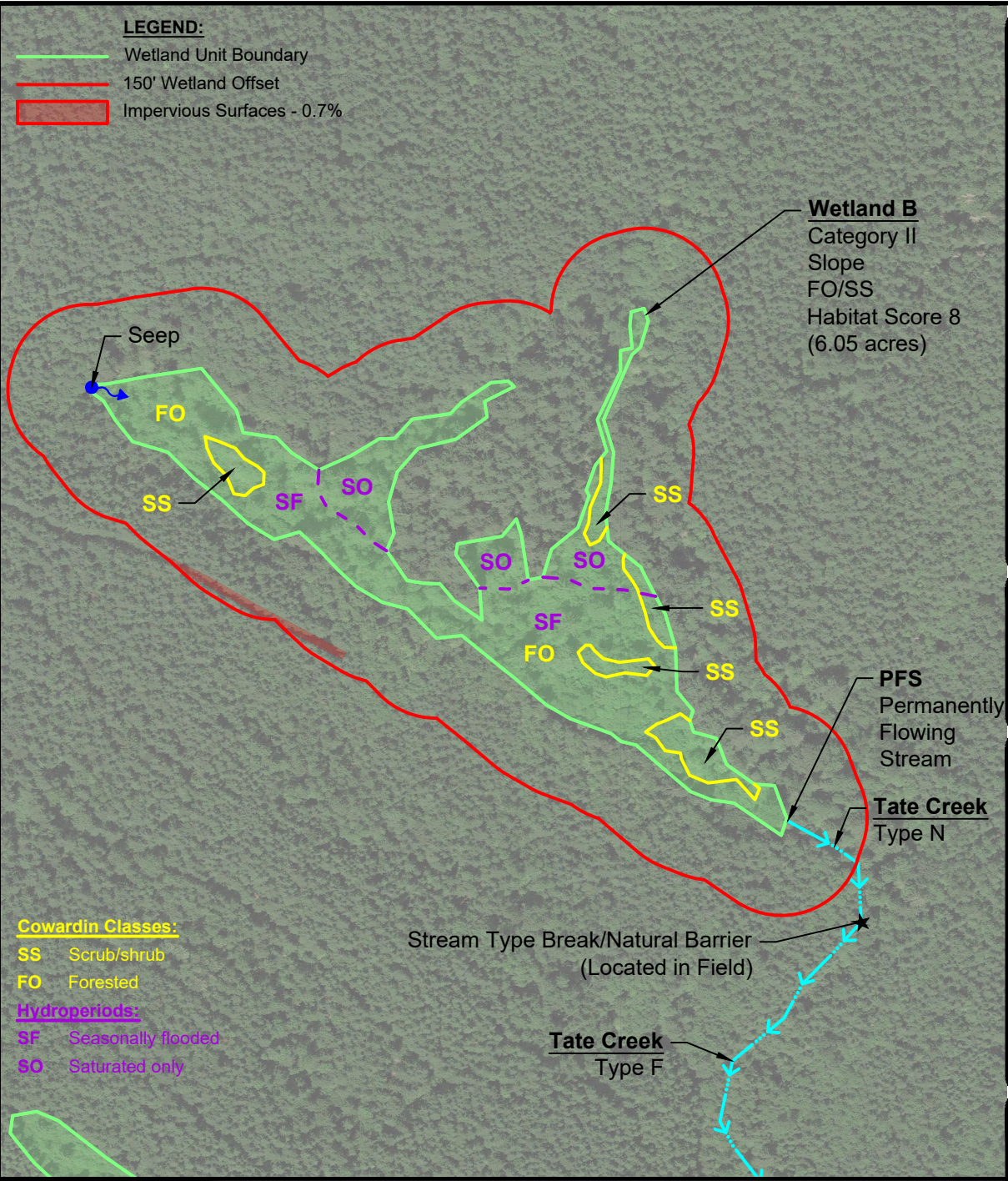


Figure 11

WETLAND RATING -150 OFFSET-WETLAND B

5 Mile Fill Site

Hos Bros Construction, Inc.

King County, WA

Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
DWN: JLL
REQ. BY:
PRJ. MGR: MM
CHK:
PROJECT NO:
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Ecological Land Services

600
300
0

SCALE IN FEET

N
W E S

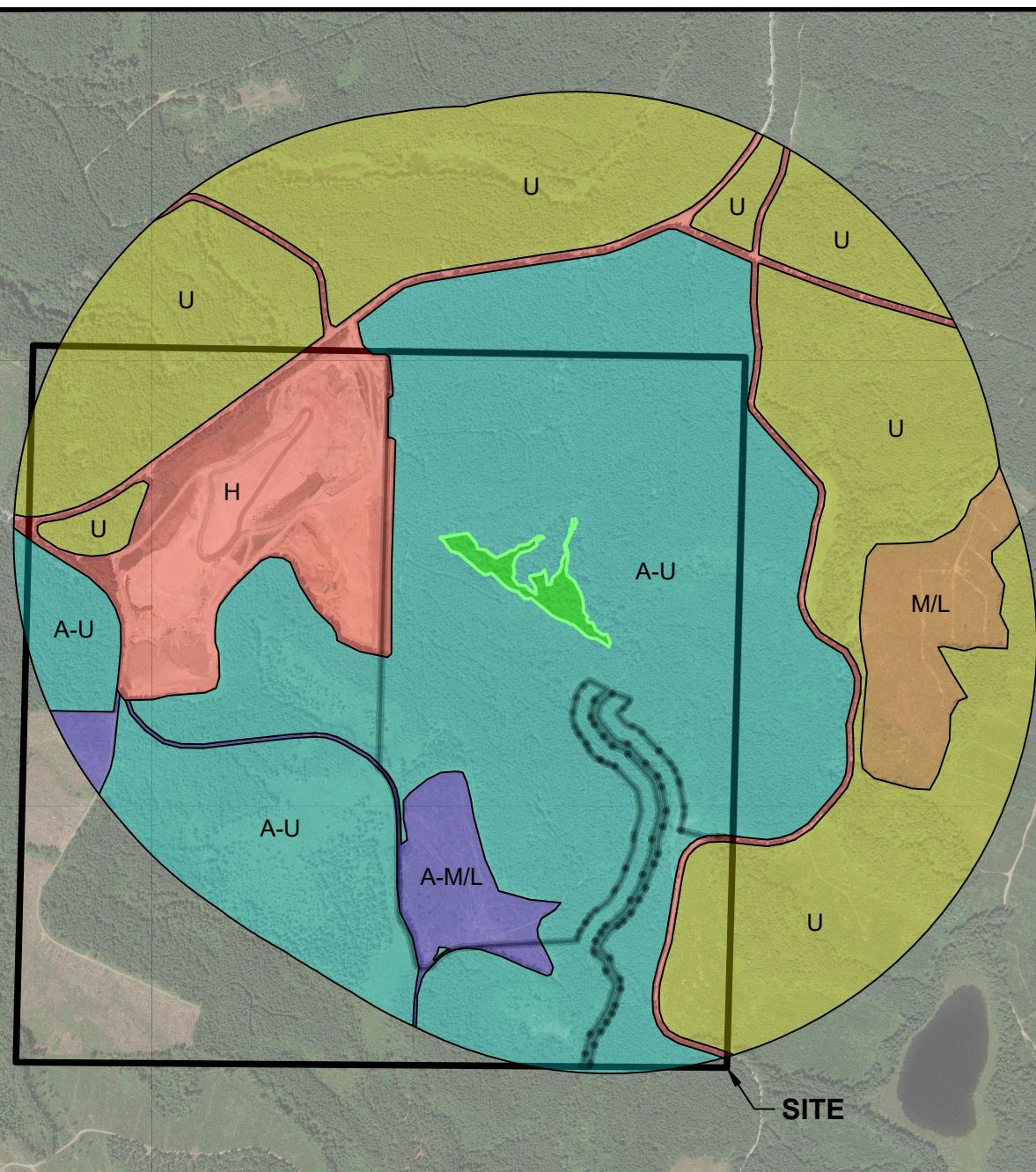
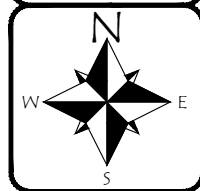
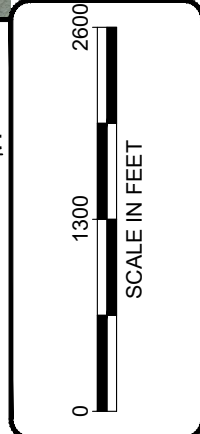


Figure 12
WETLAND RATING -1 KM OFFSET-WETLAND B
 5 Mile Fill Site
 Hos Bros Construction, Inc.
 King County, WA
 Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
 DWN: JLL
 REQ. BY:
 PRJ. MGR: MM
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LEGEND:

- Site Boundary
- Wetland Unit Boundary

H2.1 Accessible Habitat

A-U	A-U (47.3%)
A-M/L	A-M/L (02.9%)

H2.2 Undisturbed Habitat

U	U (35.2%)
M/L	M/L (03.7%)

H2.3 Land Use Intensity

H	H (10.9%)
---	-----------

H 2.1. Accessible Habitat Equation

$$\% \text{ [A-U] habitat } 47.3\% + [(\% \text{ [A-M/L] intensity land uses})/2] 01.5\% = 48.8\%$$

H 2.2. Total Undisturbed Habitat Equation

$$\% \text{ [A-U] + \% [U] habitat } 82.5\% + [(\% \text{ [A-M/L] + \% [M/L] land uses})/2] 03.3\% = 85.8\%$$

- LEGEND:**
- Wetland Unit Boundary
 - 150' Wetland Offset
 - Impervious Surfaces - 0.0%

Wetland D
Category III
Slope
FO
Habitat Score 7
(0.05 acres)

Cowardin Classes:

FO Forested

Hydroperiods:

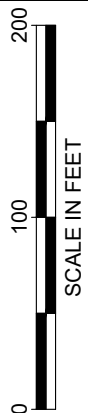
SF Seasonally flooded

PFS
Permanently
Flowing
Stream

Seep

Tate Creek
Type F

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Figure 13
WETLAND RATING -150 OFFSET-WETLAND D
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

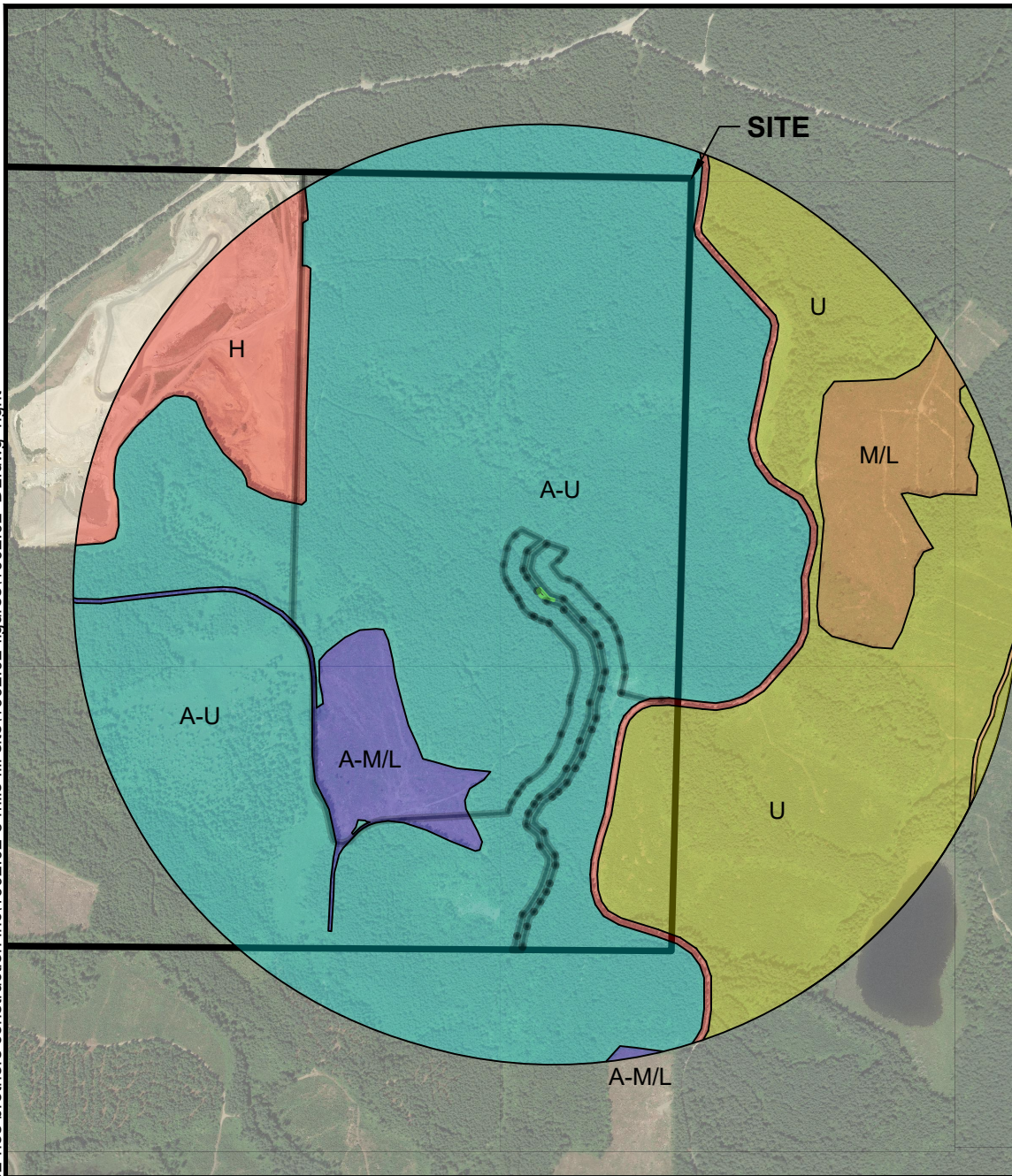
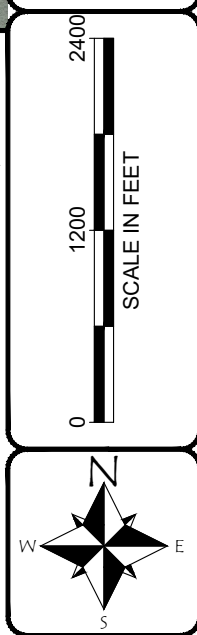


Figure 14
WETLAND RATING - 1 KM OFFSET-WETLAND D
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
DWN: JLL
REQ. BY:
PRJ. MGR: MM
CHK:
PROJECT NO:
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LEGEND:

- Site Boundary
- Wetland Unit Boundary

H2.1 Accessible Habitat

A-U	A-U (63.2%)
A-M/L	A-M/L (0.34%)

H2.2 Undisturbed Habitat

U	U (22.2%)
M/L	M/L (0.7%)

H2.3 Land Use Intensity

H	H (0.65%)
---	-----------




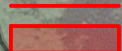
H 2.1. Accessible Habitat Equation

$$\% \text{ [A-U] habitat } 63.2\% + [(\% \text{ [A-M/L] intensity land uses})/2] 1.7\% = 64.9\%$$

H 2.2. Total Undisturbed Habitat Equation

$$\% \text{ [A-U] + \% [U] habitat } 85.4\% + [(\% \text{ [A-M/L] + \% [M/L] land uses})/2] 0.41\% = 89.5\%$$

LEGEND:

-  Site Boundary
-  Wetland Unit Boundary
-  150' Wetland Offset
-  Impervious Surfaces - 52.8%

Wetland E

Category III
Slope
SS
Habitat Score 6
(0.25 acres)

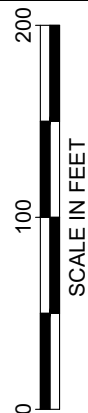
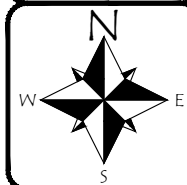
Cowardin Classes:

EM Emergent
SS Scrub/shrub

Hydroperiods:

SF Seasonally flooded

24" Culvert



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Figure 15

WETLAND RATING -150 OFFSET-WETLAND E

5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

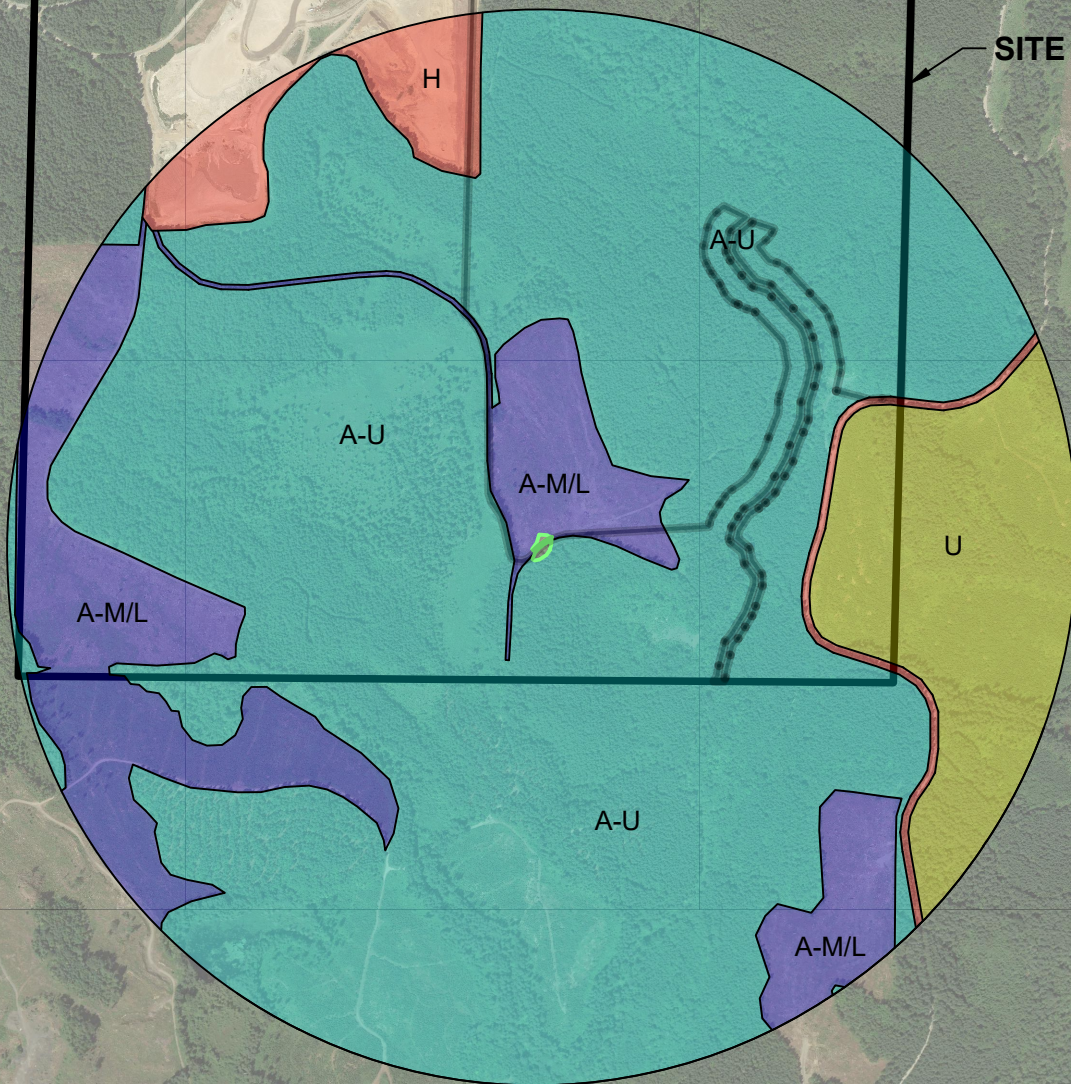
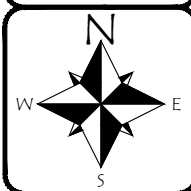


Figure 16
WETLAND RATING -1 KM OFFSET-WETLAND E
 5 Mile Fill Site
 Hos Bros Construction, Inc.
 King County, WA
 Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
 DWN: JLL
 REQ. BY:
 PRJ. MGR: MM
 CHK:
 PROJECT NO:
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LEGEND:

- Site Boundary
- Wetland Unit Boundary

H2.1 Accessible Habitat

A-U	A-U (72.8%)
A-M/L	A-M/L (13.9%)

H2.2 Undisturbed Habitat

U	U (09.6%)
M/L	M/L (00.0%)

H2.3 Land Use Intensity

H	H (03.7%)
---	-----------

H 2.1. Accessible Habitat Equation

$$\% \text{A-U habitat } 72.8\% + [(\% \text{A-M/L intensity land uses})/2] \text{ } 07.0\% = 79.8\%$$

H 2.2. Total Undisturbed Habitat Equation

$$\% \text{A-U} + \% \text{U habitat } 82.4\% + [(\% \text{A-M/L} + \% \text{M/L land uses})/2] \text{ } 07.0\% = 89.4\%$$



- LEGEND:**
- Site Boundary
 - Wetland Unit Boundary
 - 150' Wetland Offset
 - Impervious Surfaces - 61.7%

Wetland F
Category II
Depressional
SS
Habitat Score 6
150' Buffer
(0.23 acres)

Cowardin Classes:
SS Scrub/shrub
Hydroperiods:
SF Seasonally flooded

Figure 17

WETLAND RATING -150 OFFSET-WETLAND F

5 Mile Fill Site

Hos Bros Construction, Inc.
King County, WA

Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
DWN: JLL
REQ. BY:
PRJ. MGR: MM
CHK:
PROJECT NO: 1002.02

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SCALE IN FEET

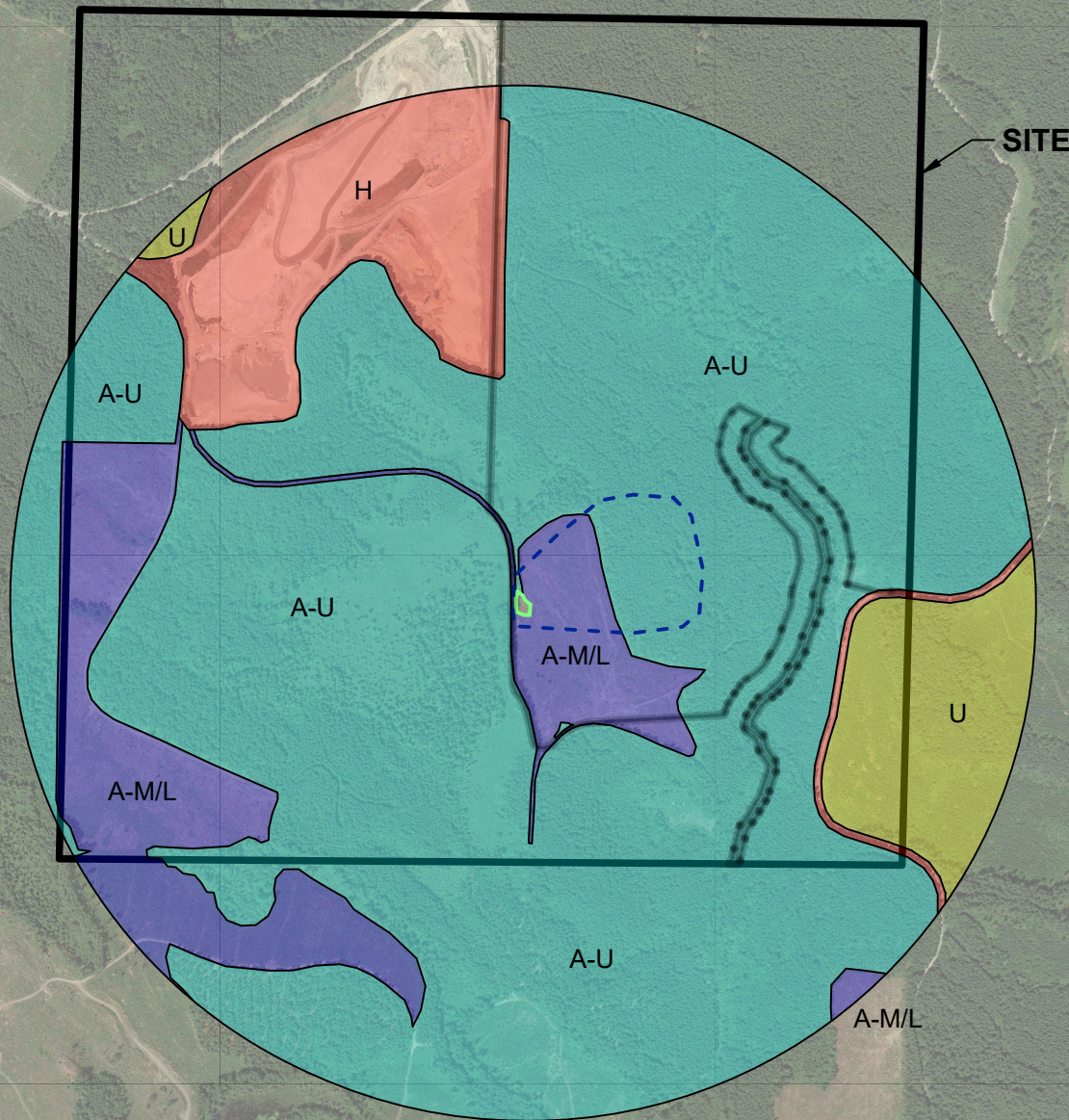
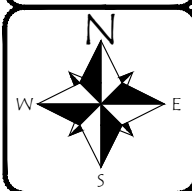


Figure 18
WETLAND RATING -1 KM OFFSET-WETLAND F
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

DATE: 6/15/21
DWN: JLL
REQ. BY:
PRJ. MGR: MM
CHK:
PROJECT NO:
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LEGEND:

- Site Boundary
- Wetland Unit Boundary
- - - Contributing Basin
(87.4x area of wetland)

H2.1 Accessible Habitat

A-U	A-U (73.3%)
A-M/L	A-M/L (11.3%)

H2.2 Undisturbed Habitat

U	U (05.8%)
M/L	M/L (00.0%)

H2.3 Land Use Intensity

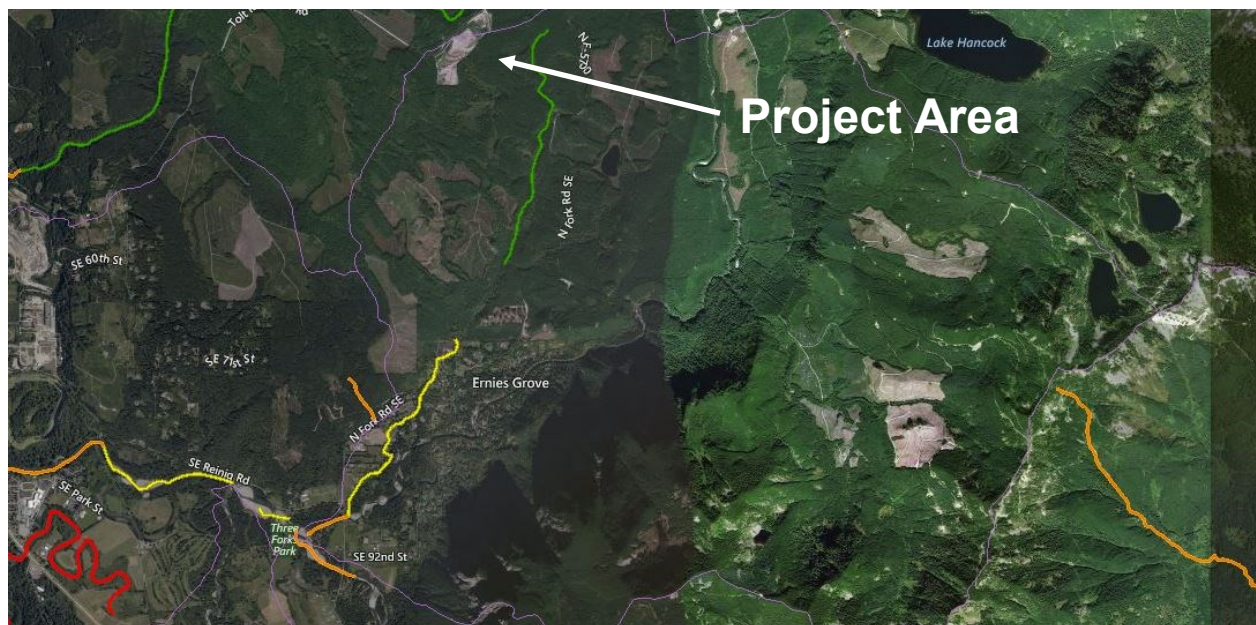
H	H (09.6%)
---	-----------

H 2.1. Accessible Habitat Equation

$$\% \text{A-U habitat } 73.3\% + [(\% \text{A-M/L intensity land uses})/2] \text{ } 05.7\% = 79.0\%$$

H 2.2. Total Undisturbed Habitat Equation

$$\% \text{A-U} + \% \text{U habitat } 79.1\% + [(\% \text{A-M/L} + \% \text{M/L land uses})/2] \text{ } 05.7\% = 84.8\%$$



Water Quality Atlas Map - 303(d)

Orange - Category 4A waters

Yellow - Category 2 waters

Green - Category 1 waters



Water Quality Atlas Map - TMDLs

Purple - approved Yellow - in development



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PRJ. MGR: MKM
PROJ #: 1002.02

Figure 19
WETLAND RATING-303(d) LISTED WATERS & TMDLs
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 1.** View southwest from northeast boundary of Wetland A showing wetland inundation.

Below: **Photo 2.** View northeast from northeast boundary of Wetland A showing upland buffer.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 1
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 3.** View northwest from north boundary of Wetland A showing a wetland/upland interface.

Below: **Photo 4.** View northwest from southeast boundary of Wetland A showing area dominated by bog plants.



Note:

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Photoplate 2
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 5.** View east from southeast boundary of Wetland A showing upland forested buffer.

Below: **Photo 6.** View east from south boundary of Wetland A showing a wetland monitoring gage.



Note:

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Photoplate 3
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 7.** View northeast from north boundary of Wetland A showing interior of wetland.

Below: **Photo 8.** View southwest from north boundary of Wetland A showing wetland/upland interface.



Note:

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Photoplate 4
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 9.** View northwest from southeast boundary of Wetland C.

Below: **Photo 10.** View northwest from southeast boundary of Wetland C. Typical forested upland conditions are on outside of wetland. Wetland A is visible in the background.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 5
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 11.** View north from northern lobe of Wetland B showing scrub-shrub vegetation.

Below: **Photo 12.** View west from northern lobe of Wetland B showing forested upland buffer.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 6
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 13.** Closeup of wetland test plot B5 soils.

Below: **Photo 14.** Closeup of upland test plot B8 soils.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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PROJ.#:
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Photoplate 7
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 15.** View southwest showing Wetland B in the vicinity to TP-B9.

Below: **Photo 16.** View north from northern boundary of Wetland B showing forested upland buffer.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 8
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 17.** Closeup view of wetland test plot B9 soils.

Below: **Photo 18.** View north showing scrub-shrub vegetation from southern boundary of Wetland B.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 9
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 19.** View east showing Wetland D.

Below: **Photo 20.** View west showing upland buffer west of Wetland D.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 10
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 21.** View southwest showing Wetland E north of road.

Below: **Photo 22.** View southwest showing existing road and Wetland E that is located on both sides of road.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 11
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 23.** View north showing Wetland F.

Below: **Photo 24.** View east showing logged buffer east of Wetland F.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 12
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 25.** View east from the west side of Tate Creek.

Below: **Photo 26.** View north from centerline of Tate Creek.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 13
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 27.** View north from centerline of Tate Creek.

Below: **Photo 28.** View east showing Tate Creek.



Note:

Site photos were taken during the delineation site visits on February 24 and 25 and March 16, 2020.



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Photoplate 14
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 29.** View of fish break sign.

Below: **Photo 30.** View of dry channel upstream of fish sign in June 2021.



Note:

Site photos were taken on June 5, 2021.



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Photoplate 15
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.



Above: **Photo 31.** View upstream of fish sign showing dry channel in April 2021.

Below: **Photo 32.** View downstream of fish sign showing flow in channel, June 2021.



Note:

Site photos were taken on April 4 and June 5, 2021.



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Photoplate 16
SITE PHOTOS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, Washington
Section 14, Township 24N, Range 8E, W.M.

Appendix A | Wetland Determination Data Forms

Plant Indicators

The indicator status, which follows the common and scientific names on the data forms, indicates how likely a species is to be found in wetlands. Listed from most likely to least likely to be found in wetlands, the indicator status categories are:

- **OBL** (obligate wetland) - occur almost always (estimated probability >99%) under natural conditions in wetlands.
- **FACW** (facultative wetland) - usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
- **FAC** (facultative) - equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
- **FACU** (facultative upland) - usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).
- **UPL** (obligate upland) - occur almost always (estimated probability >99%) under natural conditions in non-wetlands.
- **NI** (no indicator) - insufficient data to assign to an indicator category.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-A1
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-1%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5646378 Long: -121.7468212 Datum: NAD83
 Soil Map Unit Name: (231) Seattle muck, 0 to 1 percent slopes NWI classification: Freshwater Forested/Shrub Wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies west of Wetland A's northern boundary. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot met all wetland indicators; therefore, TP-A1 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC:	<u>4</u> (A)
2. <u>Tsuga heterophylla</u>	15%	yes	FACU	Total Number of Dominant Species Across All Strata:	<u>7</u> (B)
3. <u>Picea sitchensis</u>	5%	yes	FAC		
4. _____	%				
50% = <u>10</u> 20% = <u>4</u>	20%	=Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC	<u>57</u> (A/B)
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Prevalence Index worksheet	
1. _____	%			Total % Cover of:	Multiply by:
2. <u>Malus fusca</u>	35%	yes	FACW	OBL species <u>1</u>	x 1= <u>1</u>
3. <u>Thuja plicata</u>	10%	yes	FAC	FACW species <u>1</u>	x 2= <u>2</u>
4. _____	%			FAC species <u>2</u>	x 3= <u>6</u>
5. _____	%			FACU species <u>3</u>	x 4= <u>12</u>
50% = <u>23</u> 20% = <u>9</u>	45%	=Total Cover		UPL species <u>0</u>	x 5= <u>0</u>
Herb Stratum (Plot size: <u>5</u> ft radius)				Column Totals:	<u>7</u> (A) <u>23</u> (B)
1. <u>Carex obnupta</u>	5%	yes	OBL	Prevalence Index = B/A = <u>3.29</u>	
2. <u>Vaccinium parvifolium</u>	5%	yes	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
3. <u>Polystichum munitum</u>	5%	yes	FACU		
4. _____	%				
5. _____	%				
6. _____	%				
7. _____	%				
8. _____	%				
9. _____	%				
10. _____	%				
11. _____	%				
50% = <u>8</u> 20% = <u>3</u>	15%	=Total Cover			
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____	%				
2. _____	%				
50% = ____ 20% = ____	%	=Total Cover		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
% Bare Ground in Herb Stratum <u>60%</u>					

Remarks: The hydrophytic vegetation criterion was met because over 50% of dominant species had FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP-A1

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		
0-16	10YR 2/1	100%		%			mucky sandy loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosal (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☒ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Organic soil material to a depth of at least 16 inches was observed in the test plot during the site visit and meets Loamy Mucky Material (F1) because a layer of mucky modified loamy soil material 4 inches or more thick within 6 inches of the soil surface was present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☒ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☒ No ☐ Depth (Inches): 6 inch bgs
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: High Water Table (A2) was observed within the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-A2
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): hillslope Local relief: (concave, convex, none): Convex Slope (%): 0-8%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5646134 Long: -121.7467244 Datum: NAD83
 Soil Map Unit Name: (10) Barneston gravelly ashy coarse sandy loam, 0 to 8% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies east of the boundary of Wetland A. The vegetation in this plot consisted of tree and shrub species. This test plot did not meet wetland indicators; therefore, TP-A2 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <u>Pseudotsuga menziesii</u>	65%	yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A)
2. <u>Tsuga heterophylla</u>	40%	yes	FACU		
3. <u>Picea sitchensis</u>	5%	no	FAC	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
4. _____	%				
50% = <u>55</u> 20% = <u>22</u>	110%	=Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC	<u>0</u> (A/B)
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Prevalence Index worksheet	
1. <u>Gaultheria shallon</u>	5%	yes	FACU	Total % Cover of:	Multiply by:
2. _____	%			OBL species _____	x 1= _____
3. _____	%			FACW species _____	x 2= _____
4. _____	%			FAC species _____	x 3= _____
5. _____	%			FACU species _____	x 4= _____
50% = <u>3</u> 20% = <u>1</u>	%	=Total Cover		UPL species _____	x 5= _____
Herb Stratum (Plot size: <u>5</u> ft radius)				Column Totals:	(A) _____ (B) _____
1. _____	%			Prevalence Index = B/A= _____	
2. _____	%			Hydrophytic Vegetation Indicators:	
3. _____	%			<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
4. _____	%			<input type="checkbox"/> 2 – Dominance Test is >50%	
5. _____	%			<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹	
6. _____	%			<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
7. _____	%			<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹	
8. _____	%			<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
9. _____	%				
10. _____	%				
11. _____	%				
50% = <u>3</u> 20% = <u>1</u>	5%	=Total Cover			
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____	%			Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
2. _____	%				
50% = _____ 20% = _____	%	=Total Cover			
% Bare Ground in Herb Stratum <u>65%</u>					

Remarks: The hydrophytic vegetation criterion was not met because less than 50% of dominant species had FAC, FACW, or OBL indicator statuses. Moss and leaf litter occupied 35% of the ground surface within this test plot.

SOIL

Sampling Point: TP-A2**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		
+4		100%		%			Duff	See Remarks Below
0-16	7.5YR 3/4	100%		%			Sandy Loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: Test plot contained a 4 inch layer of duff over mineral layer. No indicators of hydric soil were observed in the test plot during the site visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of hydrology were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-A3
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-1%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.564985 Long: -121.7472245 Datum: NAD83
 Soil Map Unit Name: (231) Seattle muck, 0 to 1 percent slopes NWI classification: Freshwater Forested/Shrub Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies in the north portion of Wetland A's north unit. The vegetation in this plot consisted of shrub species. This test plot met all wetland indicators; therefore, TP-A3 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%			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. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				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>Malus fusca</u>	55%	yes	FACW	
2. <u>Spiraea douglasii</u>	35%	yes	FACW	
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>45</u> 20% = <u>18</u>	90%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>10%</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The hydrophytic vegetation criterion was met because 100% of dominant species had FACW indicator statuses. Mosses, Polystichum munitum (FACU), and Gaultheria shallon (FACU) were observed outside the test plot, on Wetland A's boundary.

SOIL

Sampling Point: **TP-A3**

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		
0-8	10YR 2/2	100%		%			Mucky loam	
8-16	10YR 2/1	100%		%			Muck	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)

- ☒ Histosol (A1)
☒ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☒ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Organic soil material to a depth of at least 16 inches was observed in the test plot during the site visit and meets Histosol (A1) or Histic Epipedon (A2) because 16 inches or more of the upper 32 inches is organic soil material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☒ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☒ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☒ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (Inches): 12
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The primary hydrology indicators Surface Water (A1) and Hydrogen Sulfide Odor (C1) were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-A4
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Hillslope Local relief: (concave, convex, none): Convex Slope (%): 0-8%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5650196 Long: -121.7472337 Datum: NAD83
 Soil Map Unit Name: (10)Barneston gravelly ashy coarse sandy loam, 0 to 8% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies north of Wetland A. The vegetation in this plot consisted of tree and herbaceous species. This test plot did not meet wetland indicators; therefore, TP-A4 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%			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)
2. <u>Pseudotsuga menziesii</u>	50%	yes	FACU	
3. _____	%			
4. _____	%			
50% = <u>25</u> 20% = <u>10</u>	50%	=Total Cover		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 = _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <u>Acer circinatum</u>	60%	yes	FAC	
2. _____	%			
3. _____	%			
4. _____	%			Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	%			
50% = <u>30</u> 20% = <u>12</u>	60%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u>Polystichum munitum</u>	10%	yes	FACU	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>5</u> 20% = <u>2</u>	10%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
% Bare Ground in Herb Stratum <u>0%</u>				

Remarks: The hydrophytic vegetation criterion was not met because less than 50% of dominant species had FAC, FACW, or OBL indicator statuses. Moss and leaf litter occupied 95% of the ground surface within this test plot.

SOIL

Sampling Point: TP-A4

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		
+2		100%		%			Duff	See Remarks Below
0-16	10YR 3/4	50%		%			Gravelly Loam	
	10YR 3/6	50%		%			Gravelly Loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosal (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: Test plot contained a 2 inch layer of duff over mineral layer. No indicators of hydric soil were observed in the test plot during the site visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of hydrology were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-A5
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-1%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5642683 Long: -121.7449327 Datum: NAD83
 Soil Map Unit Name: (231) Seattle muck, 0 to 1 percent slopes NWI classification: Freshwater Forested/Shrub Wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies in the extreme northeast lobe of Wetland A. The vegetation in this plot consisted only of tree species. This test plot met all wetland indicators; therefore, TP-A5 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <u><i>Alnus rubra</i></u>	40%	yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____	%				
3. _____	%				
4. _____	%			Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
50% = <u>20</u> 20% = <u>8</u>	%	=Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC	<u>100</u> (A/B)
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Prevalence Index worksheet	
1. _____	%			Total % Cover of:	Multiply by:
2. _____	%			OBL species _____	x 1= _____
3. _____	%			FACW species _____	x 2= _____
4. _____	%			FAC species _____	x 3= _____
5. _____	%			FACU species _____	x 4= _____
50% = _____ 20% = _____	%	=Total Cover		UPL species _____	x 5= _____
Herb Stratum (Plot size: <u>5</u> ft radius)				Column Totals:	<u> </u> (A) <u> </u> (B)
1. _____	%			Prevalence Index = B/A = _____	
2. _____	%			Hydrophytic Vegetation Indicators:	
3. _____	%			<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
4. _____	%			<input checked="" type="checkbox"/> 2 – Dominance Test is >50%	
5. _____	%			<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹	
6. _____	%			<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
7. _____	%			<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹	
8. _____	%			<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
9. _____	%				
10. _____	%				
11. _____	%				
50% = _____ 20% = _____	%	=Total Cover			
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____	%			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____	%				
50% = _____ 20% = _____	%	=Total Cover			
% Bare Ground in Herb Stratum <u>60%</u>					

Remarks: The hydrophytic vegetation criterion was met because 100% of dominant species had FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: -A5

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		
+4		100%		%			Duff	See Remarks Below
0-6	10YR 2/2	100%		%			Peat	
6-16	10YR 2/1	100%		%			Peat	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)

- ☒ Histosol (A1)
☒ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (except MLRA 1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: This test plot contained a 4-inch layer of duff over the peat layer. Organic soil material to a depth of at least 16 inches was observed in the test plot during the site visit and meets Histosol (A1) or Histic Epipedon (A2) because 16 inches or more of the upper 32 inches is organic soil material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☒ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☒ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (Inches): 4
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The primary hydrology indicators Surface Water (A1) was observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-A6
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Hillslope Local relief: (concave, convex, none): Convex Slope (%): 0-8%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5642681 Long: -121.7448175 Datum: NAD83
 Soil Map Unit Name: (10) Barneston gravelly ashy coarse sandy loam, 0 to 8% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies northeast of the northeastern-most lobe of Wetland A. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot did not meet wetland indicators; therefore, TP-A6 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u>Pseudotsuga menziesii</u>	35%	yes	FACU	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)
2. <u>Tsuga heterophylla</u>	35%	yes	FACU	
3. _____	%			
4. _____	%			
50% = <u>35</u> 20% = <u>14</u>	70%	=Total Cover		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 = _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Rubus spectabilis</u>	15%	yes	FAC	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>8</u> 20% = <u>3</u>	15%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u>Polystichum munitum</u>	40%	yes	FACU	
2. <u>Rubus ursinus</u>	5%	no	FACU	
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>23</u> 20% = <u>9</u>	45%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>40%</u>				

Remarks: The hydrophytic vegetation criterion was not met because less than 50% of dominant species had FAC, FACW, or OBL indicator statuses. Moss and leaf litter occupied 15% of the ground surface within this test plot.

SOIL

Sampling Point: TP-A6

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		
+4		100%		%			Duff	See Remarks Below
0-16	10YR 3/6	100%		%			Silty Sand	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: This test plot contained a 4-inch layer of duff. No indicators of hydric soil were observed in the test plot during the site visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of hydrology were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-A7
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-1%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5637248 Long: -121.7462828 Datum: NAD83
 Soil Map Unit Name: (231) Seattle muck, 0 to 1 percent slopes NWI classification: Freshwater Forested/Shrub Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies within the southeastern portion of Wetland A's north unit. The vegetation in this plot consisted of tree and shrub species. This test plot met all wetland indicators; therefore, TP-A7 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u>Thuja plicata</u>	25%	yes	FAC	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)
2. <u>Populus balsamifera</u>	25%	yes	FAC	
3. <u>Picea sitchensis</u>	15%	yes	FAC	
4. _____	%			
50% = <u>38</u> 20% = <u>15</u>	75%	=Total Cover		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 = _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Rubus spectabilis</u>	35%	yes	FAC	
2. <u>Rhododendron menziesii</u>	10%	yes	FACU	
3. <u>Spiraea douglasii</u>	5%	no	FACW	
4. _____	%			
5. _____	%			
50% = <u>25</u> 20% = <u>10</u>	50%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = _____ 20% = _____	%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			
2. _____	%			
50% = _____ 20% = _____	%	=Total Cover		
% Bare Ground in Herb Stratum _____ %				

Remarks: The hydrophytic vegetation criterion was met because over 50% of dominant species had FAC, FACW, or OBL indicator statuses. Abundant mosses were present on ground surface.

SOIL

Sampling Point: TP-A7

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		
+4		100%		%			Duff	See Remarks Below
0-8	10YR 2/1	100%		%			Mucky Loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosal (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☒ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: This test plot contained a 4-inch layer of duff. Organic soil material to a depth of at least 8 inches was observed and meets Loamy Mucky Material (F1) because a layer of mucky modified loamy soil material 4 inches or more thick within 6 inches of the soil surface was present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☒ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (Inches): 6
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The hydrology indicator Surface Water (A1) was met in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-A8
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Hillslope Local relief: (concave, convex, none): Convex Slope (%): 0-8%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5636158 Long: -121.7462623 Datum: NAD83
 Soil Map Unit Name: (10) Barneston gravelly ashy coarse sandy loam, 0 to 8% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies southeast of Wetland A's north unit. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot did not meet all wetland indicators; therefore, TP-A8 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <i>Pseudotsuga menziesii</i>	45%	yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>20</u> (A/B)
2. <i>Tsuga heterophylla</i>	30%	yes	FACU	
3. _____	%			
4. _____	%			
50% = <u>38</u> 20% = <u>15</u>	75%	=Total Cover		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 = _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <i>Rhododendron menziesii</i>	35%	yes	FACU	
2. <i>Rubus spectabilis</i>	25%	yes	FAC	
3. <i>Acer circinatum</i>	5%	no	FAC	
4. _____	%			
5. _____	%			
50% = <u>33</u> 20% = <u>13</u>	65%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <i>Polystichum munitum</i>	45%	yes	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <i>Rubus ursinus</i>	5%	no	FACU	
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>25</u> 20% = <u>10</u>	50%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u>%				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Remarks: The hydrophytic vegetation criterion was not met because less than 50% of dominant species had FAC, FACW, or OBL indicator statuses. Moss and leaf litter occupied 100% of the ground surface within this test plot.

SOIL

Sampling Point: TP-A8

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		
+2		100%		%			Duff	
2-16	10YR 3/6	100%		%			Loamy sand	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: The test plot contained a 2-inch layer of duff. No indicators of hydric soil were observed in the test plot during the site visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of hydrology were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-B3
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5643691 Long: -121.7403675 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: PSSC
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies within Wetland B. The vegetation in this plot consisted of trees, shrubs, and herbaceous species. This test plot met all wetland indicators; therefore, TP-B3 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <u>Populus balsamifera</u>	40%	yes	FAC	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)
2. <u>Tsuga heterophylla</u>	10%	no	FACU		
3. <u>Alnus rubra</u>	10%	no	FAC		
4. _____	%				
50% = <u>30</u> 20% = <u>12</u>	60%	=Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC <u>100</u> (A/B)	
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Prevalence Index worksheet	
1. <u>Rubus spectabilis</u>	30%	yes	FAC	Total % Cover of: _____ Multiply by: _____	
2. _____	%			OBL species _____ x 1= _____	
3. _____	%			FACW species _____ x 2= _____	
4. _____	%			FAC species _____ x 3= _____	
5. _____	%			FACU species _____ x 4= _____	
50% = <u>15</u> 20% = <u>6</u>	30%	=Total Cover		UPL species _____ x 5= _____	
Herb Stratum (Plot size: <u>5</u> ft radius)				Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
1. <u>Tolmiea menziesii</u>	5%	yes	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
2. _____	%				
3. _____	%				
4. _____	%				
5. _____	%				
6. _____	%				
7. _____	%				
8. _____	%				
9. _____	%				
10. _____	%				
11. _____	%				
50% = <u>3</u> 20% = <u>1</u>	5%	=Total Cover		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Woody Vine Stratum (Plot size: <u>15</u> ft radius)					
1. _____	%				
2. _____	%			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
50% = _____ 20% = _____	%	=Total Cover			
% Bare Ground in Herb Stratum _____ %					

Remarks: The hydrophytic vegetation criterion was met because 100% of dominant species had FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP-B3

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		
0-16	10YR 2/1	50%		%			Peat loam	
0-16	10YR 2/2	50%		%			Peat loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☒ Histosol (A1)
☒ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Organic soil material to a depth of at least 16 inches was observed in the test plot during the site visit and meets Histosol (A1) or Histic Epipedon (A2) because 16 inches or more of the upper 32 inches is organic soil material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☒ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☒ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☒ No ☐ Depth (Inches): 0
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The hydrology indicators Saturation (A3), Water-Stained Leaves (B9), and Geomorphic Position (D2) were met.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-B4
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Hillslope Local relief: (concave, convex, none): Convex Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5663795 Long: -121.7406501 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies south of the southeasternmost portion of Wetland B. This test plot did not meet all three wetland indicators; therefore, TP-A6 was considered to be within uplands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u>Thuja plicata</u>	25%	yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</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>75</u> (A/B)
2. <u>Alnus rubra</u>	15%	yes	FAC	
3. _____	%			
4. _____	%			
50% = <u>20</u> 20% = <u>8</u>	40%	=Total Cover		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 = _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <u>Acer circinatum</u>	35%	yes	FAC	
2. <u>Rubus spectabilis</u>	5%	no	FAC	
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>20</u> 20% = <u>8</u>	40%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u>Polystichum munitum</u>	20%	yes	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>10</u> 20% = <u>4</u>	20%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum _____ %				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: 75% of the ground was covered in mosses in this test plot. The hydrophytic vegetation criterion was met because greater than 50% of dominant species had FAC indicator statuses.

SOIL

Sampling Point: TP-B4

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		
0-16	10YR 2/2	100%		%			Loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosal (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present?Yes ☐ No ☒

Remarks: No indicators of hydric soil were observed in the test plot during the site visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present?Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-B5
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5689369 Long: -121.7415688 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies in the northeastern portion of Wetland B. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot met all wetland indicators, therefore, TP-B5 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u><i>Alnus rubra</i></u>	45%	yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</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>60</u> (A/B)
2. <u><i>Pseudotsuga menziesii</i></u>	20%	yes	FACU	
3. _____	%			
4. _____	%			
50% = <u>33</u> 20% = <u>13</u>	65%	=Total Cover		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 = _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u><i>Rubus spectabilis</i></u>	60%	yes	FAC	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>30</u> 20% = <u>12</u>	60%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. _____	%			
2. <u><i>Polystichum munitum</i></u>	10%	yes	FACU	
3. <u><i>Tolmiea menziesii</i></u>	2%	yes	FAC	
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>6</u> 20% = <u>2</u>	12%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0%</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: The hydrophytic vegetation criterion was met because greater than 50% of dominant species had FAC, FACW, or OBL indicator statuses.				

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 2/1	100%		%			Peat loam	
5-16	10YR 4/1	95%	10YR 6/8	5%	C	M	Clay loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Hydric soil indicator Depleted Matrix (F3) was met due to a matrix value of 4, chroma of 1, and redoximorphic features from 5-16 inches below the surface.

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☒ High Water Table (A2)
☒ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☒ No ☐ Depth (Inches): 8
 Saturation Present? Yes ☒ No ☐ Depth (Inches): 6
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: High Water Table (A2) was observed 8 inches below the surface and Saturation (A3) was observed 6 inches below the surface.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-B6
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Convex Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5689946 Long: -121.7417429 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies in the northeastern boundary of Wetland B. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot did not meet wetland indicators; therefore, TP-B6 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u><i>Tsuga heterophylla</i></u>	80%	yes	FACU	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>34</u> (A/B)
2. <u><i>Alnus rubra</i></u>	10%	no	FAC	
3. _____	%			
4. _____	%			
50% = <u>45</u> 20% = <u>18</u>	90%	=Total Cover		Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>3</u> x 3 = <u>9</u> FACU species <u>2</u> x 4 = <u>8</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>5</u> (A) <u>17</u> (B) Prevalence Index = B/A = <u>3.4</u>
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u><i>Acer circinatum</i></u>	5%	yes	FAC	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>3</u> 20% = <u>1</u>	5%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u><i>Polystichum munitum</i></u>	40%	yes	FACU	
2. <u><i>Rubus ursinus</i></u>	2%	no	FAC	
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>21</u> 20% = <u>8</u>	42%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u>%				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: The hydrophytic vegetation criterion was not met because less than 50% of dominant species had FAC, FACW, or OBL indicator statuses.				

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		
+10		%		%			Duff	See Remarks Below
0-16	7.5YR 3/4	100%		%			Silty sandy loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Minerals (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

☐ 2 cm Muck (A10)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: No indicators of hydric soil were observed in the test plot during the site visit. The plot contained a 10-inch layer of duff.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

Secondary Indicators (2 or more required)

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____

Water Table Present? Yes ☐ No ☒ Depth (Inches): _____

Saturation Present? Yes ☐ No ☒ Depth (Inches): _____

(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:No indicators of hydrology were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-B7
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5679401 Long: -121.7419332 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: Freshwater Forested/Shrub Wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies in the northeastern portion of Wetland B. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot met all wetland indicators; therefore, TP-B7 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u><i>Thuja plicata</i></u>	45%	yes	FAC	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. _____	%			
50% = <u>23</u> 20% = <u>9</u>	45%	=Total Cover		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 = _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <u><i>Rubus spectabilis</i></u>	50%	yes	FAC	
2. <u><i>Cornus sericea</i></u>	5%	no	FACW	
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>28</u> 20% = <u>11</u>	55%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u><i>Carex stipata</i></u>	10%	yes	OBL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u><i>Oenanthe sarmentosa</i></u>	10%	yes	OBL	
3. <u><i>Lysichiton americanus</i></u>	2%	no	OBL	
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>11</u> 20% = <u>4</u>	22%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u>%				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The hydrophytic vegetation criterion was met because 100% of dominant species had FAC, FACW, or OBL indicator statuses.

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 2/1	100%		%			Mucky loam	
10-16	10YR 3/1	97%	10YR 4/6	3%	C	M	Clay	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Minerals (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☒ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

☐ 2 cm Muck (A10)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present?

Yes☒ No☐

Remarks: Organic soil material to a depth of 10 inches was observed in the test plot during the site visit and meets Loamy Mucky Material (F1) because a layer of mucky modified loamy soil material 4 inches or more thick within 6 inches of the soil surface was present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

Secondary Indicators (2 or more required)

☒ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes☒ No☐ Depth (Inches): 4-6

Water Table Present? Yes☐ No☒ Depth (Inches): _____

Saturation Present? Yes☐ No☒ Depth (Inches): _____

(Includes Capillary fringe)

Wetland Hydrology Present?

Yes☒ No☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:Surface Water (A1) was observed at 4 to 6 inches on top of the ground surface during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-B8
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Convex Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5679995 Long: -121.7420128 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies northeast of Wetland B. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot did not meet wetland indicators; therefore, TP-B8 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <u><i>Tsuga heterophylla</i></u>	60%	yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. <u><i>Thuja plicata</i></u>	20%	yes	FAC	Total Number of Dominant Species Across All Strata:	<u>5</u> (B)
3. _____	%			Percent of Dominant Species That Are OBL, FACW, or FAC	<u>40</u> (A/B)
4. _____	%			Prevalence Index worksheet	
50% = <u>40</u> 20% = <u>16</u>	80%	=Total Cover		Total % Cover of:	Multiply by:
				OBL species	<u>0</u> x 1 = <u>0</u>
				FACW species	<u>0</u> x 2 = <u>0</u>
				FAC species	<u>3</u> x 3 = <u>9</u>
				FACU species	<u>3</u> x 4 = <u>12</u>
				UPL species	<u>0</u> x 5 = <u>0</u>
				Column Totals:	<u>6</u> (A) <u>21</u> (B)
				Prevalence Index = B/A = <u>3.5</u>	
				Hydrophytic Vegetation Indicators:	
				<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
				<input type="checkbox"/> 2 – Dominance Test is >50%	
				<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹	
				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹	
				<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: The hydrophytic vegetation criterion was not met because less than 50% of dominant species had FAC, FACW, or OBL indicator statuses. Mosses occupied 90% of the ground surface.					

SOIL

Sampling Point: **TP-B8**

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		
+6		100%		%			Duff	See Remarks Below
0-16	7.5YR 3/4	100%		%			Silty sandy loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: No indicators of hydric soil were observed in the test plot during the site visit. The test plot contained a 6-inch layer of duff.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of hydrology were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-B9
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5686007 Long: -121.7426027 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies in the northeastern portion of Wetland B. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot met all wetland indicators; therefore, TP-B9 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u><i>Tsuga heterophylla</i></u>	80%	yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>67</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = <u>40</u> 20% = <u>16</u>	80%	=Total Cover		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 = _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <u><i>Rubus spectabilis</i></u>	10%	yes	FAC	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>5</u> 20% = <u>2</u>	10%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. _____	%			
2. <u><i>Lysichiton americanus</i></u>	5%	yes	OBL	
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>5</u> 20% = <u>1</u>	5%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0%</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: The hydrophytic vegetation criterion was met because greater than 50% of dominant species had FAC, FACW, or OBL indicator statuses.				

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		
0-16	10YR 2/1	100%		%			Peat loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

☒ Histosol (A1)
☒ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (except MLRA 1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes☒ No☐

Remarks: Organic soil material to a depth of at least 16 inches was observed in the test plot during the site visit and meets Histosol (A1) or Histic Epipedon (A2) because 16 inches or more of the upper 32 inches is organic soil material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

☐ Surface Water (A1)
☒ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes☐ No☒ Depth (Inches): _____
Water Table Present? Yes☒ No☐ Depth (Inches): 0
Saturation Present? Yes☐ No☒ Depth (Inches): _____
(Includes Capillary fringe)

Wetland Hydrology Present? Yes☒ No☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:High Water Table (A2) was observed at the surface.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-B10
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Hillslope Local relief: (concave, convex, none): Convex Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5685953 Long: -121.7425597 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies northeast of Wetland B's northeast boundary. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot did not meet all wetland indicators; therefore, TP-B10 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u><i>Tsuga heterophylla</i></u>	90%	yes	FACU	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>34</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = <u>45</u> 20% = <u>18</u>	90%	=Total Cover		Prevalence Index worksheet Total % Cover of: _____ Multiply by: OBL species <u>0</u> x 1= <u>0</u> FACW species <u>0</u> x 2= <u>0</u> FAC species <u>1</u> x 3= <u>3</u> FACU species <u>2</u> x 4= <u>8</u> UPL species <u>0</u> x 5= <u>0</u> Column Totals: <u>3</u> (A) <u>11</u> (B) Prevalence Index = B/A = <u>3.7</u>
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <u><i>Vaccinium parvifolium</i></u>	5%	yes	FACU	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>3</u> 20% = <u>1</u>	5%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u><i>Blechnum spicant</i></u>	5%	yes	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>3</u> 20% = <u>1</u>	5%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u>%				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: The hydrophytic vegetation criterion was not met because less than 50% of dominant species had FAC, FACW, or OBL indicator statuses. Mosses occupied 85% of the ground surface.				

SOIL

Sampling Point: TP-B10

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		
+3		100%		%			Duff	See Remarks Below
0-16	7.5YR 3/4	100%		%			Silt loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: No indicators of hydric soil were observed in the test plot during the site visit. The test plot contained a 3-inch layer of duff.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of hydrology were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-C1
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-1%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5639503 Long: -121.7458233 Datum: NAD83
 Soil Map Unit Name: (231) Seattle muck, 0 to 1 percent slopes NWI classification: Freshwater Forested/Shrub Wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies within Wetland C. The vegetation in this plot consisted of herbaceous species. This test plot met all wetland indicators; therefore, TP-C1 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				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. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
Herb Stratum (Plot size: 5 ft radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Lysichiton americanus</u>	5%	yes	OBL	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = ____ 20% = ____	5%	=Total Cover		
Woody Vine Stratum (Plot size: 15 ft radius)				
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>75%</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The test plot contained 20% moss cover and downed logs covered in moss. The hydrophytic vegetation criterion was met because 100% of dominant species had FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP-C1

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 2/1	100%		%			Gravelly mucky loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosal (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☒ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Organic soil material to a depth of at least 10 inches was observed in the test plot during the site visit and meets Loamy Mucky Material (F1) because a layer of mucky modified loamy soil material 4 inches or more thick within 6 inches of the soil surface was present. Roots and rocks were present at 10 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☒ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (Inches): 6
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The hydrology indicators Surface Water (A1) was met in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/25/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-C2
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Hillslope Local relief: (concave, convex, none): Convex Slope (%): 0-8%
 Subregion (LRR): LRR A, MRLA2 Lat: 47.5638688 Long: -121.7459292 Datum: NAD83
 Soil Map Unit Name: (10) Barneston gravelly ashy coarse sandy loam, 0 to 8% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies east of Wetland C. The vegetation in this plot consisted of tree, shrub, and herbaceous species. This test plot did not met all wetland indicators; therefore, TP-C2 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u>Picea sitchensis</u>	40%	yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>14</u> (A/B)
2. <u>Tsuga heterophylla</u>	20%	yes	FACU	
3. <u>Pseudotsuga menziesii</u>	10%	no	FACU	
4. _____	%			
50% = <u>35</u> 20% = <u>14</u>	70%	=Total Cover		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 = _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Vaccinium parvifolium</u>	10%	yes	FACU	
2. <u>Rhododendron ferruginea</u>	5%	yes	FACU	
3. <u>Gaultheria shallon</u>	5%	yes	FACU	
4. _____	%			
5. _____	%			
50% = <u>10</u> 20% = <u>4</u>	20%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u>Polystichum munitum</u>	20%	yes	FACU	
2. _____	%			
3. <u>Rubus ursinus</u>	10%	yes	FACU	
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>15</u> 20% = <u>6</u>	30%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u>%				

Remarks: The hydrophytic vegetation criterion was not met because less than 50% of dominant species had FAC, FACW, or OBL indicator statuses. Mosses occupied 75% of the ground surface..

SOIL

Sampling Point: **TP-C2**

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		
+2		100%		%			Duff	See Remarks Below
2-16	10YR 3/6	100%		%			Sandy loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: No indicators of hydric soil were observed in the test plot during the site visit. The test plot contained a 2-inch layer of duff.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of hydrology were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-D1
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression, drainageways Local relief: (concave, convex, none): Concave Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5643691 Long: -121.7403675 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: Freshwater Forested/Shrub Wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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"/>
Remarks: This test plot lies within Wetland D. The vegetation in this plot consisted of trees, shrubs, and herbaceous species. This test plot met all wetland indicators; therefore, TP-D1 was considered to be within a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <u><i>Tsuga heterophylla</i></u>	60%	yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
2. <u><i>Picea sitchensis</i></u>	20%	yes	FAC		
3. _____	%				
4. _____	%				
50% = <u>40</u> 20% = <u>16</u>	80%	=Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC <u>75</u> (A/B)	
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Prevalence Index worksheet	
1. <u><i>Acer circinatum</i></u>	5%	yes	FAC	Total % Cover of: _____ Multiply by: _____	
2. _____	%			OBL species _____ x 1= _____	
3. _____	%			FACW species _____ x 2= _____	
4. _____	%			FAC species _____ x 3= _____	
5. _____	%			FACU species _____ x 4= _____	
50% = <u>3</u> 20% = <u>1</u>	5%	=Total Cover		UPL species _____ x 5= _____	
Herb Stratum (Plot size: <u>5</u> ft radius)				Column Totals: _____ (A) _____ (B)	
1. <u><i>Tolmiea menziesii</i></u>	20%	yes	FAC	Prevalence Index = B/A = _____	
2. <u><i>Lysichiton americanus</i></u>	2%	no	OBL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
3. _____	%				
4. _____	%				
5. _____	%				
6. _____	%				
7. _____	%				
8. _____	%				
9. _____	%				
10. _____	%				
11. _____	%				
50% = <u>13</u> 20% = <u>5</u>	25%	=Total Cover			
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____	%				
2. _____	%				
50% = ____ 20% = ____	%	=Total Cover		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
% Bare Ground in Herb Stratum <u>0%</u>					

Remarks: Mosses occupied 85% of the ground surface. The hydrophytic vegetation criterion was met because 100% of dominant species had FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP-D1

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		
0-16	10YR 2/1	100%		%			Peat loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☒ Histosol (A1)
☒ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: . Organic soil material to a depth of at least 16 inches was observed in the test plot during the site visit and meets Histosol (A1) or Histic Epipedon (A2) because 16 inches or more of the upper 32 inches is organic soil material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☒ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☒ No ☐ Depth (Inches): 0
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The hydrology indicator Saturation (A3) was met at the surface in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 3/16/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-D2
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Hillslope Local relief: (concave, convex, none): Convex Slope (%): 0-3%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.5642346 Long: -121.7404491 Datum: NAD83
 Soil Map Unit Name: (158) Norma loam, 0 to 3 percent slopes NWI classification: PSSC
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies east of Wetland D. This test plot did not met all wetland indicators; therefore, TP-D2 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u><i>Tsuga heterophylla</i></u>	45%	yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. <u><i>Pseudotsuga menziesii</i></u>	15%	yes	FACU	
3. _____	%			Total Number of Dominant Species Across All Strata: <u>5</u> (B)
4. _____	%			
50% = <u>30</u> 20% = <u>12</u>	60%	=Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20</u> (A/B)
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Prevalence Index worksheet
1. <u><i>Vaccinium parvifolium</i></u>	5%	yes	FACU	Total % Cover of: _____ Multiply by: _____
2. _____	%			OBL species _____ x 1= _____
3. _____	%			FACW species _____ x 2= _____
4. _____	%			FAC species _____ x 3= _____
5. _____	%			FACU species _____ x 4= _____
50% = <u>3</u> 20% = <u>1</u>	5%	=Total Cover		UPL species _____ x 5= _____
Herb Stratum (Plot size: <u>5</u> ft radius)				Column Totals: _____ (A) _____ (B)
1. <u><i>Polystichum munitum</i></u>	40%	yes	FACU	Prevalence Index = B/A = _____
2. <u><i>Tolmiea menziesii</i></u>	10%	yes	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>25</u> 20% = <u>10</u>	50%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: Mosses occupied 80% of the ground surface. The hydrophytic vegetation criterion was not met because less than 50% of dominant species had FAC, FACW, or OBL indicator statuses.				

SOIL

Sampling Point: TP-D2

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		
0-16	10YR 3/3	100%		%			Loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present?Yes ☐ No ☒

Remarks: No indicators of hydric soil were observed in the test plot during the site visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present?Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of hydrology were observed in the test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: 5 Mile Fill Site City/County: King Sampling Date: 2/24/2020
 Applicant/Owner: Hos Bros Construction State: WA Sampling Point: TP-UP1
 Investigator(s): McGrath, Mara and Johnson, Beau Section, Township, Range: S14, T24N, R8E
 Landform (hillslope, terrace, etc.): Depression Local relief: (concave, convex, none): Concave Slope (%): 0-1%
 Subregion (LRR): LRR A, MLRA2 Lat: 47.570935 Long: -121.742090 Datum: NAD83
 Soil Map Unit Name: (10) Barneston gravelly ashy coarse sandy loam, 0 to 8% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain 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"/> Hydric Soils 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: This test plot lies in a slightly depressional area dominated by red alder and salmonberry at the end of a forest road, north of Wetland B. This test plot had no wetland indicators; therefore, TP-UP1 was considered to be within uplands.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <u><i>Alnus rubra</i></u>	40%	yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)	
2. <u><i>Pseudotsuga menziesii</i></u>	25%	yes	FACU		
3. _____	%				
4. _____	%				
50% = <u>33</u> 20% = <u>13</u>	65%	=Total Cover		Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Percent of Dominant Species That Are OBL, FACW, or FAC <u>50</u> (A/B)	
1. <u><i>Rubus spectabilis</i></u>	65%	yes	FAC	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. _____	%				
3. _____	%				
4. _____	%				
5. _____	%				
50% = <u>33</u> 20% = <u>13</u>	65%	=Total Cover			
Herb Stratum (Plot size: <u>5</u> ft radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
1. <u><i>Polystichum munitum</i></u>	30%	yes	FACU		
2. _____	%				
3. _____	%				
4. _____	%				
5. _____	%				
6. _____	%				
7. _____	%				
8. _____	%				
9. _____	%				
10. _____	%				
11. _____	%				
50% = <u>15</u> 20% = <u>6</u>	30%	=Total Cover			
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. _____	%				
2. _____	%				
50% = ____ 20% = ____	%	=Total Cover		Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
% Bare Ground in Herb Stratum <u>70%</u>					

Remarks: The hydrophytic vegetation criterion was not met due to lack of FAC, FACW, or OBL dominant species.

SOIL

Sampling Point: TP-UP1

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		
0-8	10YR 2/2	100%		%			Gravelly loam	
8-16	10YR 3/2	100%		%			Gravelly loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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.)**

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Minerals (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: There was no evidence of hydric soil indicators within the test plot during the site visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of hydrology were observed in the test plot during the site visit.

Appendix B | Western Washington Wetland Rating

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 2-24-2020, 2-25-2020, & 3-16-2020

Rated by M. McGrath Trained by Ecology? Yes X No Date of training 3-2019

HGM Class used for rating Depressional Wetland has multiple HGM classes? Y X N

NOTE: Form is not complete without the figures requested (figures can be combined).

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY I (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

X Category I – Total score = 23 – 27

 Category II – Total score = 20 – 22

 Category III – Total score = 16 – 19

 Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	(H) M L	(H) M L	(H) M L	
Landscape Potential	H (M) L	H (M) L	(H) M L	
Value	(H) M L	(H) M L	H (M) L	
Score Based on Ratings	8	8	8	24

Score for each
function based
on three
ratings
(order of ratings
is not
important)

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	(I)
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	N/A

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	9
Hydroperiods	D 1.4, H 1.2	9
Location of outlet (can be added to map of hydroperiods) None	D 1.1, D 4.1	9
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	9
Map of the contributing basin	D 4.3, D 5.3	10
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	10
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	19
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	19

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (can be added to figure above)	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- ___ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
___ At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- ___ The wetland is on a slope (*slope can be very gradual*),
___ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
___ The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- ___ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
___ The overbank flooding occurs at least once every 2 years.

NO – go to 6

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3	
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic (<i>use NRCS definitions</i>). Yes = 4 No = 0	4	
D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > 7/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	5	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4	
Total for D 1	Add the points in the boxes above	16

Rating of Site Potential If score is: X 12-16 = H 6-11 = M 0-5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges? <i>Small inputs from compacted, gravel road</i> Yes = 1 No = 0	1	
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0	
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0	
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source <i>Municipal biosolid application area in vicinity has likely contributed to algae in the past</i> Yes = 1 No = 0	1	
Total for D 2	Add the points in the boxes above	2

Rating of Landscape Potential If score is: 3 or 4 = H X 1 or 2 = M 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0	
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0	
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (<i>answer YES if there is a TMDL for the basin in which the unit is found</i>)? Yes = 2 No = 0	2	
Total for D 3	Add the points in the boxes above	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS		
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation		
D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	4	
D 4.2. <u>Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.</u> Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	3	
D 4.3. <u>Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</u> The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	5	
Total for D 4	Add the points in the boxes above	12

Rating of Site Potential If score is: X 12-16 = H 6-11 = M 0-5 = L Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	1	
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	0	
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at > 1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	0	
Total for D 5	Add the points in the boxes above	1

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. <u>The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.</u> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): <ul style="list-style-type: none"> Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. <i>Explain why</i> _____ points = 0 There are no problems with flooding downstream of the wetland. points = 0	2	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0	
Total for D 6	Add the points in the boxes above	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number A**These questions apply to wetlands of all HGM classes.****HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat**H 1.0. Does the site have the potential to provide habitat?**

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- ☐ Aquatic bed 4 structures or more: points = 4
☒ Emergent 3 structures: points = 2
☒ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
☒ Forested (areas where trees have > 30% cover) 1 structure: points = 0
If the unit has a Forested class, check if:
☒ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

4**H 1.2. Hydroperiods**

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- ☐ Permanently flooded or inundated 4 or more types present: points = 3
☒ Seasonally flooded or inundated 3 types present: points = 2
☒ Occasionally flooded or inundated 2 types present: points = 1
☒ Saturated only 1 type present: points = 0
☐ Permanently flowing stream or river in, or adjacent to, the wetland
☐ Seasonally flowing stream in, or adjacent to, the wetland
☐ Lake Fringe wetland **2 points**
☐ Freshwater tidal wetland **2 points**

2**H 1.3. Richness of plant species**

Count the number of plant species in the wetland that cover at least 10 ft².

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

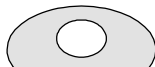
- If you counted: > 19 species points = 2
 5 - 19 species points = 1
 < 5 species points = 0

2**H 1.4. Interspersion of habitats**

Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

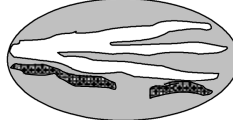
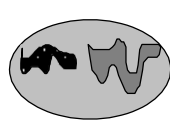


Low = 1 point



Moderate = 2 points

All three diagrams
in this row
are **HIGH** = 3 points

**3**Wetland name or number A**H 1.5. Special habitat features:**

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).
☒ Standing snags (dbh > 4 in) within the wetland
☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
☒ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
☒ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

4

Total for H 1

Add the points in the boxes above

14**Rating of Site Potential** If score is: **X 15-18 = H** **7-14 = M** **0-6 = L** *Record the rating on the first page***H 2.0. Does the landscape have the potential to support the habitat functions of the site?**

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).

Calculate: % undisturbed habitat __ + [(% moderate and low intensity land uses)/2] __ = **68.3%**

If total accessible habitat is:

- > 1/3 (33.3%) of 1 km Polygon points = 3
 20-33% of 1 km Polygon points = 2
 10-19% of 1 km Polygon points = 1
 < 10% of 1 km Polygon points = 0

3

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat __ + [(% moderate and low intensity land uses)/2] __ = **87.0%**

- Undisturbed habitat > 50% of Polygon points = 3
 Undisturbed habitat 10-50% and in 1-3 patches points = 2
 Undisturbed habitat 10-50% and > 3 patches points = 1
 Undisturbed habitat < 10% of 1 km Polygon points = 0

3

H 2.3. Land use intensity in 1 km Polygon: If

- > 50% of 1 km Polygon is high intensity land use points = (-2)
 ≤ 50% of 1 km Polygon is high intensity points = 0

0

Total for H 2

Add the points in the boxes above

6**Rating of Landscape Potential** If score is: **X 4-6 = H** **1-3 = M** **< 1 = L** *Record the rating on the first page***H 3.0. Is the habitat provided by the site valuable to society?**

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

- Site meets ANY of the following criteria: points = 2
 — It has 3 or more priority habitats within 100 m (see next page)
 — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
 — It is mapped as a location for an individual WDFW priority species
 — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
 — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan
 Site has 1 or 2 priority habitats (listed on next page) within 100 m **points = 1**
 Site does not meet any of the criteria above points = 0

1**Rating of Value** If score is: **2 = H** **X 1 = M** **0 = L***Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

___ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

___ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

___ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

___ **Old-growth/Mature forests:** **Old-growth west of Cascade crest** – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. **Mature forests** – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

___ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

___ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

___ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

✓ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes – Go to SC 1.1 No = Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = Category I No - Go to SC 1.2	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = Category I No = Category II	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = Category I No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = Category I No = Not a WHCV	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to SC 3.3 No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to SC 3.3 No = Is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = Is a Category I bog No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = Is a Category I bog No = Is not a bog <i>Wetland A meets criteria for a bog in some areas of its boundaries. Per wetland rating manual, even though the entire unit does not meet the criteria for peat systems, the entire unit should be rated as a Category I wetland. Table 4 species present and provide more than 30% cover in northeast side of Wetland A: Empetrum nigrum, Rhododendron groenlandicum. This area is forested with western redcedar and western hemlock along its perimeter. Some Sitka spruce is also present.</i>	Cat. I

Wetland name or number A

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p>Yes = Category I No = Not a forested wetland for this section</p>	Cat. I
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p>Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p>Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p>Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p>Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p>Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p>Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	N/A

Wetland name or number A

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Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 2-24-2020, 2-25-2020, & 3-16-2020

Rated by M. McGrath Trained by Ecology? Yes ☒ No ☐ Date of training 3-2019

HGM Class used for rating Slope Wetland has multiple HGM classes? Y X N

NOTE: Form is not complete without the figures requested (figures can be combined).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY II (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 – 27

X **Category II – Total score = 20 – 22**

Category III – Total score = 16 – 19

Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality		Hydrologic		Habitat	
Circle the appropriate ratings						
Site Potential	H	M	L	H	M	L
Landscape Potential	H	M	L	H	M	L
Value	H	M	L	H	M	L
Score Based on Ratings	6		6		8	
						20

Score for each function based on three ratings
(order of ratings is not important)

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	N/A

Wetland Rating System for Western WA: 2014 Update
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1

Wetland name or number B

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	11
Hydroperiods	H 1.2	11
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	11
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	11
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	11
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	12
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	19
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	19

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2

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

☒ The wetland is on a slope (*slope can be very gradual*),

☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

☒ The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

☐ The overbank flooding occurs at least once every 2 years.

NO – go to 6

YES – The wetland class is **Riverine** **NOTE:**

The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as **Depressional** for the rating.*

Wetland name or number B

SLOPE WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water quality		
S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: (<i>a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance</i>)	Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0		
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i>		
Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	2	
Total for S 1		6

Rating of Site Potential If score is: 12 = H X 6-11 = M 0-5 = L *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?	Other sources Yes = 1 No = 0	0
Total for S 2		0

Rating of Landscape Potential If score is: 1-2 = M X 0 = L *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?		
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i>	Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i>	Yes = 2 No = 0	2
Total for S 3		2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L *Record the rating on the first page*

Wetland name or number B

SLOPE WETLANDS		
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion		
S 4.0. Does the site have the potential to reduce flooding and stream erosion?		
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.</i>	Dense, uncut, rigid plants cover > 90% of the area of the wetland <i>Rubus spectabilis</i> points = 1 All other conditions points = 0	1
Rating of Site Potential If score is: <u>X 1</u> = M <u>0</u> = L <i>Record the rating on the first page</i>		

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	0

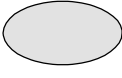
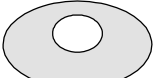
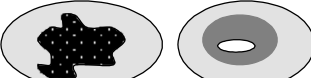


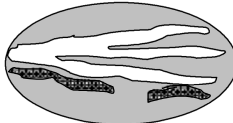
Rating of Landscape Potential If score is: 1 = M X 0 = L *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?		
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? <i>Middle Fork Snoqualmie River Corridor Planning & Capital Investment Strategy appears to address lower reaches of the river and not the project site.</i>	Yes = 2 No = 0	
Total for S 6		2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number B

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: <i>Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.</i> <input type="checkbox"/> Aquatic bed 4 structures or more: points = 4 <input type="checkbox"/> Emergent 3 structures: points = 2 <input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover) 1 structure: points = 0 <i>If the unit has a Forested class, check if:</i> <input checked="" type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (<i>see text for descriptions of hydroperiods</i>). <input type="checkbox"/> Permanently flooded or inundated 4 or more types present: points = 3 <input checked="" type="checkbox"/> Seasonally flooded or inundated 3 types present: points = 2 <input type="checkbox"/> Occasionally flooded or inundated 2 types present: points = 1 <input checked="" type="checkbox"/> Saturated only 1 type present: points = 0 <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake Fringe wetland 2 points <input type="checkbox"/> Freshwater tidal wetland 2 points	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . <i>Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle</i> If you counted: > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0	2
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> <div style="text-align: center;">  <p>Moderate = 2 points</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  <p>All three diagrams in this row are HIGH = 3 points</p> </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>	3

Wetland name or number B

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input checked="" type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)		4
Total for H 1 Add the points in the boxes above		13
Rating of Site Potential If score is: <u>15-18 = H</u> <u>X 7-14 = M</u> <u>0-6 = L</u> <i>Record the rating on the first page</i>		
H 2.0. Does the landscape have the potential to support the habitat functions of the site?		
H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). Calculate: % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = 48.3% If total accessible habitat is: > 1/2 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0		3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = 85.8% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0		3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0		0
Total for H 2 Add the points in the boxes above		6
Rating of Landscape Potential If score is: <u>X 4-6 = H</u> <u>1-3 = M</u> <u>< 1 = L</u> <i>Record the rating on the first page</i>		
H 3.0. Is the habitat provided by the site valuable to society?		
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0		2
Rating of Value If score is: <u>X 2 = H</u> <u>1 = M</u> <u>0 = L</u> <i>Record the rating on the first page</i>		

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE: This question is independent of the land use between the wetland unit and the priority habitat.**

___ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

___ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).

___ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

___ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

___ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – see web link above).

X **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161 – see web link above).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).

___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to SC 1.1 No = Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = Category I No - Go to SC 1.2	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = Category I No = Category II	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = Category I No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = Category I No = Not a WHCV	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to SC 3.3 No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to SC 3.3 No = Is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = Is a Category I bog No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = Is a Category I bog No = Is not a bog	Cat. I

Wetland name or number B

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p>Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p>Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p>Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p>Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p>Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p>Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p>Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>N/A</p>

Wetland name or number B

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Wetland name or number C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C Date of site visit: 2-24-2020, 2-25-2020, & 3-16-2020

Rated by M. McGrath Trained by Ecology? Yes X No Date of training 3-2019

HGM Class used for rating Depressional Wetland has multiple HGM classes? Y X N

NOTE: Form is not complete without the figures requested (figures can be combined).

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

 Category I – Total score = 23 – 27

 Category II – Total score = 20 – 22

X Category III – Total score = 16 – 19

 Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	H <u>M</u> L	H <u>M</u> L	H M <u>L</u>	
Landscape Potential	H <u>M</u> L	H M <u>L</u>	<u>H</u> M L	
Value	<u>H</u> M L	<u>H</u> M L	H <u>M</u> L	
Score Based on Ratings	7	6	6	19

Score for each
function based
on three
ratings
(order of ratings
is not
important)

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	<u>N/A</u>

Wetland name or number C

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	9
Hydroperiods	D 1.4, H 1.2	9
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	9
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	9
Map of the contributing basin	D 4.3, D 5.3	10
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	10
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	19
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	19

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (can be added to figure above)	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- ___ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
___ At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- ___ The wetland is on a slope (*slope can be very gradual*),
___ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
___ The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- ___ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
___ The overbank flooding occurs at least once every 2 years.

NO – go to 6

YES – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as **Depressional** for the rating.*

DEPRESSIONAL AND FLATS WETLANDS**Water Quality Functions** - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 3 points = 2 points = 1 points = 1	3
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic (<i>use NRCS definitions</i>). Yes = 4 No = 0		4
D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > 7/10 of area Wetland has persistent, ungrazed plants < 1/10 of area	points = 5 points = 3 points = 1 points = 0	0
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ¼ total area of wetland Area seasonally ponded is < ¼ total area of wetland	points = 4 points = 2 points = 0	4
Total for D 1	Add the points in the boxes above	11

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source <i>Municipal biosolid application area in vicinity has likely contributed to algae in the past</i>	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	1

Rating of Landscape Potential If score is: 3 or 4 = H X 1 or 2 = M 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (<i>answer YES if there is a TMDL for the basin in which the unit is found</i>)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression with no surface water leaving it (no outlet) Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 4 points = 2 points = 1 points = 0	4
D 4.2. <u>Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.</u> Marks of ponding are 3 ft or more above the surface or bottom of outlet Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet The wetland is a "headwater" wetland Wetland is flat but has small depressions on the surface that trap water Marks of ponding less than 0.5 ft (6 in)	points = 7 points = 5 points = 3 points = 3 points = 1 points = 0	0
D 4.3. <u>Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</u> The area of the basin is less than 10 times the area of the unit The area of the basin is 10 to 100 times the area of the unit The area of the basin is more than 100 times the area of the unit Entire wetland is in the Flats class	points = 5 points = 3 points = 0 points = 5	5
Total for D 4	Add the points in the boxes above	9

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	0

Rating of Landscape Potential If score is: 3 = H 1 or 2 = M X 0 = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. <u>The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.</u> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. • Surface flooding problems are in a sub-basin farther down-gradient. Flooding from groundwater is an issue in the sub-basin. The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. <i>Explain why</i> _____ There are no problems with flooding downstream of the wetland.	points = 2 points = 1 points = 1 points = 0 points = 0	2
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number C**These questions apply to wetlands of all HGM classes.****HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat**H 1.0. Does the site have the potential to provide habitat?**

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- ☐ Aquatic bed 4 structures or more: points = 4
☒ Emergent 3 structures: points = 2
☐ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
☐ Forested (areas where trees have > 30% cover) 1 structure: points = 0
If the unit has a Forested class, check if:
☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0**H 1.2. Hydroperiods**

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- ☐ Permanently flooded or inundated 4 or more types present: points = 3
☒ Seasonally flooded or inundated 3 types present: points = 2
☐ Occasionally flooded or inundated 2 types present: points = 1
☐ Saturated only 1 type present: points = 0
☐ Permanently flowing stream or river in, or adjacent to, the wetland
☐ Seasonally flowing stream in, or adjacent to, the wetland
☒ Lake Fringe wetland **2 points**
☒ Freshwater tidal wetland **2 points**

0**H 1.3. Richness of plant species**

Count the number of plant species in the wetland that cover at least 10 ft².

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

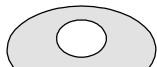
- If you counted: > 19 species points = 2
 5 - 19 species points = 1
 < 5 species points = 0

1**H 1.4. Interspersion of habitats**

Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

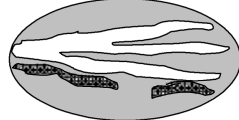
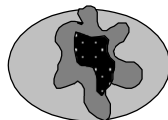


Low = 1 point



Moderate = 2 points

All three diagrams
in this row
are **HIGH** = 3 points

**0**Wetland name or number C**H 1.5. Special habitat features:**

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).
☐ Standing snags (dbh > 4 in) within the wetland
☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
☒ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

1

Total for H 1

Add the points in the boxes above

2

Rating of Site Potential If score is: **15-18 = H** **7-14 = M** **X 0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?**H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).**

Calculate: % undisturbed habitat __ + [(% moderate and low intensity land uses)/2] __ = **68.3%**

If total accessible habitat is:

- > 1/3 (33.3%) of 1 km Polygon points = 3
 20-33% of 1 km Polygon points = 2
 10-19% of 1 km Polygon points = 1
 < 10% of 1 km Polygon points = 0

3**H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.**

Calculate: % undisturbed habitat __ + [(% moderate and low intensity land uses)/2] __ = **87.0%**

- Undisturbed habitat > 50% of Polygon points = 3
 Undisturbed habitat 10-50% and in 1-3 patches points = 2
 Undisturbed habitat 10-50% and > 3 patches points = 1
 Undisturbed habitat < 10% of 1 km Polygon points = 0

3**H 2.3. Land use intensity in 1 km Polygon: If**

- > 50% of 1 km Polygon is high intensity land use points = (-2)
 ≤ 50% of 1 km Polygon is high intensity points = 0

0

Total for H 2

Add the points in the boxes above

6

Rating of Landscape Potential If score is: **X 4-6 = H** **1-3 = M** **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?**H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated.**

- Site meets ANY of the following criteria: points = 2
 — It has 3 or more priority habitats within 100 m (see next page)
 — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
 — It is mapped as a location for an individual WDFW priority species
 — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
 — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan
 Site has 1 or 2 priority habitats (listed on next page) within 100 m **points = 1**
 Site does not meet any of the criteria above points = 0

1

Rating of Value If score is: **2 = H** **X 1 = M** **0 = L**

Record the rating on the first page

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

___ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

___ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

___ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

___ **Old-growth/Mature forests:** **Old-growth west of Cascade crest** – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. **Mature forests** – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

___ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

___ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

___ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

✓ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes – Go to SC 1.1 No = Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = Category I No - Go to SC 1.2	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = Category I No = Category II	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = Category I No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = Category I No = Not a WHCV	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to SC 3.3 No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to SC 3.3 No = is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = Is a Category I bog No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = Is a Category I bog No = Is not a bog	Cat. I

Wetland name or number C

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p>Yes = Category I No = Not a forested wetland for this section</p>	Cat. I
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p>Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p>Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p>Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p>Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p>Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p>Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	N/A

Wetland name or number C

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Wetland name or number D

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland D Date of site visit: 2-24-2020, 2-25-2020, & 3-16-2020

Rated by M. McGrath Trained by Ecology? Yes ☒ No ☐ Date of training 3-2019

HGM Class used for rating		Wetland has multiple HGM classes?		
Slope		Y	X	N
1	1			
1	2			
1	3			
1	4			
1	5			
1	6			
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1	99			
1	100			

NOTE: Form is not complete without the figures requested (figures can be combined).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY III (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 – 27

Category II – Total score = 20 – 22

X Category III – Total score = 16 – 19

Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
Circle the appropriate ratings										
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	
Score Based on Ratings	5			5			7			17

Score for each function based on three ratings
(order of ratings is not important)

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	N/A

Wetland name or number D

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	13
Hydroperiods	H 1.2	13
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	13
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (can be added to figure above)	S 4.1	13
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	13
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	14
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	19
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	19

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – **Saltwater Tidal Fringe (Estuarine)**

YES – **Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

☒ The wetland is on a slope (*slope can be very gradual*),

☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

☒ The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

☐ The overbank flooding occurs at least once every 2 years.

NO – go to 6

YES – The wetland class is **Riverine** **NOTE:**

The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as **Depressional** for the rating.*

Wetland name or number D

SLOPE WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (<i>a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance</i>) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	2
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (<i>use NRCS definitions</i>): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants <i>Very little herbaceous or shrubs, mostly moss</i> points = 0	0
Total for S 1 Add the points in the boxes above	2

Rating of Site Potential If score is: 12 = H 6-11 = M X_0-5 = L

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: 1-2 = M X_0 = L

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i> Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i> Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X_2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number D

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion	
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0
Rating of Site Potential If score is: <u>1</u> = M <u>X_0</u> = L <i>Record the rating on the first page</i>	

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

Rating of Landscape Potential If score is: 1 = M X_0 = L

Record the rating on the first page

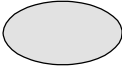
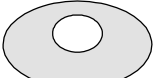



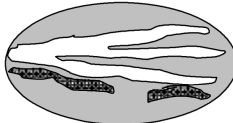
S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? <i>Middle Fork Snoqualmie River Corridor Planning & Capital Investment Strategy appears to address lower reaches of the river and not the project site.</i> Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	2

Rating of Value If score is: X_2-4 = H 1 = M 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

Wetland name or number D

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: <i>Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.</i> <input type="checkbox"/> Aquatic bed 4 structures or more: points = 4 <input type="checkbox"/> Emergent 3 structures: points = 2 <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover) 1 structure: points = 0 <i>If the unit has a Forested class, check if:</i> <input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (<i>see text for descriptions of hydroperiods</i>). <input type="checkbox"/> Permanently flooded or inundated 4 or more types present: points = 3 <input checked="" type="checkbox"/> Seasonally flooded or inundated 3 types present: points = 2 <input type="checkbox"/> Occasionally flooded or inundated 2 types present: points = 1 <input type="checkbox"/> Saturated only 1 type present: points = 0 <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake Fringe wetland 2 points <input type="checkbox"/> Freshwater tidal wetland 2 points	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . <i>Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle</i> If you counted: > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> <div style="text-align: center;">  <p>Moderate = 2 points</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p>All three diagrams in this row are HIGH = 3 points</p>	0

Wetland name or number D

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)		2
Total for H 1 Add the points in the boxes above		3
Rating of Site Potential If score is: <u>15-18</u> = H <u>7-14</u> = M <u>X</u> 0-6 = L <i>Record the rating on the first page</i>		
H 2.0. Does the landscape have the potential to support the habitat functions of the site?		
H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). Calculate: % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = 64.9% If total accessible habitat is: > 1/2 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0		3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = 89.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0		3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0		0
Total for H 2 Add the points in the boxes above		6
Rating of Landscape Potential If score is: <u>X</u> 4-6 = H <u>1-3</u> = M <u>< 1</u> = L <i>Record the rating on the first page</i>		
H 3.0. Is the habitat provided by the site valuable to society?		
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0		2
Rating of Value If score is: <u>X</u> 2 = H <u>1</u> = M <u>0</u> = L <i>Record the rating on the first page</i>		

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE: This question is independent of the land use between the wetland unit and the priority habitat.**

___ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

___ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).

___ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

___ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

___ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – see web link above).

X **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161 – see web link above).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).

___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes – Go to SC 1.1 No = Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = Category I No - Go to SC 1.2	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = Category I No = Category II	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = Category I No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = Category I No = Not a WHCV	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to SC 3.3 No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to SC 3.3 No = Is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = Is a Category I bog No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = Is a Category I bog No = Is not a bog	Cat. I

Wetland name or number D

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p>Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p>Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p>Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p>Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p>Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p>Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p>Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>N/A</p>

Wetland name or number D

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RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland E Date of site visit: 2-24-2020, 2-25-2020, & 3-16-2020

Rated by M. McGrath Trained by Ecology? Yes X No Date of training 3-2019

HGM Class used for rating Slope Wetland has multiple HGM classes? Y X N

NOTE: Form is not complete without the figures requested (*figures can be combined*).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY III (based on functions ✓ or special characteristics)

1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 – 27

Category II – Total score = 20 – 22

X Category III – Total score = 16 – 19

Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
Circle the appropriate ratings										
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	
Score Based on Ratings	6			7			6			TOTAL 19

Score for each function based on three ratings
(order of ratings is not important)

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	N/A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.1, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	15
Hydroperiods	H 1.2	15
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	15
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	15
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	15
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	16
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	19
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	19

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – **Saltwater Tidal Fringe (Estuarine)**

YES – **Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

☒ The wetland is on a slope (*slope can be very gradual*),

☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

☒ The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

☐ The overbank flooding occurs at least once every 2 years.

NO – go to 6

YES – The wetland class is **Riverine** **NOTE:**

The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as **Depressional** for the rating.*

Wetland name or number E

SLOPE WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (<i>a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance</i>) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	3
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants <i>Very little herbaceous or shrubs, mostly moss</i> points = 0	2
Total for S 1 Add the points in the boxes above	5

Rating of Site Potential If score is: 12 = H 6-11 = M X 0-5 = L

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? <i>Recent clearcut and gravel road north of wetland</i>	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: X 1-2 = M 0 = L

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i> Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i> Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number E

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion	
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	1
Rating of Site Potential If score is: <u>X 1</u> = M <u>0</u> = L	

Record the rating on the first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	1

Rating of Landscape Potential If score is: X 1 = M 0 = L

Record the rating on the first page

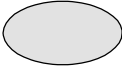
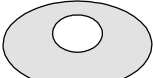



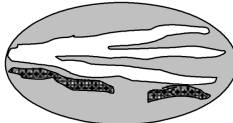
S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? <i>Middle Fork Snoqualmie River Corridor Planning & Capital Investment Strategy appears to address lower reaches of the river and not the project site.</i> Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

Wetland name or number E

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: <i>Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.</i> <input type="checkbox"/> Aquatic bed 4 structures or more: points = 4 <input type="checkbox"/> Emergent 3 structures: points = 2 <input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 <input type="checkbox"/> Forested (areas where trees have > 30% cover) 1 structure: points = 0 <i>If the unit has a Forested class, check if:</i> <input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (<i>see text for descriptions of hydroperiods</i>). <input type="checkbox"/> Permanently flooded or inundated 4 or more types present: points = 3 <input checked="" type="checkbox"/> Seasonally flooded or inundated 3 types present: points = 2 <input type="checkbox"/> Occasionally flooded or inundated 2 types present: points = 1 <input type="checkbox"/> Saturated only 1 type present: points = 0 <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake Fringe wetland 2 points <input type="checkbox"/> Freshwater tidal wetland 2 points	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . <i>Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle</i> If you counted: > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> <div style="text-align: center;">  <p>Moderate = 2 points</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p>All three diagrams in this row are HIGH = 3 points</p>	0

Wetland name or number E

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)		2
Total for H 1 Add the points in the boxes above		3
Rating of Site Potential If score is: <u>15-18</u> = H <u>7-14</u> = M <u>X</u> 0-6 = L <i>Record the rating on the first page</i>		
H 2.0. Does the landscape have the potential to support the habitat functions of the site?		
H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). Calculate: % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = 79.8% If total accessible habitat is: > 1/2 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0		3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat ____ + [(% moderate and low intensity land uses)/2] ____ = 89.4% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0		3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1 km Polygon is high intensity points = 0		0
Total for H 2 Add the points in the boxes above		6
Rating of Landscape Potential If score is: <u>X</u> 4-6 = H <u>1-3</u> = M <u>< 1</u> = L <i>Record the rating on the first page</i>		
H 3.0. Is the habitat provided by the site valuable to society?		
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0		1
Rating of Value If score is: <u>2</u> = H <u>X</u> 1 = M <u>0</u> = L <i>Record the rating on the first page</i>		

Wetland name or number E

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE: This question is independent of the land use between the wetland unit and the priority habitat.**

___ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

___ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).

___ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

___ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

___ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – see web link above).

___ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161 – see web link above).

___ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).

___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number E

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to SC 1.1 No = Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = Category I No - Go to SC 1.2	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = Category I No = Category II	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = Category I No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = Category I No = Not a WHCV	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to SC 3.3 No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to SC 3.3 No = Is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = Is a Category I bog No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = Is a Category I bog No = Is not a bog	Cat. I

Wetland name or number E

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p>Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p>Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p>Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p>Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p>Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p>Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p>Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>N/A</p>

Wetland name or number E

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Wetland name or number F

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland F Date of site visit: 2-24-2020, 2-25-2020, & 3-16-2020Rated by M. McGrath Trained by Ecology? Yes X No Date of training 3-2019HGM Class used for rating Depressional Wetland has multiple HGM classes? Y X N **NOTE: Form is not complete without the figures requested (figures can be combined).**Source of base aerial photo/map Google Earth**OVERALL WETLAND CATEGORY II** (based on functions ✓ or special characteristics)

1. Category of wetland based on FUNCTIONS

 Category I – Total score = 23 – 27X Category II – Total score = 20 – 22 Category III – Total score = 16 – 19 Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
Circle the appropriate ratings										
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	
Score Based on Ratings	8			7			6			21

Score for each function based on three ratings (order of ratings is not important)

9 = H, H, H

8 = H, H, M

7 = H, H, L

7 = H, M, M

6 = H, M, L

6 = M, M, M

5 = H, L, L

5 = M, M, L

4 = M, L, L

3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	N/A

Wetland name or number F

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	17
Hydroperiods	D 1.4, H 1.2	17
Location of outlet (can be added to map of hydroperiods) None	D 1.1, D 4.1	17
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	17
Map of the contributing basin	D 4.3, D 5.3	18
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	18
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	19
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	19

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (can be added to figure above)	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- ___ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
___ At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- ___ The wetland is on a slope (*slope can be very gradual*),
___ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
___ The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- ___ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
___ The overbank flooding occurs at least once every 2 years.

NO – go to 6

YES – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as **Depressional** for the rating.*

Wetland name or number F

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 3 points = 2 points = 1 points = 1	3
D 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</u> Yes = 4 No = 0		0
D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > 7/10 of area Wetland has persistent, ungrazed plants < 1/10 of area	points = 5 points = 3 points = 1 points = 0	5
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ¼ total area of wetland Area seasonally ponded is < ¼ total area of wetland	points = 4 points = 2 points = 0	4
Total for D 1	Add the points in the boxes above	12

Rating of Site Potential If score is: X 12-16 = H 6-11 = M 0-5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges? <i>Small input from compacted, gravel road along west boundary of wetland</i> Yes = 1 No = 0		1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? <i>Recent clearcut</i> Yes = 1 No = 0		1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	2

Rating of Landscape Potential If score is: 3 or 4 = H X 1 or 2 = M 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number F

DEPRESSIONAL AND FLATS WETLANDS		
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation		
D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression with no surface water leaving it (no outlet) Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 4 points = 2 points = 1 points = 0	4
D 4.2. <u>Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.</u> Marks of ponding are 3 ft or more above the surface or bottom of outlet Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet The wetland is a "headwater" wetland Wetland is flat but has small depressions on the surface that trap water Marks of ponding less than 0.5 ft (6 in)	points = 7 points = 5 points = 3 points = 3 points = 1 points = 0	0
D 4.3. <u>Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</u> The area of the basin is less than 10 times the area of the unit The area of the basin is 10 to 100 times the area of the unit The area of the basin is more than 100 times the area of the unit Entire wetland is in the Flats class	points = 5 points = 3 points = 0 points = 5	3
Total for D 4	Add the points in the boxes above	7

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. <u>The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.</u> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): <ul style="list-style-type: none"> Flooding occurs in a sub-basin that is immediately down-gradient of unit. Surface flooding problems are in a sub-basin farther down-gradient. Flooding from groundwater is an issue in the sub-basin. The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. <i>Explain why</i> _____ There are no problems with flooding downstream of the wetland.	points = 2 points = 1 points = 1 points = 0 points = 0	2
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number F**These questions apply to wetlands of all HGM classes.****HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat**H 1.0. Does the site have the potential to provide habitat?**

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- ☐ Aquatic bed 4 structures or more: points = 4
☐ Emergent 3 structures: points = 2
☒ X Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
☐ Forested (areas where trees have > 30% cover) 1 structure: points = 0
If the unit has a Forested class, check if:
☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0**H 1.2. Hydroperiods**

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- ☐ Permanently flooded or inundated 4 or more types present: points = 3
☒ X Seasonally flooded or inundated 3 types present: points = 2
☐ Occasionally flooded or inundated 2 types present: points = 1
☐ Saturated only 1 type present: points = 0
☐ Permanently flowing stream or river in, or adjacent to, the wetland
☐ Seasonally flowing stream in, or adjacent to, the wetland
☐ Lake Fringe wetland **2 points**
☐ Freshwater tidal wetland **2 points**

0**H 1.3. Richness of plant species**

Count the number of plant species in the wetland that cover at least 10 ft².

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

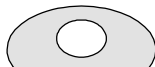
- If you counted: > 19 species points = 2
 5 - 19 species points = 1
 < 5 species points = 0

1**H 1.4. Interspersion of habitats**

Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

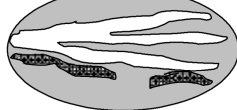


Low = 1 point



Moderate = 2 points

All three diagrams
in this row
are **HIGH** = 3 points

**0**Wetland name or number F**H 1.5. Special habitat features:**

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).
☐ Standing snags (dbh > 4 in) within the wetland
☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
☒ X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
☒ X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

2

Total for H 1

Add the points in the boxes above

3**Rating of Site Potential** If score is: 15-18 = H 7-14 = M X 0-6 = L *Record the rating on the first page***H 2.0. Does the landscape have the potential to support the habitat functions of the site?**

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).

Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = **79.0%**

If total accessible habitat is:

- > 1/3 (33.3%) of 1 km Polygon points = 3
 20-33% of 1 km Polygon points = 2
 10-19% of 1 km Polygon points = 1
 < 10% of 1 km Polygon points = 0

3

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = **84.8%**

- Undisturbed habitat > 50% of Polygon points = 3
 Undisturbed habitat 10-50% and in 1-3 patches points = 2
 Undisturbed habitat 10-50% and > 3 patches points = 1
 Undisturbed habitat < 10% of 1 km Polygon points = 0

3

H 2.3. Land use intensity in 1 km Polygon: If

- > 50% of 1 km Polygon is high intensity land use points = (-2)
 ≤ 50% of 1 km Polygon is high intensity points = 0

0

Total for H 2

Add the points in the boxes above

6**Rating of Landscape Potential** If score is: X 4-6 = H 1-3 = M < 1 = L *Record the rating on the first page***H 3.0. Is the habitat provided by the site valuable to society?**

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

- Site meets ANY of the following criteria: points = 2
 — It has 3 or more priority habitats within 100 m (see next page)
 — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
 — It is mapped as a location for an individual WDFW priority species
 — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
 — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan
 Site has 1 or 2 priority habitats (listed on next page) within 100 m **points = 1**
 Site does not meet any of the criteria above points = 0

1**Rating of Value** If score is: 2 = H X 1 = M 0 = L*Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

___ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

___ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

___ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

___ **Old-growth/Mature forests:** **Old-growth west of Cascade crest** – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. **Mature forests** – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

___ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

___ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

___ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

✓ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes – Go to SC 1.1 No = Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = Category I No - Go to SC 1.2	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = Category I No = Category II	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = Category I No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = Category I No = Not a WHCV	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to SC 3.3 No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to SC 3.3 No = is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = Is a Category I bog No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = Is a Category I bog No = Is not a bog	Cat. I

Wetland name or number F

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p>Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p>Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p>Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p>Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p>Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p>Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p>Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p>N/A</p>

Wetland name or number F

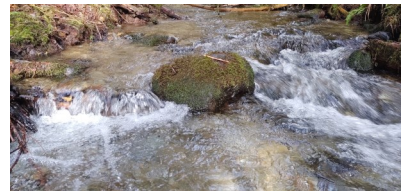
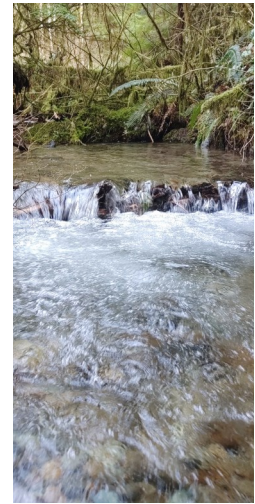
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Appendix C | Wildlife Assessment

APPENDIX C

Wildlife Assessment

June 15, 2021



5 Mile Fill Site

King County, Washington

Prepared for

Hos Bros Construction, Inc.

PO Box 1788

Woodinville, WA 98072-1788

(425) 481-5569

Prepared by

Ecological Land Services, Inc.

1157 3rd Avenue, Suite 220A • Longview, WA 98632


(360) 578-1371 • Project Number 1002.02

Signatures

The information and data in this report were compiled and prepared under the supervision and direction of the undersigned.



Lacey Hoffmann
Biologist



Mara McGrath
Senior Ecologist

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Figure 5	King County Critical Areas Map

Introduction

Ecological Land Services, Inc. (ELS) has completed this wildlife assessment for on behalf of the applicant, Hos Bros Construction, Inc. (Hos Bros), for the 5 Mile Fill Site permit expansion. This assessment summarizes wildlife observed onsite as well as likely wildlife occurrence according to available mapping and other online resources. This assessment has been prepared in accordance King County Code (KCC) *Chapter 21A.24, Critical Areas*. The study area for this wildlife assessment is the same as for the critical areas report.

Existing Conditions

PROJECT LOCATION

The 5 Mile Fill Site is in the Snohomish watershed (WRIA 7) and has been impacted by forestry land uses for decades. The 257-acre study area is comprised of a portion of King County tax parcel no. 1424089001, within Section 14, Township 24 North, Range 8 East of the Willamette Meridian (Figure 1).

SITE CONDITIONS

The 5 Mile Fill Site consists of mainly silvicultural land with timber ranging from approximately 4 years to 70 years old (Figure 2). Tate Creek originates from Wetland B near the center of the site and flows in a southerly direction. Timber within the riparian habitat of Tate Creek, Wetland A, and Wetland B consists of mainly mixed species mature forest canopy.

Existing Habitat

ONSITE CRITICAL AREAS

Wetlands

Six wetlands were delineated within the study area (Figure 2). The largest wetlands are Category I and Category II that are completely onsite or extend off to the south of the study area. These large wetlands contain a mix of forested, scrub shrub, and emergent vegetation classes. Trees within these wetlands vary in age, with some being over 50 years old according to historic aerial imagery (Figure 2). These large wetlands are primarily sustained by ground water and are seasonally flooded or inundated. The presence of scrub shrub vegetation within the wetlands paired with seasonal inundation creates ideal conditions for egg-laying amphibians.

Tate Creek

Tate Creek is a Type F (fish-bearing) stream with a short segment of Type N (non-fish bearing) in its upper reach. The stream originates at the southeast boundary of Wetland B and flows to the Snoqualmie River. During site visits in April and June 2021, we observed that the stream channel

was dry above a natural barrier, identified by a *Last Fish* sign. Tate Creek drains into the Snoqualmie River approximately 3.75 miles south from the study area. No man-made structures are present along Tate Creek's channel within the study area.

The natural barrier to fish passage causes the change from a fish-bearing stream to a non-fish-bearing stream. Below this natural barrier, Tate Creek is approximately 15 feet wide between its ordinary high water marks, and ranges from 2 feet to 4 feet in depth. Tate Creek has a densely forested riparian habitat which adequately shades the stream and provides input of large woody material for fish habitat and food. The stream substrate is sand and gravel below the natural fish barrier with lots of large woody debris and large rock in the channel, slowing water and creating pools. Above the natural fish barrier, the stream has a lower gradient resulting in a substrate that consists of mostly silt.

Other Habitat

The area for the fill expansion does not contain any mapped federal or state habitats of importance or any habitats of local significance other than wetlands and Tate Creek. The majority of the site consists of stands of Douglas fir monocultures ranging from approximately 3 years to over 40 years in age. These monoculture stands are densely planted, as typical for silvicultural practices, and have little sub-canopy. The two large wetlands onsite have a mixed stand of timber species, with some of the trees being over 50 years old (Figure 2).

Listed Species and Habitats in the Project Vicinity

The potential presence of listed species that have a primary association with the habitat on or adjacent to the project area was evaluated by a site visit and assessing aerial photographs for different habitat features. Additionally, the following online resources were used to research potential species presence:

- Washington Department of Fish and Wildlife (WDFW) SalmonScape,
- King County iMap (King County 2020),
- WDFW Priority Habitats and Species (PHS) website (WDFW 2019, 2020),
- U.S. Fish and Wildlife Service (USFWS) website (USFWS 2020), and
- National Marine Fisheries Service (NMFS) website (NMFS 2016, 2020).

In accordance with the CCC, this habitat assessment will address the species and habitats that have a primary association with habitat on or adjacent to the project area. The following table shows state priority habitats and federally or state-listed species, as well as state candidate species, that have a primary association with habitat within the study area. A previous onsite wildlife survey was completed in 2004 for a past expansion of the 5 Mile Fill Site, which is directly to the west of the current proposed expansion. The observed species are documented in Table 2. It is assumed these species also access the newly proposed fill site.

Table 1. State Priority Habitats and Endangered, Threatened, Candidate, and Sensitive Species that have Primary Association with Habitat on or Adjacent to the Study Area

Species or State Priority Habitat	State Status ¹	Federal Status ¹	Critical Habitat in Project Vicinity ²
Fish			
Bull Trout (<i>Salvelinus confluentus</i>)	Candidate	Threatened	No
Resident Coastal Cutthroat (<i>Oncorhynchus clarki</i>)	None	None	Not applicable
Mammals			
Gray Wolf (<i>Canis lupus</i>)	Endangered	Endangered	Not available
North American Wolverine (<i>Gulo gulo luscus</i>)	Candidate	Candidate	No
Roosevelt Elk (<i>Cervus elaphus</i>)	None	None	Not applicable
Birds			
Marbled Murrelet (<i>Brachyramphus marmoratus</i>)	Endangered	Threatened	No
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	Candidate	Threatened	No
Critical Habitats			
No critical habitats mapped in this location			

¹ Endangered - In danger of becoming extinct or extirpated; Threatened - Likely to become endangered within the foreseeable future throughout all or a significant portion of its range and that has been formally listed as such in the Federal Register under the Federal Endangered Species Act; Sensitive - Vulnerable or declining and could become endangered or threatened in the state;

²WDFW 2020

FISH

The study area does not have suitable habitat for bull trout. Bull trout spawn in the fall after temperatures drop, in streams with cold, unpolluted water, clean gravel and cobble substrate, and gentle stream slopes. They are more sensitive to increased water temperatures, poor water quality, and degraded stream habitat than many other salmonids. Additionally, there is no mapped critical habitat for bull trout in Tate Creek. It is assumed there are no bull trout in Tate Creek. Resident cutthroat trout have been extensively studied and observed on the lower reaches of Tate Creek. It is assumed that the resident coastal cutthroat trout are present within the study area up to the natural barrier serving as a water type break.

MAMMALS

The critical habitat for gray wolf is not available to the public; however, the study area and surrounding has not had any gray wolf sightings. North American wolverine is also unlikely to be onsite due to the elevation and presence of persistent spring snow cover for successful reproduction

(Federal Register 2013). No records exist of wolverines denning anywhere but in snow. Suitable habitat includes remote regions of boreal forests, subarctic and alpine tundra. Roosevelt elk sign was observed in the 2004 survey and are assumed to be present.

BIRDS

No marbled murrelet nesting or occupancy sites are mapped within the study area, and none have been observed. Some general habitat attributes are characteristic throughout its range, including the presence of nesting platforms, adequate canopy cover over the nest, landscape condition, and distance to the marine environment (Federal Register 2016). Because of the monoculture of young Douglas fir trees and the fact that the study area is approximately 30 miles from marine environment, it is highly unlikely marbled murrelet are present within the study area.

The yellow-billed cuckoo is a neotropical migrant that winters in South America and breeds in west of the Rocky Mountains in North America from Mexico to southern British Columbia. They are secretive birds that are in the Pacific Northwest for the nesting season from June through August, then they migrate south. Suitable breeding habitat in the Pacific Northwest includes cottonwood and willow bottoms along the Willamette and lower Columbia rivers (Federal Register 2014). The study area is likely too far west of the Rocky Mountains and too far north to be suitable for nesting.

CRITICAL HABITATS

No federally designated critical habitats are within the study area.

2004 WILDLIFE SURVEY

Table 2 contains species or sign observed from the 2004 wildlife survey.

Table 2. 2004 Inventory of Wildlife Species from Field Surveys

Species	Observations
Mammals	
▪ Roosevelt elk <i>Cervus elaphus roosevelti</i>	Individual tracks, and scat
▪ Columbian black-tailed deer <i>Odocoileus hemionus columbianus</i>	Tracks, scat, and rubs
▪ Coyote <i>Canis latrans</i>	Individual animal and scat
▪ Black bear <i>Ursus americanus</i>	Scat and tracks
▪ Mountain beaver <i>Aplodontia rufa</i>	Tunnels in road cuts
▪ Vole <i>Microtus</i> sp.	Tunnels in grassy area
▪ Douglas squirrel <i>Tamiasciurus douglasi mollipilosus</i>	Heard chirping and observed

Species	Observations
Birds	
▪ American robin <i>Turdus migratorius</i>	Song heard and individuals observed
▪ Mourning dove <i>Zenaida macroura</i>	Call heard
▪ Northern harrier <i>Circus cyaneus</i>	Individual observed
▪ Winter wren <i>Troglodytes troglodytes</i>	Song heard
▪ American crow <i>Corvus brachyrhynchos</i>	Song heard
▪ Ruffed grouse <i>Bonasa umbellus</i>	Flushed bird
▪ Song sparrow <i>Melospirza melodia</i>	Song heard
▪ Varied thrush <i>Ixoreus naevius</i>	Song heard
▪ Northern flicker <i>Colaptes auratus</i>	Call heard and individual observed
▪ Spotted toohee <i>Pipilo maculatus</i>	Call heard
▪ Swainson's thrush <i>Catharus ustulatus</i>	Song heard
▪ Canada goose <i>Branta canadensis</i>	Flock observed
▪ American goldfinch <i>Carduelis tristis</i>	Individual male observed and song heard
▪ American crow <i>Corvus brachyrhynchos</i>	Call heard
▪ Barn swallow <i>Hirundo rustica</i>	Individual observed
Amphibians	
▪ Pacific treefrog <i>Pseudocaris regilla</i>	Song heard

Development Standards

WILDLIFE HABITAT CONSERVATION AREAS

The following development standards (in italics) apply to development proposals and alterations on sites containing wildlife habitat conservation areas as listed in KCC 21A.24.382.

- A. *Unless allowed as an alteration exception under K.C.C. 21A.24.070, only the alterations identified in K.C.C. 21A.24.045 are allowed within a wildlife habitat conservation area;*

No alterations to mapped wildlife habitat conservation areas are proposed.

- B. *For a bald eagle:*

1. *The wildlife habitat conservation area is an area with a four-hundred-foot radius from an active nest;*

No mapped bald eagle nests are present within the proposed work area.

2. *Between March 15 and April 30, alterations are not allowed within eight hundred feet of the nest; and*

Not applicable.

3. *Between January 1 and August 31, land clearing machinery, such as bulldozers, graders or other heavy equipment, may not be operated within eight hundred feet of the nest;*

Not applicable.

- C. *For a great blue heron:*

1. *The wildlife habitat conservation area is an area with an eight-hundred-twenty-foot radius from the rookery. The department may increase the radius up to an additional one-hundred sixty-four feet if the department determines that the population of the rookery is declining; and*

There are no mapped rookeries within the study area or within 800 feet of its boundaries.

2. *Between January 1 and July 31, clearing or grading are not allowed within nine-hundred-twenty-four feet of the rookery;*

Not applicable.

- D. *For a marbled murrelet, the wildlife habitat conservation area is an area with a one-half-mile radius around an active nest;*

No critical habitat for marbled murrelet is mapped within the study area. There are also no mapped or observed nests.

- E. *For a northern goshawk, the wildlife habitat conservation area is an area with a one-thousand-five-hundred-foot radius around an active nest located outside of the urban growth area;*

No active nests for the northern goshawk have been observed within the study area. If a nest is observed, the proper precautions will be taken to avoid disturbance.

- F. *For an osprey:*

1. *The wildlife habitat conservation area is an area with a two-hundred-thirty-foot radius around an active nest; and*

No active nests have been observed within the study area. If a nest is observed, the proper precautions will be taken to avoid disturbance.

2. *Between April 1 and September 30, alterations are not allowed within six-hundred-sixty feet of the nest;*

If a nest is observed, the proper precautions will be taken to avoid disturbance.

- G. *For a peregrine falcon:*

1. *The wildlife habitat conservation area is an area extending for a distance of one-thousand feet of an eyrie on a cliff face, the area immediately above the eyrie on the rim of the cliff, and the area immediately below the cliff;*

There are no cliff faces within the study area; therefore, the presence of a peregrine falcon eyrie is highly unlikely.

2. *Between March 1 and June 30, land-clearing activities that result in loud noises, such as from blasting, chainsaws or heavy machinery, are not allowed within one-half mile of the eyrie; and*

Not applicable.

3. *New power lines may not be constructed within one-thousand feet of the eyrie;*

Not applicable.

- H. For a spotted owl, the wildlife habitat conservation area is an area with a three-thousand-seven-hundred-foot radius from an active nest;*

The habitat in the study area is not suitable for spotted owls. Additionally, PHS mapping from WDFW shows masks data and only shows townships in which spotted owls have been observed due to the sensitive status of the species. According to PHS, no spotted owls have been observed within the township that the project is located in.

- I. For a Townsend's big-eared bat:*

- 1. Between June 1 and October 1, the wildlife habitat conservation area is an area with a four-hundred-fifty-foot radius from the entrance to a cave or mine, located outside of the urban area, with an active nursery colony*

There are no caves or mines within the study area. The presence of Townsend's big-eared bat is highly unlikely. The existing surface mine adjacent to the proposed surface mine and fill site will not have suitable habitat for these bats.

- 2. Between November 1 and March 31, the wildlife habitat conservation area is an area with a four-hundred-fifty-foot radius around the entrance to a cave or mine located outside the urban growth area serving as a winter hibernacula;*

Not applicable.

- 3. Between March 1 and November 30, a building, bridge, tunnel, or other structure used solely for day or night roosting may not be altered or destroyed;*

Not applicable.

- 4. Between May 1 and September 15, the entrance into a cave or mine that is protected because of bat presence is protected from human entry; and*

Not applicable.

- 5. A gate across the entrance to a cave or mine that is protected because of bat presence must be designed to allow bats to enter and exit the cave or mine;*

Not applicable.

- J. For a Vaux's swift:*

- 1. The wildlife habitat conservation area is an area with a three-hundred-foot radius around an active nest located outside of the urban growth areas;*

No nests, active or inactive, were observed in the 2004 wildlife survey. Additionally, Vaux's swift, if present, would likely be using the study area for breeding. These birds are mainly

associated with old-growth and mature coniferous forests, using large hollow trees and snags for nesting and roosting. Because of the monoculture of Douglas fir being largely undersized and not having suitable nesting or roosting habitat, it is unlikely Vaux's swift would use the site for nesting.

2. *Between April 1 and October 31, clearing, grading, or outdoor construction is not allowed within four hundred feet of an active or potential nest tree. The applicant may use a species survey to demonstrate that the potential nest tree does not contain an active nest;*

Not applicable.

- K. *The department shall require protection of an active breeding site of any federal or state listed endangered, threatened, sensitive and candidate species or King County species of local importance not listed in subsections B. through J. of this section. If the Washington state Department of Fish and Wildlife has adopted management recommendations for a species covered by this subsection, the department shall follow those management recommendations. If management recommendations have not been adopted, the department shall base protection decisions on best available science. (Ord. 17485 § 23, 2012: Ord. 15051 § 198, 2004).*

Based on the monoculture of even-aged Douglas fir forest, it is unlikely any federal or state listed endangered, threatened, sensitive or candidate species, or species of local importance are located within the study area. If these species are observed, the proper setbacks and timing limitations will be immediately applied to the proposed surface mine and fill site.

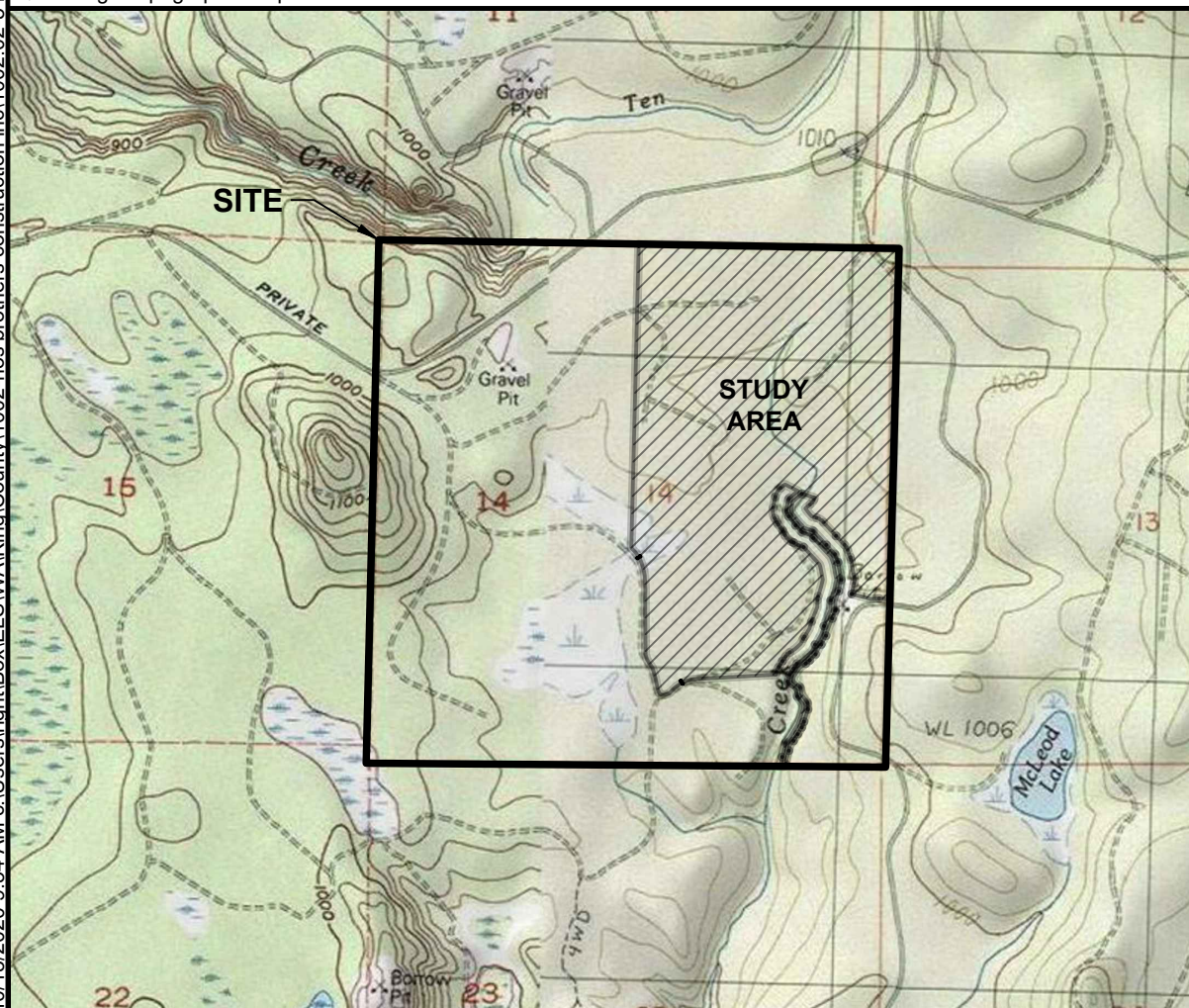
Limitations

ELS bases this report's determinations on standard scientific methodology and best professional judgment. In our opinion, local, state, and federal regulatory agencies should agree with our determinations. However, the information contained in this report should be considered preliminary and used at your own risk until it has been approved in writing by the appropriate regulatory agencies. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report.

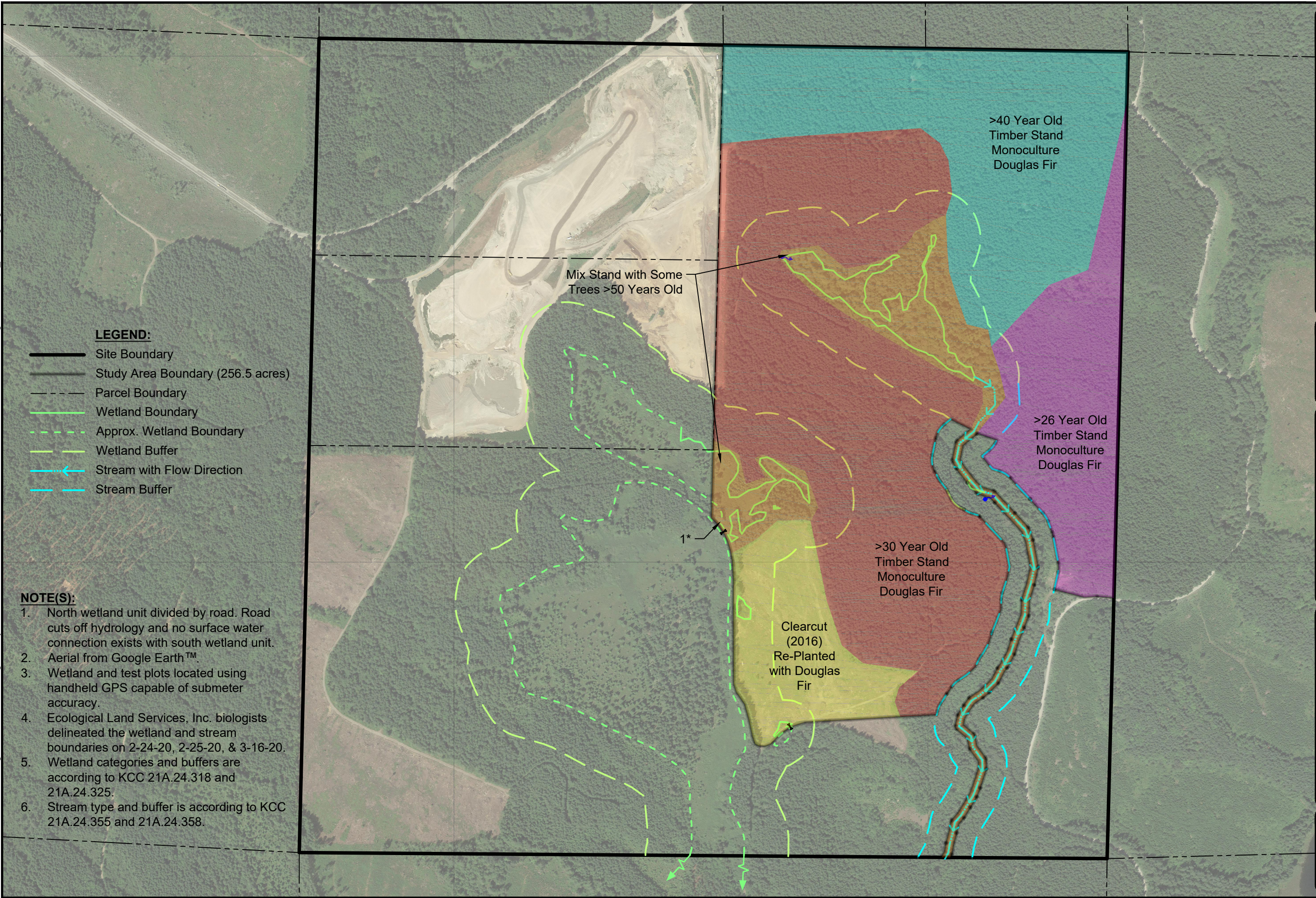
References

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Figures



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LEGEND:

- Site Boundary
- Study Area Boundary (256.5 acres)
- Parcel Boundary
- Wetland Boundary
- Approx. Wetland Boundary
- Wetland Buffer
- Stream with Flow Direction
- Stream Buffer

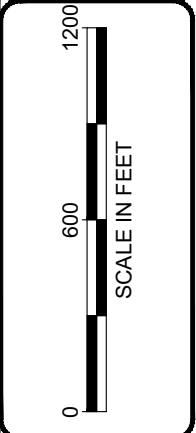
NOTE(S):

1. North wetland unit divided by road. Road cuts off hydrology and no surface water connection exists with south wetland unit.
2. Aerial from Google Earth™.
3. Wetland and test plots located using handheld GPS capable of submeter accuracy.
4. Ecological Land Services, Inc. biologists delineated the wetland and stream boundaries on 2-24-20, 2-25-20, & 3-16-20.
5. Wetland categories and buffers are according to KCC 21A.24.318 and 21A.24.325.
6. Stream type and buffer is according to KCC 21A.24.355 and 21A.24.358.

Figure 2
EXISTING HABITATS
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

DATE: 10/13/20
DWN: JLL
REQ. BY:
PRJ. MGR: MM
CHK:
PROJECT NO:
1002.02

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com



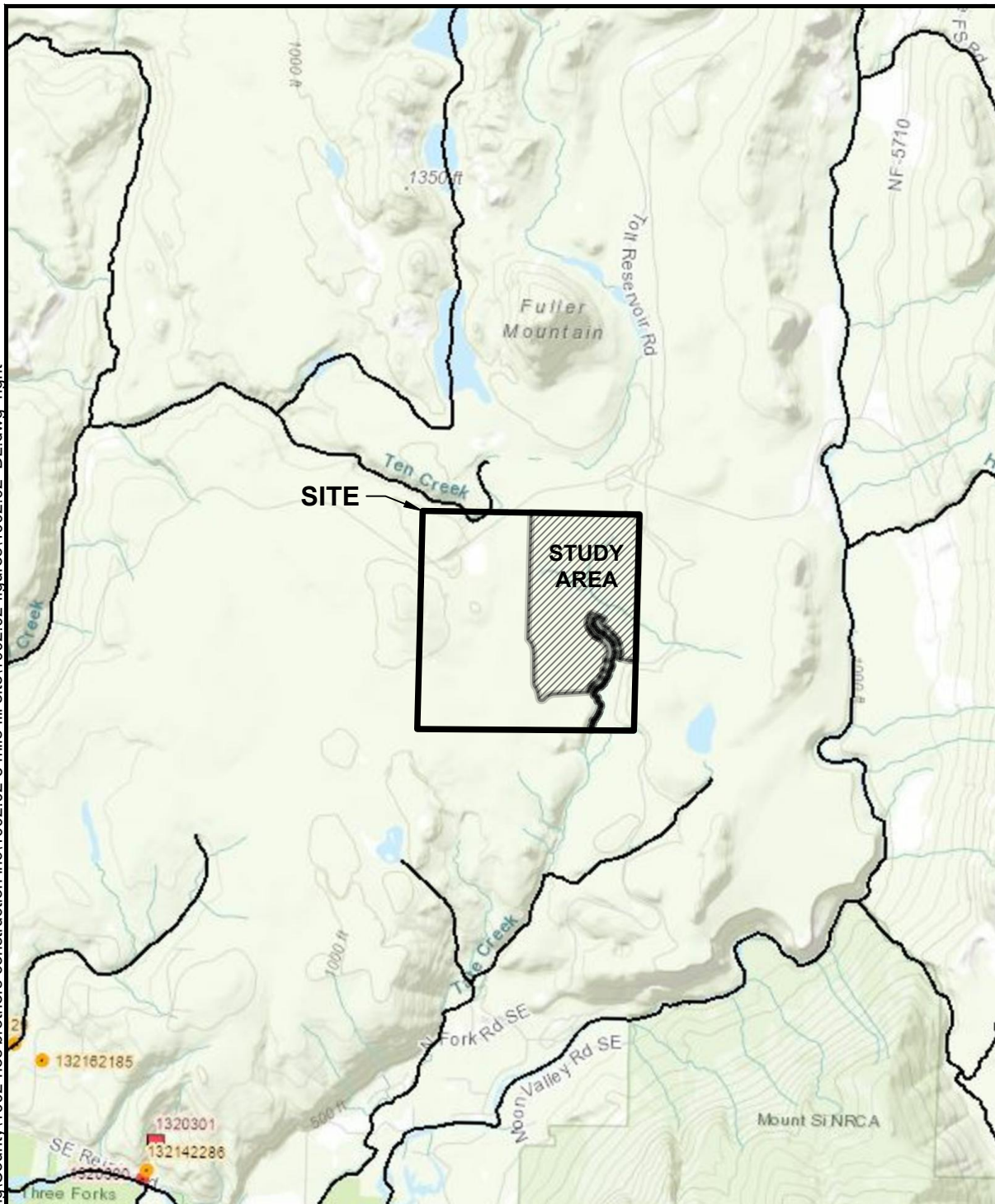


Figure 3
SALMONSCAPE
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

DATE: 10/13/20
DWN: JLL
REQ. BY:
PRJ. MGR: MM
CHK:
PROJECT NO:
1002.02

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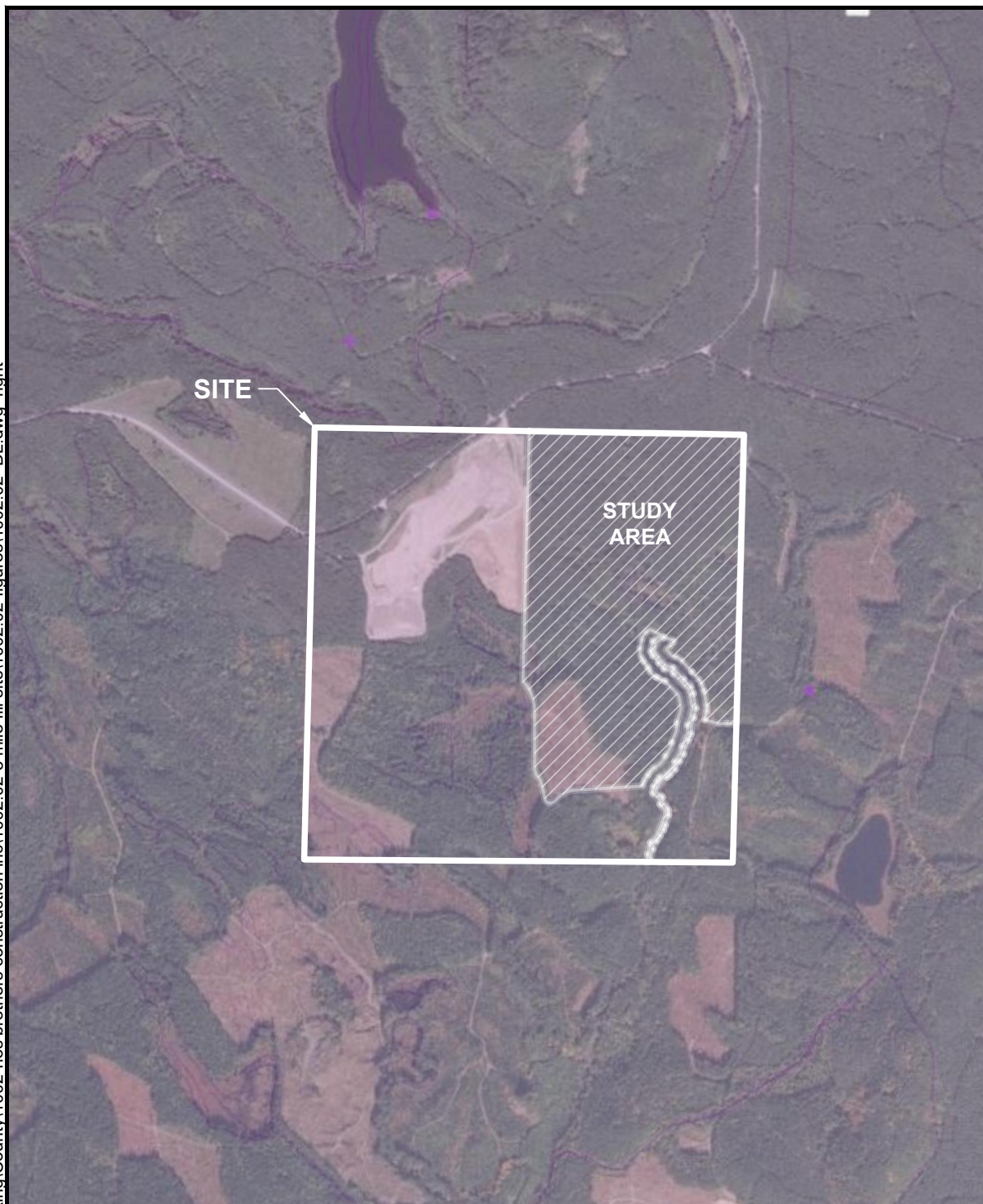
Fish Passage

Culverts	Dams	Other Barriers
Total Blockage	Total Blockage	Total Blockage
Total Blockage, Fishway Present	Total Blockage, Fishway Present	Total Blockage, Fishway Present
Partial Blockage	Partial Blockage	Partial Blockage
Partial Blockage, Fishway Present	Partial Blockage, Fishway Present	Partial Blockage, Fishway Present
Unknown Blockage	Unknown Blockage	Unknown Blockage
Unknown Blockage, Fishway Present	Unknown Blockage, Fishway Present	Unknown Blockage






Fish Distribution
All SalmonScape Species

NOTE: Map provided on-line by Washington State
Department of Fish & Wildlife at web address:
<http://apps.wdfw.wa.gov/salmonscape/map.html#>

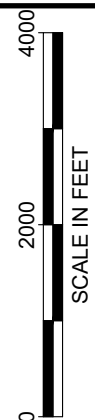
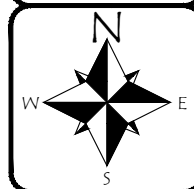
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SCALE IN FEET



LEGEND:

-  Resident Coastal Cutthroat, *Oncorhynchus clarki*, Occurrence/Migration
-  Cutthroat, *Oncorhynchus clarki*, Occurrence
-  Freshwater Forested/Shrub Wetland, Aquatic Habitat
-  Wetlands, Aquatic Habitat
-  Elk, *Cervus elaphus*, Regular Concentration

NOTE: Map provided on-line by Washington State
Department of Fish & Wildlife at web address:
<http://apps.wdfw.wa.gov/phsontheweb/>



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DATE: 10/13/20
DWN: JLL
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PRJ. MGR: MM
CHK:
PROJECT NO:
1002.02

Figure 4
PRIORITY HABITAT AND SPECIES MAP
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

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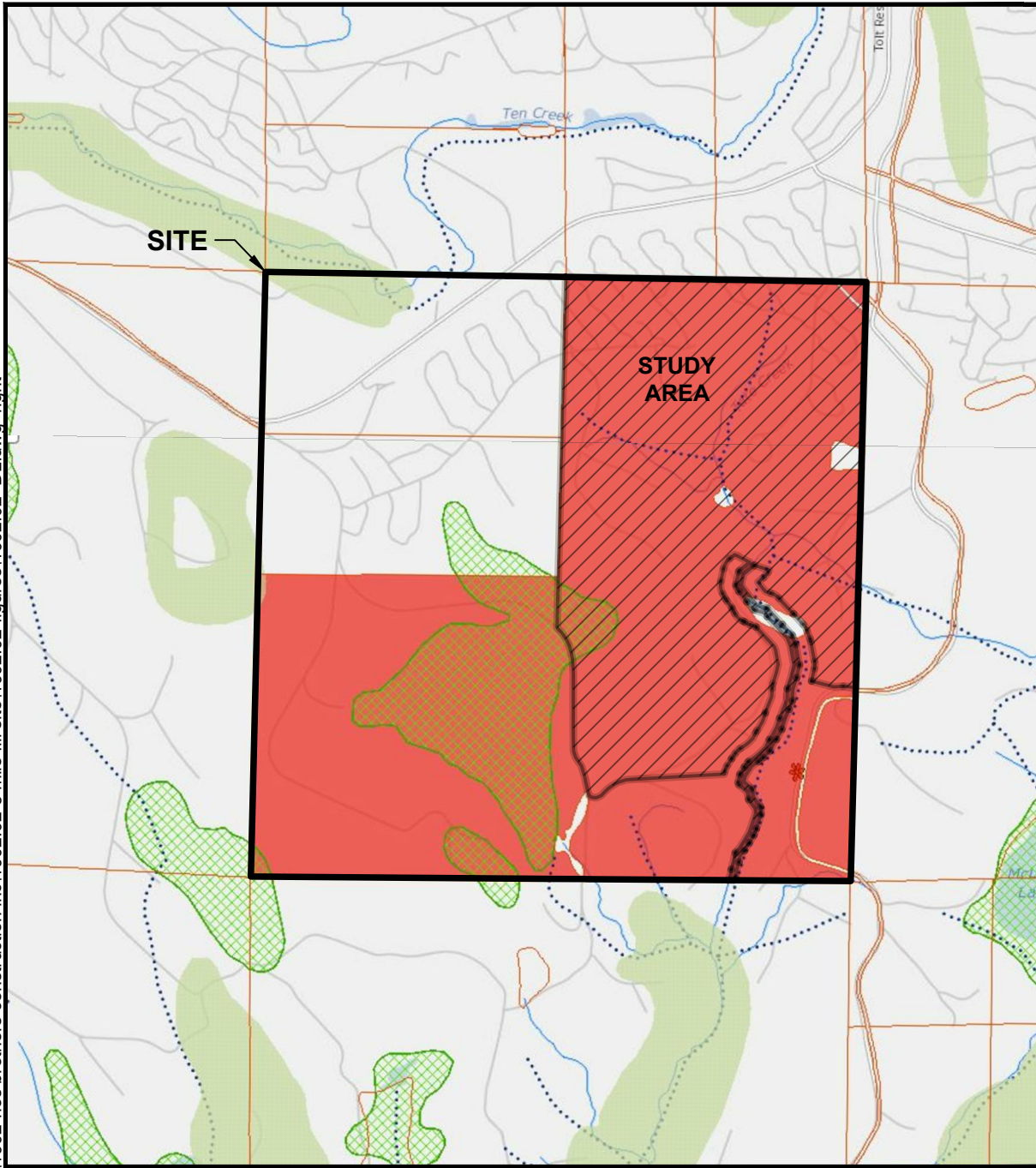
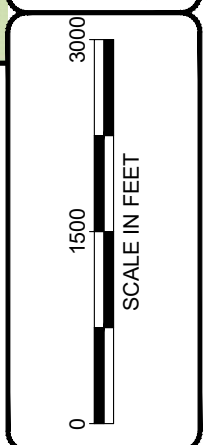


Figure 5
KING COUNTY CRITICAL AREAS MAP
5 Mile Fill Site
Hos Bros Construction, Inc.
King County, WA
Section 14, Township 24N, Range 8E, W.M.

DATE: 10/13/20
DWN: JLL
REQ. BY:
PRJ. MGR: MM
CHK:
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Ecological Land Services



- Property Layers**
- Parcels
- Environmentally Sensitive Areas**
- Potential landslide hazard areas (2016, see explanation-->)
 - Erosion hazard (1990 SAO)
 - Seismic hazard (1990 SAO)
 - Coal mine hazard (1990 SAO)
- Stream (1990 SAO)**
- class 1
 - class 2 perennial
 - class 2 salmonid
 - class 3
 - *** unclassified
- Wetland (1990 SAO)**
- Sensitive area notice on title
- Hydrography and Hydrology**
- Streams
- Noxious Weeds**
- All noxious weeds (current survey year)
 - tansy ragwort

NOTE(S):

1. Map provided on-line by King County at web address: <https://gismaps.kingcounty.gov/iMap/>