Knutsen Farms Industrial Park Wetland D Report

Shaw-Pioneer
13719 80th St, Puyallup, WA

Prepared For:
City of Puyallup

Prepared By:
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October 6, 2021

SCJ ALLIANCE
CONSULTING SERVICES

Knutsen Farms Industrial Park
Wetland D Report

Project Information

Project:	Shaw-Pioneer On-Call Critical Areas
Prepared for:	City of Puyallup 333 South Meridian Puyallup, WA 98371

Reviewing Agency

Jurisdiction:	Pierce County

Project Representative

Prepared by:	SCJ Alliance 8730 Tallon Lane NE, Suite 200 Lacey, WA 98516 360.352.1465 scjalliance.com
Contact:	Lisa Palazzi, PWS, CPSS
Project Reference:	SCJ # 00-072705

Disclaimer

SCJ Alliance has prepared this Wetland Report for the City of Puyallup. The information contained herein is, to our knowledge, correct and accurate. It should be recognized that the establishment of stream and wetland boundaries is an inexact science. Streams are subject to weather patterns, in addition to upstream and downstream activities. Wetlands are, by definition, transitional areas, and wetland boundaries often change with time. The presence of wetland indicators may also vary depending on the time of year. Additionally, individual professionals may disagree on the precise location of wetland boundaries or the functions and values of a wetland. All stream and wetland boundaries, classifications, and buffer widths should be considered subject to change until reviewed and approved by the appropriate regulatory agencies with jurisdiction. We recommend obtaining jurisdictional approval before completing final site plans and/or beginning construction activities. We are not responsible for the accuracy of information provided by others.

Within the limitations of schedule, budget, and scope-of-work, we warrant that this study was conducted in accordance with generally accepted environmental science practices, including the technical guidelines and criteria in effect at the time of this study. The results and conclusions of this report represent the authors' best professional judgment based upon information provided by the project proponent and information obtained during this study. No other warranty, expressed or implied, is made.

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1 Introduction

The Knutsen Farms Industrial Park (KFIP) property is located in Pierce County northeast of Puyallup, in the City of Puyallup Urban Growth Area (UGA). This report describes results of a wetland delineation project carried out in an area near the southeast corner of the KFIP Project site (Figure 1). Wetland conditions were evaluated and documented during site visits on March 18, 2019, March 4, 2021 and August 27, 2021. This work is carried out for the City of Puyallup in support of an EIS which is assessing and documenting potential KFIP project impacts.

Figure 1. Industrial Park Site (red outline) vicinity map with Wetland D location indicated.

Critical areas on the KFIP Project site were initially delineated and described in a Critical Areas Assessment Report prepared by Soundview Consultants (SVC) in 2016 (Appendix D). SVC delineated and described four wetlands onsite, Wetlands A, B, C and D. A field site visit during a public hearing process in March 2019 determined that the delineation at Wetland D was incorrect, and that the wetland was larger than previously described. The wetland boundary was subsequently re-delineated by SCJ Alliance (a member of the EIS research team) using data collected during the March 2019 site visit, in addition to field work in March and August of 2021. Results of this work are described below.

2 Methods and Materials

2.1 Desktop Review

Prior to visiting the project area, SCJ Alliance staff reviewed available reports and conducted a desktop review of readily available mapping resources and other pertinent information including but not limited to:

- City of Puyallup Wetlands Inventory Mapping (https://gis-portal-puyallup.opendata.arcgis.com/datasets/puyallup::wetlands/explore?location=47.185547%2C-122.260287%2C14.02)
- Pierce County GIS Mapping System, wetlands, floodplain and shorelines mapping (https://matterhornwab.co.pierce.wa.us/publicgis/)
- Google Earth Pro (https://www.google.com/earth/) This source provided recent and past aerial photographs of the project area.
- LiDAR topography of the Project site (developed in-house at SCJ Alliance, using WADNR LiDAR databases) https://lidarportal.dnr.wa.gov/#47.18472:-122.25586:13
- US Fish and Wildlife Service National Wetlands Inventory Wetlands Mapper (https://www.fws.gov/wetlands/data/mapper.html). This mapping source depicts some but not all wetlands and streams throughout the United States.
- US Department of Agriculture Natural Resources Conservation Service Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx). This source depicts mapped soils including hydric soils throughout the United States.
- WDFW Priority Habitats and Species mapping (https://geodataservices.wdfw.wa.gov/hp/phs/)
- WDFW SalmonScape Hydrography and Fish Distribution mapping (http://apps.wdfw.wa.gov/salmonscape/map.html)
- Soundview Consultants Knutson Farms Industrial Park Critical Areas Assessment Report, December 2016
- Project Site professional topographic survey, engineer stamped 03/26/2021

2.2 State & Federal Regulations

2.2.1 Federal

Wetlands are regulated as “waters of the United States” under Section 404 and Section 401 of the Clean Water Act. Section 404 regulations are related to wetland fill, and are administered by the US Army Corps of Engineers (USACE). Rivers, streams, creeks, and estuaries are also considered “waters of the United States” and subject to Federal laws. Section 401 regulations are related to water quality, and are reviewed and administered through the Washington State Department of Ecology under an MOU with EPA.

Wetlands for this project were defined according to methods outlined in the U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). This federal protocol is the standard adopted by Washington state, and thus is applied in local Critical Areas Protection Ordinances. Using this protocol, data documenting vegetation, soils, and hydrology were collected and used to describe wetland and upland conditions at the site.

Under federal law, wetland fill is regulated, and any wetland crossing is also reviewed for permit compliance, even if no fill is placed in the wetland for the crossing. Minimal impact projects can generally be permitted under a Nationwide Permit (NWP) process, a simpler and less time intensive review. As a general rule and dependent on the specific NWP permit, total fill must be less than 0.5 acre to avoid being reviewed under an individual 404/401 permit process.

2.2.2 State

Wetlands are regulated by Washington Department of Ecology (Ecology) under the Water Pollution Control Act and the Shoreline Management Act. The State Environmental Policy Act (SEPA) process is also used to identify potential wetland-related concerns early in the permitting process. Any proposed impacts to wetlands are reviewed and approved or denied by Ecology applying state law and federal Section 401 regulations listed above.

Under the Washington Administrative Code (WAC) section 173-22-035, the Washington State Department of Ecology (Ecology) requires wetland identification and delineation be completed following the approved federal wetland delineation manual and applicable regional supplements, including but not limited to the 1987 Corps of Engineers Wetland Delineation Manual and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers 2010). Thus, the same wetland definitions apply in both state and federal law.

2.3 Local Regulations

Wetlands, streams and other surface water systems are regulated by Pierce County according to Pierce County (PCC) Title 18E – Development Regulations -- Critical Areas ordinance (CAO). Pierce County code defines wetland and stream protection standards, which includes requirements for rating the wetland and making buffer width determinations based on rating score results.

2.4 Preceding Rainfall Assessment Protocol

Preceding weather conditions must be taken into account when delineating wetlands to inform the field practitioner as to whether the work is being carried out during wetter versus dryer than normal conditions. Rainfall conditions preceding the site visits in March of 2019, 2021 and August 2021 were evaluated to determine if they were normal, applying standard procedures described in the 2010 Regional WMVC Supplement (Sprecher and Warne, 2000).

3 Results & Discussion

3.1 Project Overview

This report describes results of a wetland delineation project carried out on the Knutsen Farms Industrial Park (KFIP) property located northeast of Puyallup, in Pierce County, and in the City of Puyallup Urban Growth Area (UGA). The industrial park is proposed by Running Bear Development.

Critical areas onsite were initially delineated and reported in a Critical Areas Assessment Report prepared by Soundview Consultants (SVC) in 2016 (Appendix D). SVC delineated and described four wetlands onsite, Wetlands A, B, C and D. Wetlands A, B and C were mapped in the floodplain east of the warehouse complex, and Wetland D was mapped as being a small wetland, 4,253 sqft, located just offsite on the upper terrace to the southeast (Figure 2). Wetland D was described as being too small to be regulated per PCC 18E.20.030K (CAO 2016). The CAO has been updated since 2016, and that code reference, which defines a minimum size for a regulated wetland in Pierce County is now per PCC 18E.20.035C. An isolated Category IV wetland smaller than 10,000 sqft is not buffered under Pierce County code.

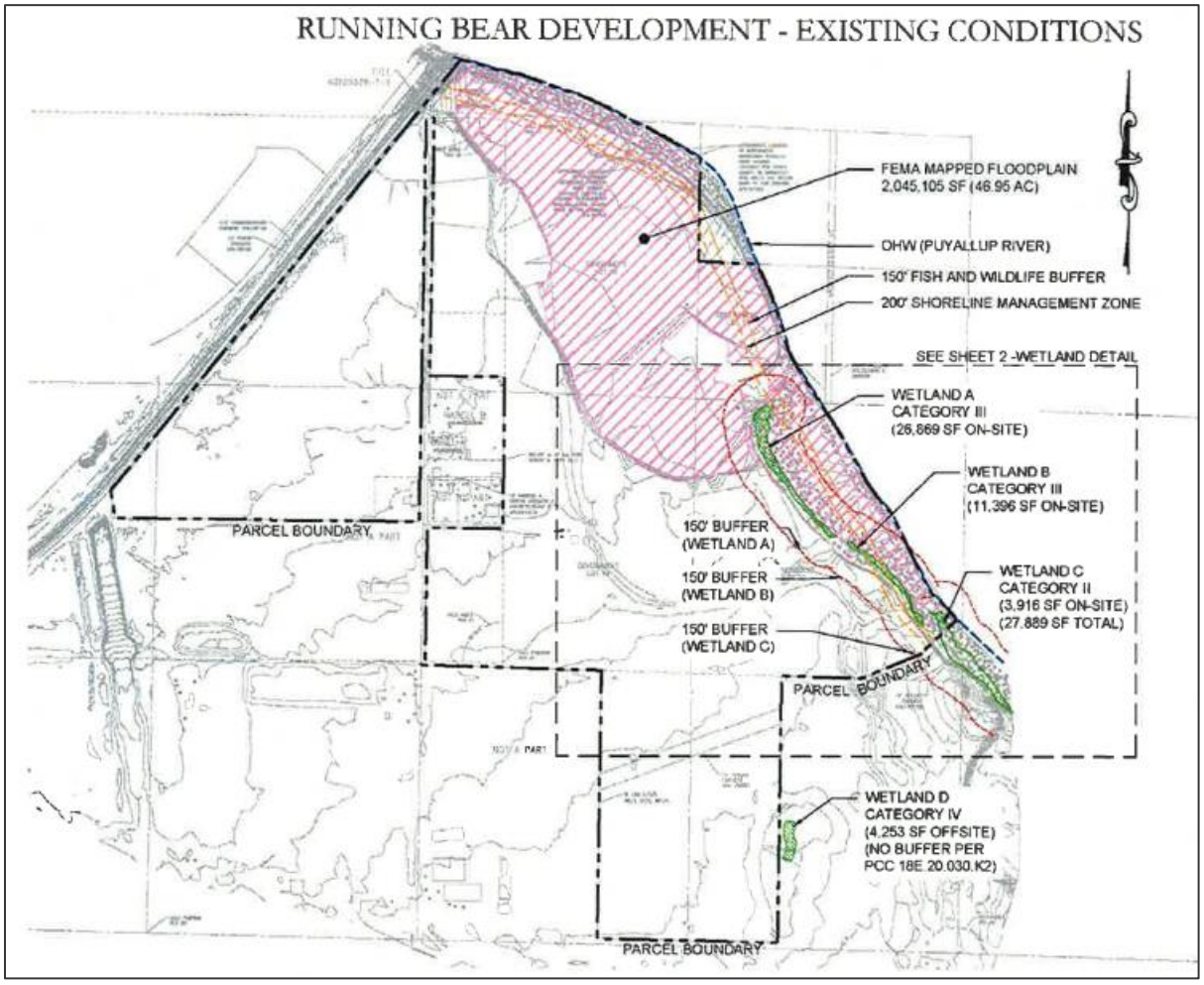


Figure 2. Site wetlands as delineated by SVC in 2016 (figure from Page 39 of SVC 2016 report).

Aerial photo analysis and review of onsite photo records by the City of Puyallup wetland consultant (Lisa Palazzi, PWS, CPSS, SCJ Alliance LLC) during a 2019 public hearing process about the proposed development indicated that the delineation at Wetland D was potentially incorrect. To determine whether Wetland D required additional assessment and to review other key site features in question at the Public Hearing, a March 18, 2019 onsite reconnaissance meeting was organized. Participants included the Pierce County Hearing Examiner, Pierce County staff, City of Puyallup Staff, the KFIP project developer, the project engineer, and others involved in the public hearing process at that time. Site hydrology and hydric soil conditions at Wetland D were photo-documented with brief field notes, but no more detailed wetland analysis or data collection was carried out at that time. The intent of the site visit at Wetland D was primarily to determine whether Wetland D was large enough to be regulated under Pierce County regulations, and whether it extended on to the Project site. Results indicated that Wetland D was larger than depicted in the SVC report and large enough to be regulated by Pierce County. Results also photo-documented that Wetland D overlapped the eastern project property line, extending 20-30 feet onto the Project site for a few hundred feet along the fence line, and thus some wetland and wetland buffer would be directly impacted by the proposed project.

No further work at Wetland D has been carried out by Running Bear Development to date, but a professional determination of the Wetland D boundary is needed in support of the EIS KFIP review process. Therefore, the EIS Team was tasked with delineating Wetland D and preparing a wetland report to document the wetland characteristics and potential impacts from the KFIP proposal.

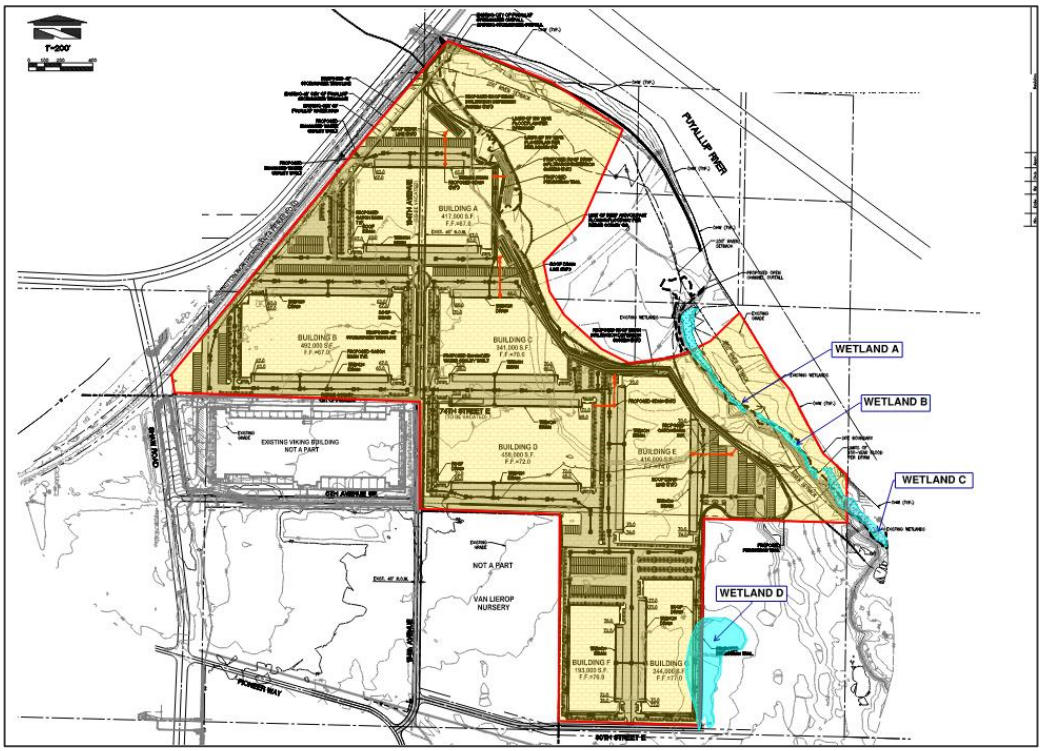


Figure 3. Proposed Warehouse Project layout with associated wetlands, and the corrected delineation of Wetland D (adapted from 03/26/2021 Conceptual Grading and Storm Drainage Plan).

3.2 Results of 2019 and 2021 Wetland D Site Assessment Work

During the March 2019 site visit at Wetland D, surface water in the Wetland D depression was documented in photos and brief field notes on both sides of the Project site boundary in the vicinity of what is proposed as Warehouse G. Figure 3 shows the revised outline of Wetland D in relation to the proposed project warehouses and parking lots in the southeast portion of the site. Approximately one acre of wetland and 0.89 acres of wetland buffer overlay the eastern edge of Warehouse G.

The wetland water surface included areas onsite and offsite to the east at the same elevation. During the March 2019 site visit, the western side of the wetland overlaid the farm field west of the property line fence, in an area that had already been plowed in preparation for summer planting. The plowing had overturned the surface soils and had exposed soil substrate peds (dirt clods). Soil colors in the interior of exposed soil peds in and near the edge of the ponded area were assessed and found to have depleted soil matrix characteristics – i.e., an indicator of hydric (wetland) soil conditions. Aside from documenting the long-duration water edge occurring during the growing season, and presence hydric soil conditions, no more detailed delineation or wetland assessment work was carried during the March 2019 site visit. The purpose of the 2019 site visit and related hydrology and soils assessment work was only to determine whether the wetland was large enough to be regulated under Pierce County code, and if any part of Wetland D was within the KFIP Project site boundary. Both of these conditions were verified.

No further analysis of the Wetland D area was carried out until 2021. As part of the KFIP EIS preparation, the Wetland D boundary conditions were documented and delineated during field work carried out by SCJ Alliance staff (Lisa Palazzi, CPSS, PWS and Erika Whitney, environmental scientist) on March 4, 2021 and August 27, 2021. This work was necessary to determine how much of the Project site may be encumbered by critical area and buffers, and to assess potential impacts from the KFIP project. Results of the 2021 wetland delineation and assessment work are described in more detail below.

3.3 Preceding Rainfall Assessment

To inform the field scientists about current field wetland conditions while carrying out onsite assessment and delineation work, a preceding rainfall analysis (Sprecher and Warne, 2000) was carried out to determine whether the observed hydrology conditions are a result of wetter than normal, normal, or drier than normal preceding rainfall patterns. The standard preceding rainfall analysis is based on rainfall records for the three months prior to field work. Tables 1 and 2 below show this data prior to the March 2019 and March 2021 field visits, as early spring (during the growing season) is a critical time period for determining whether the subject area meets wetland hydrology definition requirements. Results of preceding rainfall analysis indicated that **Normal** precipitation conditions were present prior to both March 2019 and March 2021 field visits (Tables 1 and 2).

Table 1. March 18, 2019: Preceding monthly precipitation data for Tacoma 1 NRCS weather station.

Month	30% <	Avg	30% >	PPT (in.)	Rank	Rank Value	Weight Value	Product
Feb.	2.54	3.92	4.72	5.1	W	3	3	9
Jan.	4.28	6.01	7.11	3.72	D	1	2	2
Dec.	4.28	5.76	6.74	6.76	W	3	1	3
			SUM	**15.58**			**SUM:**	**14**
							Conclusion:	**Normal**
Growing Season: 2/6 to 12/1: 298 days 50% chance of 28F or higher								
Source: AgACIS for Tacoma #1, WA								

Rank and Value:
Dry (D) = 1
Normal (N) = 2
Wet (W) = 3

Result Assessment:
6-9: Drier than normal
10-14: normal
15-18: wetter than normal

Table 2. March 4, 2021: Preceding monthly precipitation data for Tacoma 1 NRCS weather station.

Month	30% <	Avg	30% >	PPT (in.)	Rank	Rank Value	Weight Value	Product
Feb.	2.54	3.92	4.72	3.91	N	2	3	6
Jan.	4.28	6.01	7.11	8.79	W	3	2	6
Dec.	4.28	5.76	6.74	5.64	N	2	1	2
			SUM	**18.34**			**SUM:**	**14**
							Conclusion:	**Normal**
Growing Season: 2/6 to 12/1: 298 days 50% chance of 28F or higher								
Source: AgACIS for Tacoma #1, WA								

Rank and Value:
Dry (D) = 1
Normal (N) = 2
Wet (W) = 3

Result Assessment:
6-9: Drier than normal
10-14: normal
15-18: wetter than normal

3.4 Wetland D Assessment Results

3.4.1

To properly determine how much of the Project site may be encumbered by critical area and buffers, Wetland D has been re-delineated. Vegetation, soils, and hydrology were assessed following methods described in the U.S. Army Corps of Engineers (2010) Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).

Wetland D is an internally draining, natural depression with surface inflows from the south, and groundwater inflows from surrounding uplands, both onsite and offsite. The natural depression may have formed originally as a shallow glacial kettle on the post-glacial floodplain. Kettle depressions often contain wetlands or lakes, particularly when they are in a position to receive surface runoff. The onsite portion of Wetland D is plowed in the late spring and planted in summer after the early season hydrology has infiltrated, evaporated or is lost to transpiration from spring and early summer plant growth. Offsite areas to the east are managed as a pasture for livestock. The lowest central area of the wetland has scant vegetation even in mid to late summer, due to long-duration inundation in the Spring, which limits early season plant growth. The wetland is dominated by emergent vegetation, but includes enough shrubby areas around the perimeter and along the Project site fence line to meet requirements for a Palustrine Scrub-Shrub Cowardin vegetation class. Thus, Wetland D is classified as a Palustrine Emergent and Palustrine Scrub-Shrub (PEM/PSS) system.

The one-acre onsite portion of Wetland D is in an actively farmed field. Therefore, no field staking or wetland flags were placed at the wetland boundary, as the flags would have been lost during cultivation,

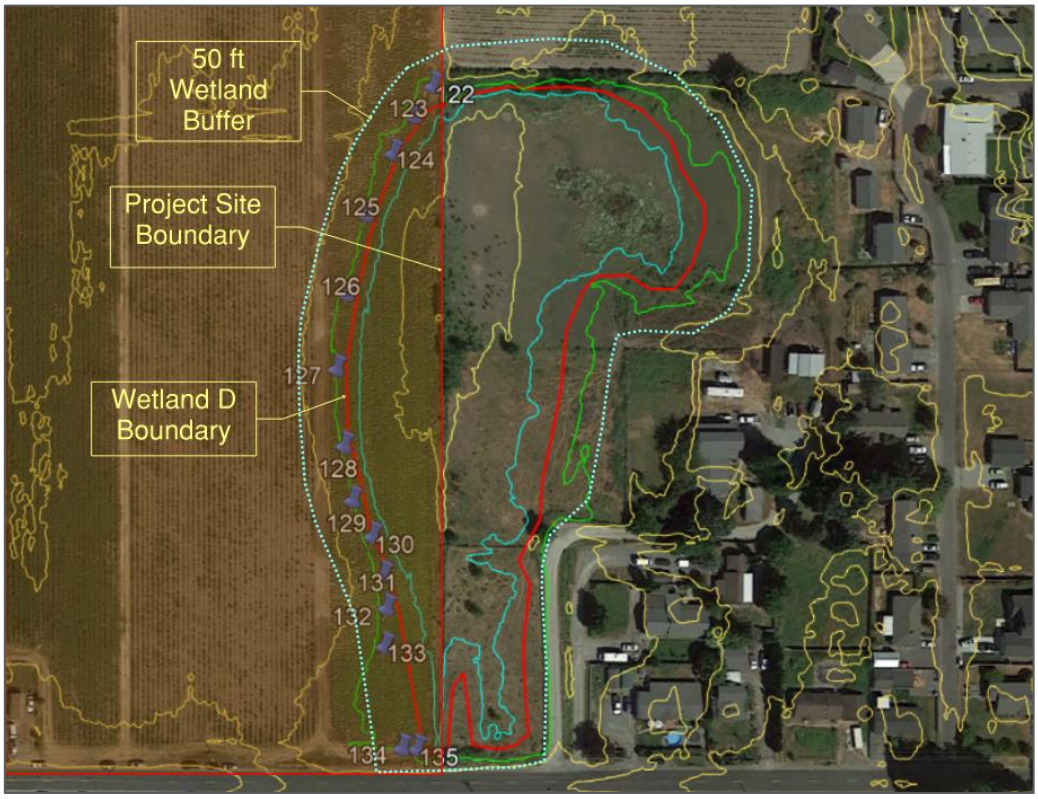


Figure 4. Wetland D boundary (red line), as indicated by GPS Waypoints and topography.

and stakes or pin flags could potentially have damaged equipment during farming operations. The onsite section of the wetland edge was instead marked with Waypoints using a hand-held GPS unit, which had a reported error of less than 3 to 5 feet during the field work, due to clear skies and optimal satellite coverage (Figure 4). The map of the entire wetland, including the 2 acres of offsite wetland pasture areas to the east, was created by overlaying the waypoint mapping from onsite areas on a LiDAR topography base map, then following the same elevation line (midway between 1ft contour lines) to define the approximate wetland edge in offsite areas. Figure 4 shows the three-acre Wetland D boundary outlined in red.

Hydrology

During the March 18, 2019 and March 4, 2021 field visits, extensive ponded surface water was photo-documented in the Wetland D depression on both sides of the Project site fence line in the vicinity of proposed Warehouse G (Figure 5). During the August 2021 field visit, onsite portions were being farmed, and offsite portions were being used as pasture. There was no surface hydrology on either side of the fence. Wetland D is a seasonally wet system, so this lack of hydrology in mid to late summer is expected.

Figure 5. Water surface at Wetland D in March 2021

Wetland hydrology indicators in August were obscured by cultivation. However, onsite and offsite wetland hydrology indicators during the dry season included: Water marks (B1), Drift deposits (B3), Inundation visible on aerial imagery (B7); Sparsely vegetated concave surface (B8); Recent Iron reduction in tilled soils (C6); stunted or stressed plants (D1); and Geomorphic position (D2).

Figure 6. Hydric soils at the edge of Wetland D.

Soils

Soils in the area in and surrounding Wetland D are mapped as Briscot loam and Sultan silt loam. The Briscot is considered hydric, unless artificially drained. The Sultan is mapped as having a shallow, seasonal water table within a foot or two of the surface, and can include wetland areas in depressions and swales.

Hydric soil indicators were present. In areas where recent plowing had not mixed the surface, the upper soil layers (0-6 inches) were dark grayish brown (10YR4/2) sandy loams and loam fine sands, with no redox concentrations. Below 6 inches to deeper than 12 inches, the subsoils

were dark grayish brown (10YR4/2) with about 30% distinct redox concentrations, yellowish brown (10YR5/6). This meets requirements of Indicator F3, Depleted Matrix. (Figure 6).

Vegetation

The plant community in the plowed farm field was non-existent in March 2021. However, the plant community at the fence line and offsite to the east was documented in both March and in August 2021.

More than 80% of the wetland plants were Facultative or Facultative Wet species (Table 3). The two Facultative Upland species, oxeye daisy and red clover, were mostly on a small berm along the fence line. These plants grow later in the summer, and thus were not growing when the soils were saturated.

The upland vegetation community associated with Wetland D was mostly offsite in the pasture, as the onsite upland was all plowed farmland. However, the most obvious difference in the buffer plant community along the northern fenceline was increased presence of Himalayan blackberry in the buffer.

Figure 7. Wetland shrubs and herbs along fence line

Table 3. Wetland species list

	Indicator Status
Shrubs	
Black cottonwood (*Populus balsamifera*)	FAC
Pacific willow (*Salix lasiandra*)	FAC
Sitka/ Hooker willow (Salix spp)	FACU
Ferns, Herbs & Vines	
Reed canarygrass (*Phalaris arundinacea*)	FACW
Soft rush (*Juncus effusus*)	FACW
Canada thistle (*Cirsium arvense*)	FAC
Lady's thumb (*Persicaria maculosa)*	FACW
Tall fescue (*Schedonorus arundinaceus*)	FAC
Field horsetail (*Equisetum arvense*)	FAC
Purslane (*Portulaca oleracea)*	FAC
Beggars tick (*Bidens frondose)*	FACW
Hairy willowherb (*Epilobium hirsutum*)	FACW
Miners lettuce (*Claytonia siberica*)	FAC
Oxeye daisy (*Leucanthemum vulgare)*	FACU
Red clover (*Trifolium pratense)*	FACU
Field bindweed (*Convolvulus arvensis)*	NI
Smooth pigweed (*Amaranthus hybridus)*	NI
Field pumpkin (*Cucurbita pepo)*	NI

3.5 Wetland D Rating Result

The wetland was rated applying the current Western Washington Wetland Rating System. The wetland scored 6 points for Improving Water Quality, primarily due to being an internally draining depression. It scored 6 points for Hydrologic or Water Quantity controls, for the same reason – it ponds water. It scored very low for Habitat Potential and Value – 3 points.

Applying these results to the Pierce County CAO guidance indicates a standard buffer of 50 ft.

3.6 Summary

Wetland D is a Depressional, Palustrine Emergent/ Palustrine Scrub-Shrub system. It encompasses 3-acres total, with one acre onsite and two acres offsite to the east. It is a Category IV wetland with Moderate Water Quality and Hydrologic rating scores, but a low Habitat rating score, and has a standard buffer of 50 feet.

The Project proposes to fill the onsite portions of Wetland D, and its buffer. This action will require federal permit review from the USACE (Section 404 – fill impacts) and Ecology (Section 401 – water quality impacts), as well as Critical Area review and permitting from Pierce County. Any impacts to wetlands or their buffers will require mitigation.

Appendix A

Wetland Rating Figures and Forms

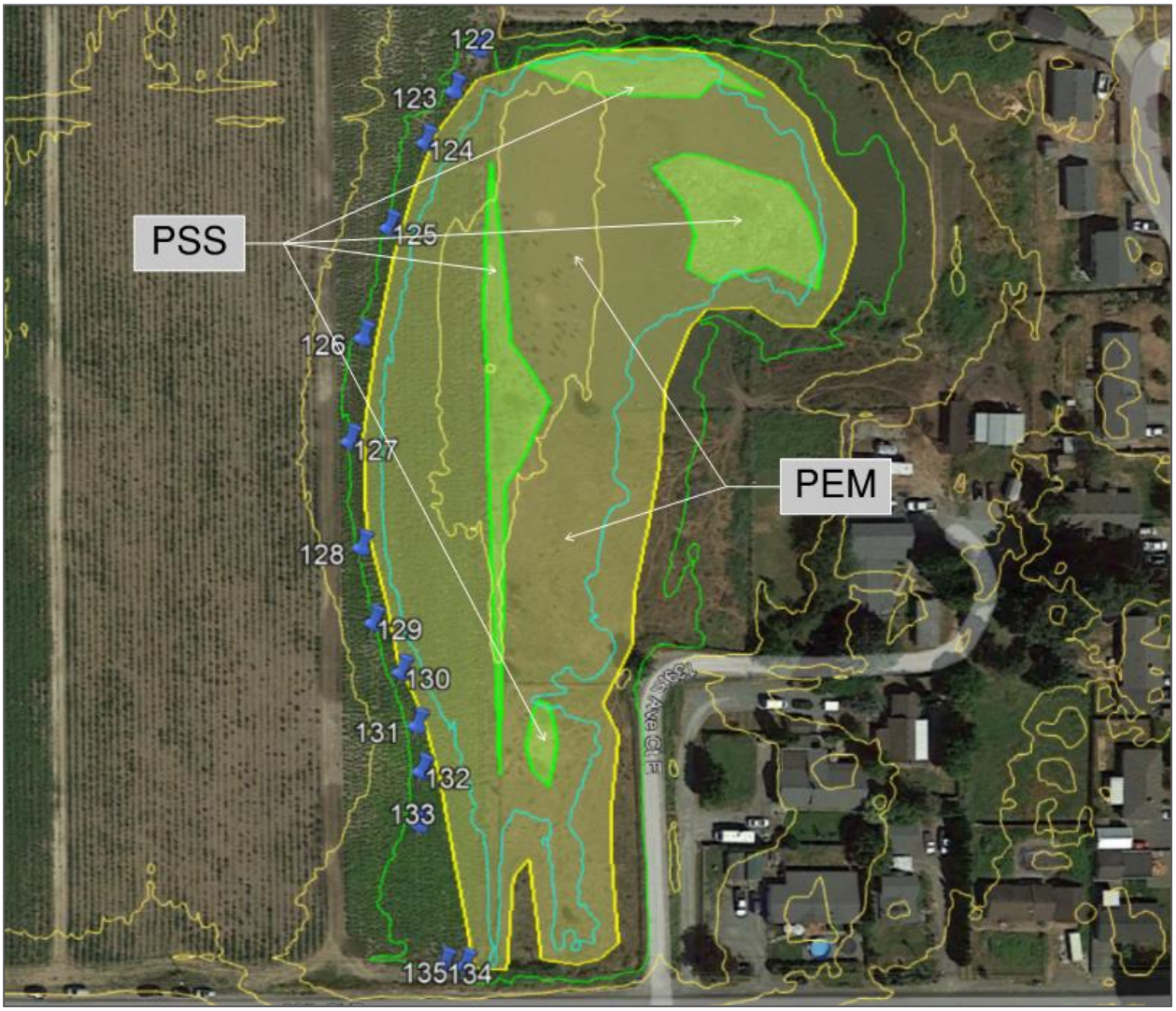


Figure 8. Wetland D Cowardin Classes

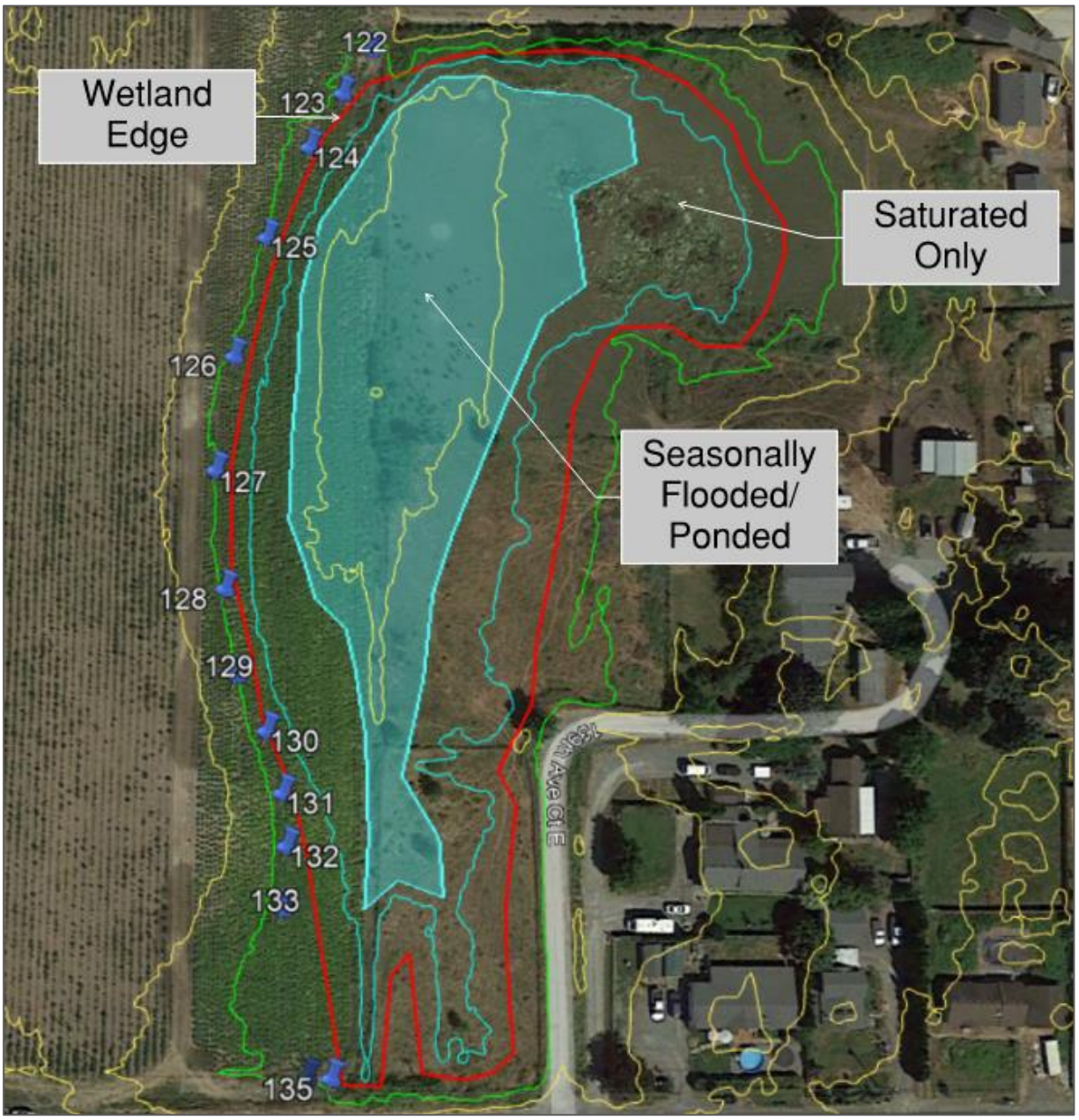


Figure 9. Hydroperiods – No Surface Outlet

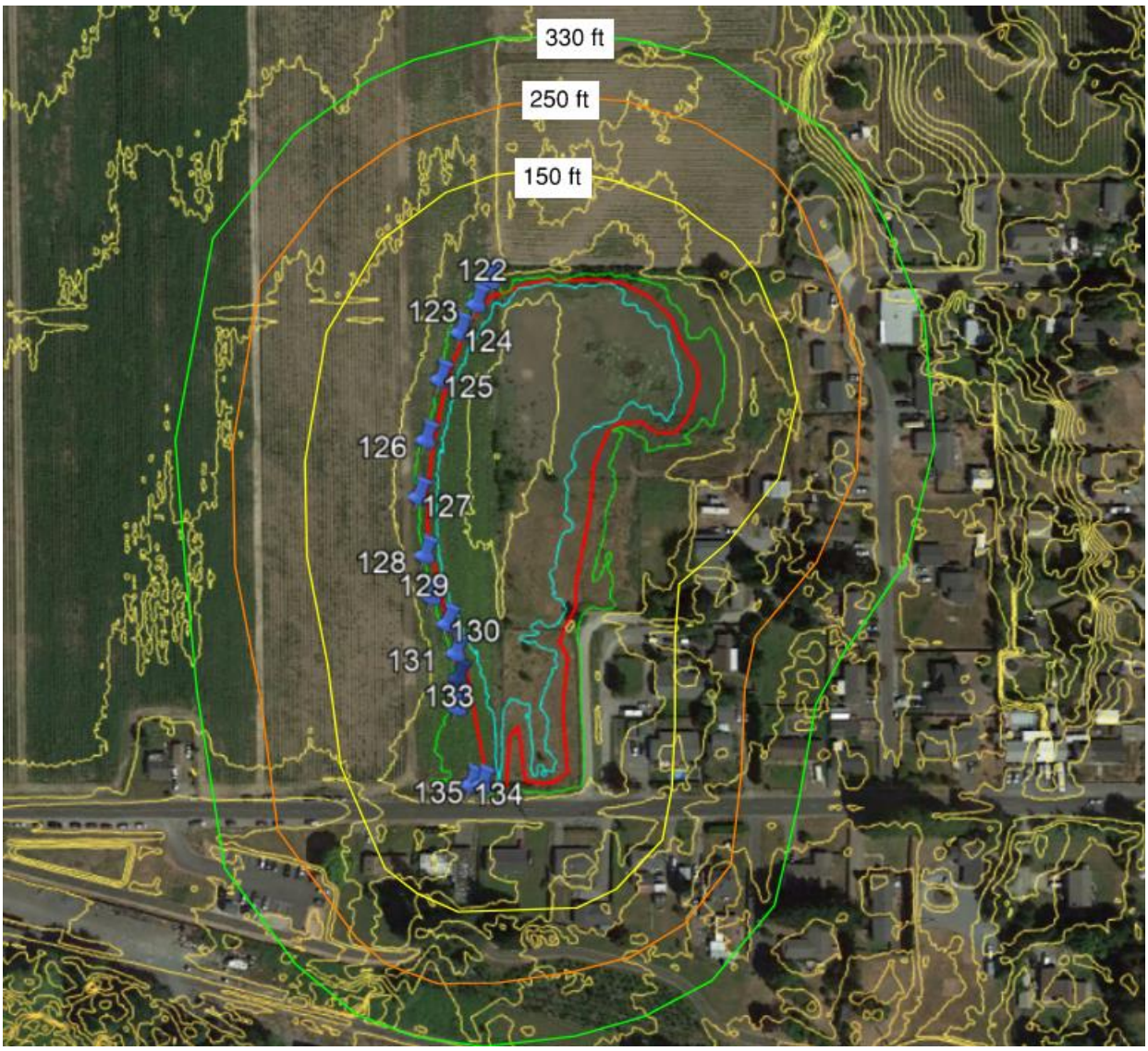


Figure 10. 150'. 250' and 330' setbacks

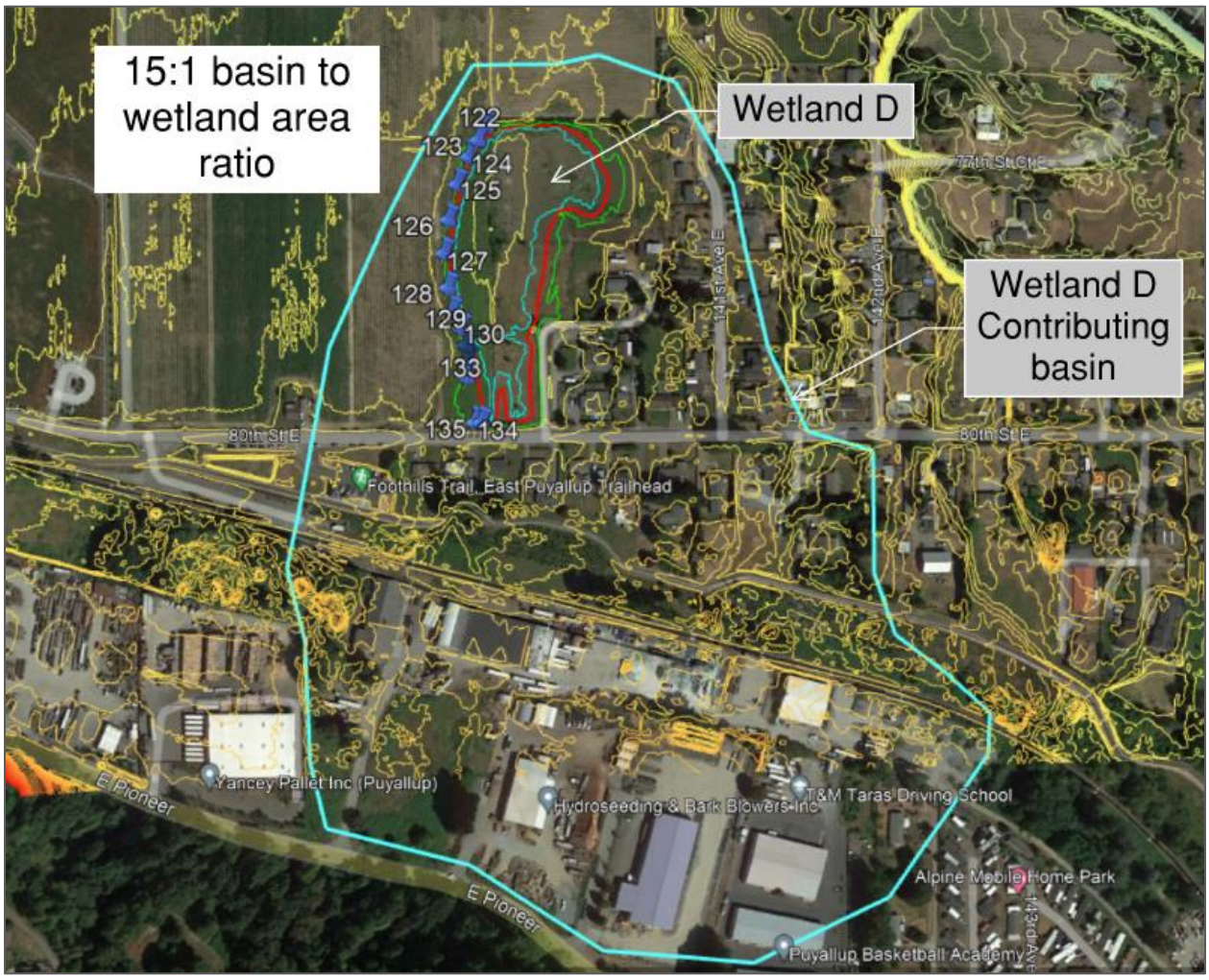


Figure 11. Wetland D Contributing Basin

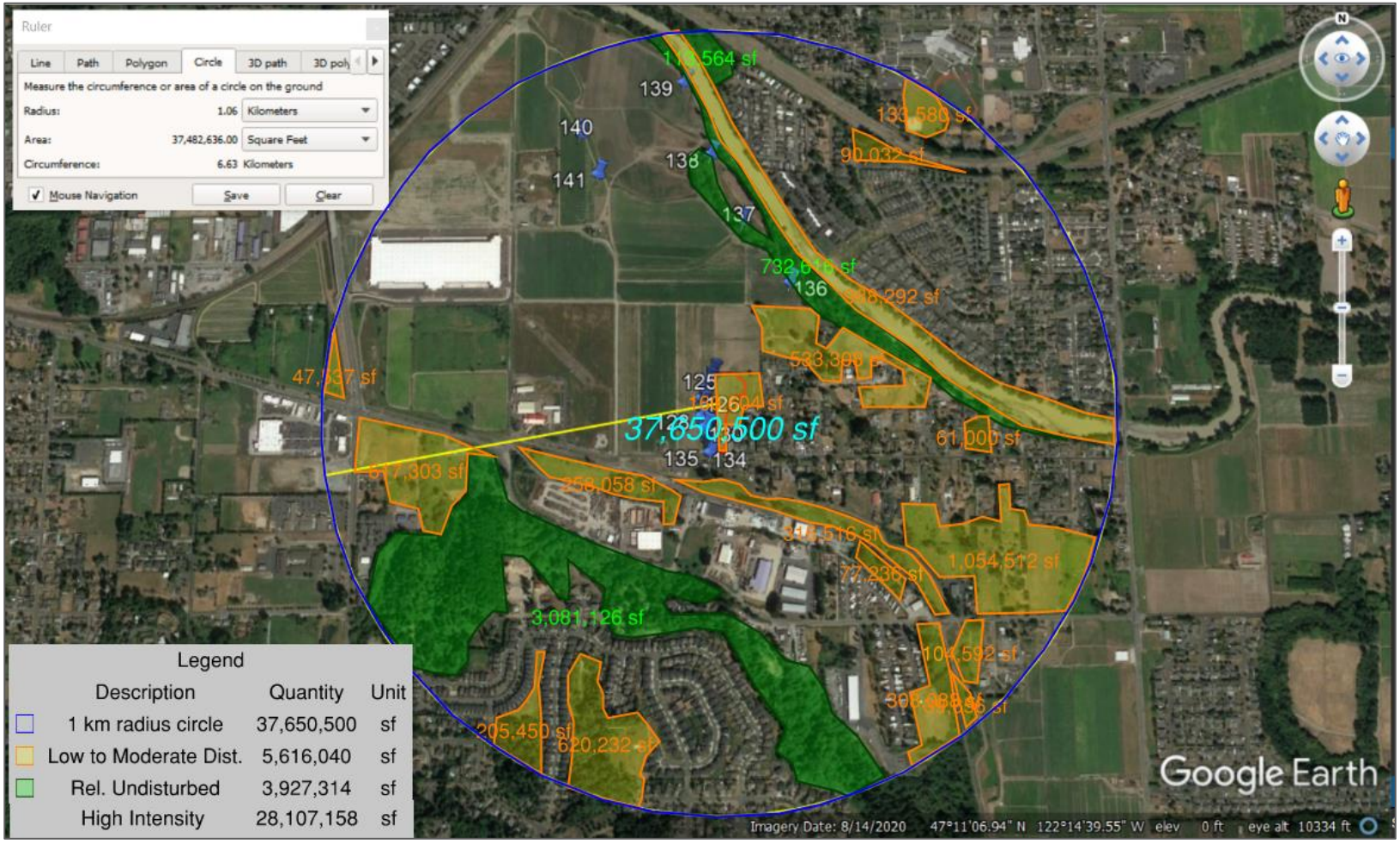


Figure 12. Habitat Cover

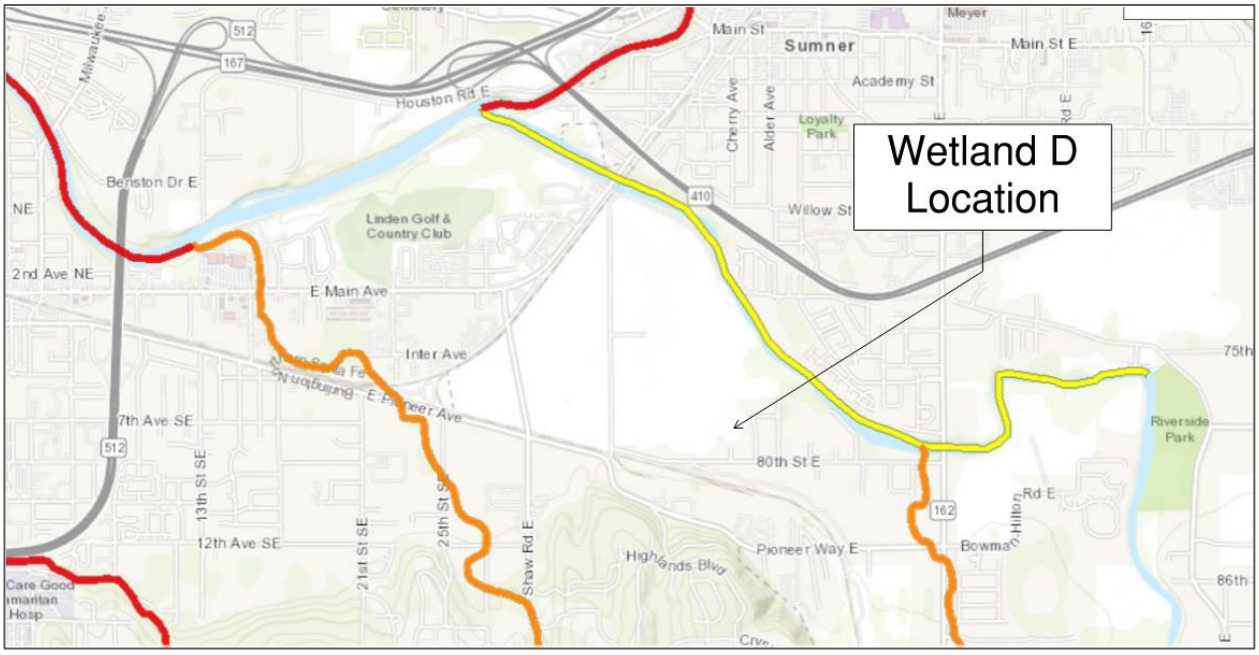
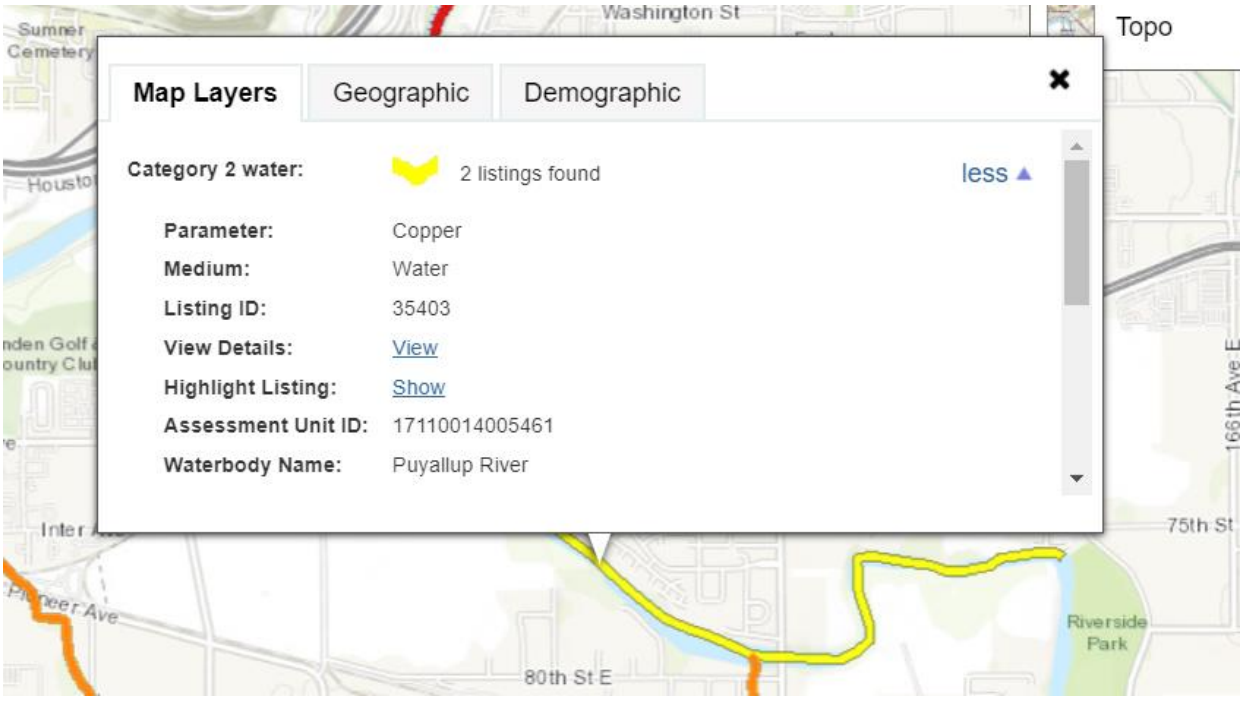
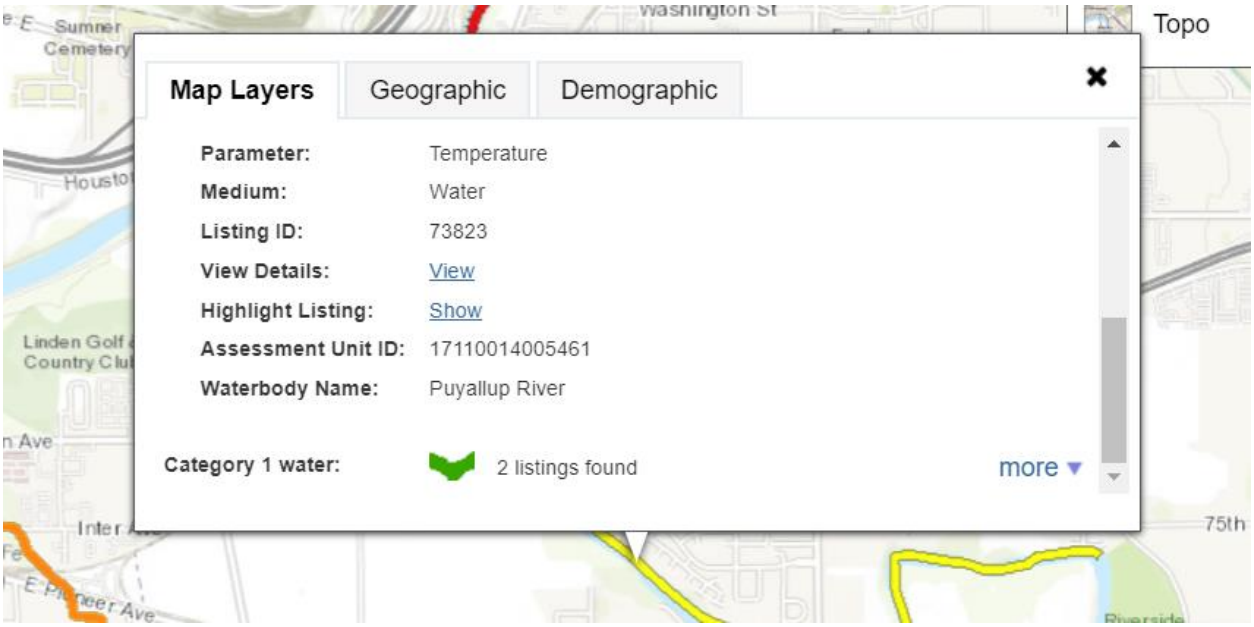
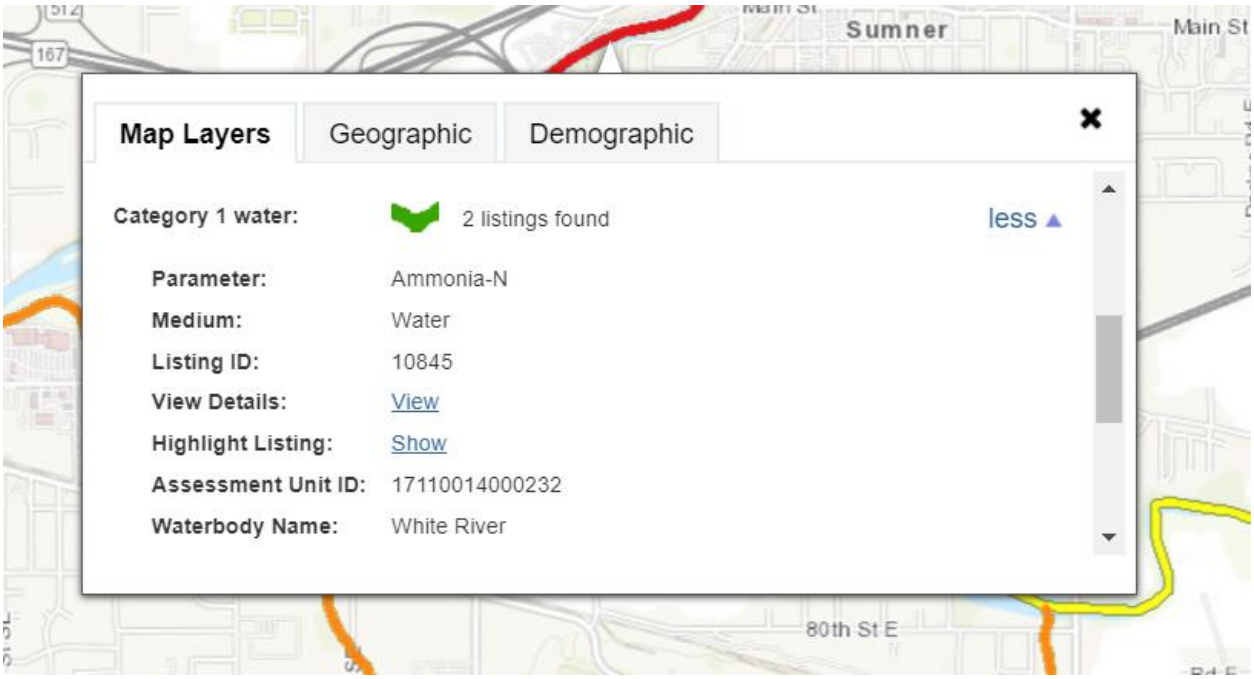


Figure 13. 303D mapping and TMDL projects nearby (see details below)




Topo
Map Layers
Geographic
Demographic
Parameter: Temperature
Medium: Water
Listing ID: 73823
View Details: View
Highlight Listing: Show
Assessment Unit ID: 17110014005461
Waterbody Name: Puyallup River
Category 1 water: 2 listings found
more
Sumner Cemetery
Linden Golf & Country Club
75th


Sumner
Main St
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Map Layers
Geographic
Demographic
Category 1 water: 2 listings found
less
Parameter: Ammonia-N
Medium: Water
Listing ID: 10845
View Details: View
Highlight Listing: Show
Assessment Unit ID: 17110014000232
Waterbody Name: White River
80th St E

Wetland name or number Shaw Road WL D

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Shaw Road WL D Date of site visit: 3/4/2021 and 8//19/2021

Rated by Lisa Palazzi Trained by Ecology? ☑ Yes ☐ No Date of training 2021

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

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

Source of base aerial photo/map GoogleEarth and Pierce County GIS

OVERALL WETLAND CATEGORY II (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
- ____ **Category III** – Total score = 16 - 19
- XX **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☑	**TOTAL**
Score Based on Ratings	6	6	3	15

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	xx

Wetland name or number Shaw Road WL 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	8
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	10
Map of the contributing basin	D 4.3, D 5.3	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)	D 3.1, D 3.2	13
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	13

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	

Wetland name or number Shaw Road WL D

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.

Wetland name or number Shaw Road WL D

☑ 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 Shaw Road WL D

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. Characteristics of surface water outflows from the wetland: 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. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0		0
D 1.3. Characteristics and distribution of persistent plants (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 > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0		1
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* 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	8

Rating of Site Potential If score is: ☐ **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?	☑ 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	1
D 2.3. Are there septic systems within 250 ft of the wetland?	☑ Yes = 1 ☐ No = 0	1
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 Agrichemicals from farming	☑ Yes = 1 ☐ No = 0	1
Total for D 2	Add the points in the boxes above	4

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **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	0
Total for D 3	Add the points in the boxes above	0

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

Wetland name or number Shaw Road WL D

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. Characteristics of surface water outflows from the wetland:

Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	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	

D 4.2. 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.*

Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	3
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	

D 4.3. 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.*

The area of the basin is less than 10 times the area of the unit	points = 5	0
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	

Total for D 4	Add the points in the boxes above	7

Rating of Site Potential If score is: ☐ **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	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	1
Total for D 5	Add the points in the boxes above	3

Rating of Landscape Potential If score is: ☑ **3 = H** ☐ **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. 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.*

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.	points = 2 ☐	0
• 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. *Explain why*	points = 0 ☐	
There are no problems with flooding downstream of the wetland.	points = 0 ☑	

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	0

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

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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
- ☑ Emergent
- ☑ Scrub-shrub (areas where shrubs have > 30% cover)
- ☐ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points = 1
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

1

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
- ☑ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☑ Saturated only
- ☐ 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**

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 type present: points = 0

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

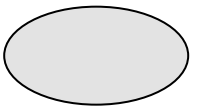
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

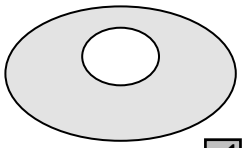
1

H 1.4. Interspersion of habitats

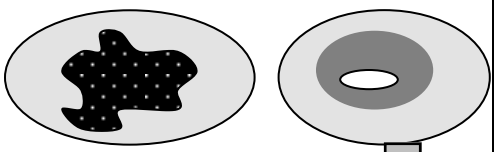
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points ☐

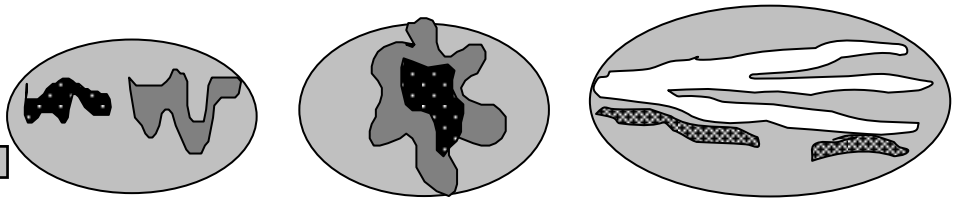


Low = 1 point ☑



Moderate = 2 points ☐

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



1

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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*)

0

Total for H 1 — Add the points in the boxes above: 4

Rating of Site Potential If score is: ☐ **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 0 [(% moderate and low intensity land uses)/2] 0.21 _ 0.21 %

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

0

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

Calculate: % undisturbed habitat 10.4 [(% moderate and low intensity land uses)/2] 7.5 _ 17.9 %

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

1

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

-2

Total for H 2 — Add the points in the boxes above: -1

Rating of Landscape Potential If score is: ☐ **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

2

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

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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.

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CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
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**	NA
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 *Spartina*, see page 25) ☐ At least ¾ 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? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** 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 Shaw Road WL D

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **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).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section** — ☐ **Cat. I**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ 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 *(needs to be measured near the bottom)* — ☐ **Cat. I**

Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ 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). — ☐ **Cat. II**

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105 — ☐ **Cat I**

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes – Go to **SC 6.1** ☑ No = **not an interdunal wetland for rating**

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)? — ☐ **Cat. II**

☐ Yes = **Category I** ☐ No – Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No – Go to **SC 6.3** — ☐ **Cat. III**

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?

☐ Yes = **Category III** ☐ No = **Category IV** — ☐ **Cat. IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Appendix B
Wetland Field Data Forms

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

Project/Site: Grass Lake WL-D City/County: Pierce Sampling Date: 3/4/2021

Applicant/Owner: Running Bear Development State: WA Sampling Point: Wpt. 131 (WL)

Investigator(s): Lisa Palazzi, CPSS, PWS Section, Township, Range: S25 T20 R04E

Landform (hillslope, terrace, etc.): Depressional Swale Local relief (concave, convex, none): Concave Slope (%): 0-3%

Subregion (LRR): WMVC Lat: 47.185836 Long: -122.243531 Datum:

Soil Map Unit Name: Sultan silt loam and Briscot loam NWI classification: PEM/PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes XX No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes XX 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 XX No _____	**Is the Sampled Area within a Wetland?** Yes XX No _____
Hydric Soil Present?	Yes XX No _____	
Wetland Hydrology Present?	Yes XX No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30ft)			
1. Sitka willow (Salix sitchensis)	30	Y	FACW
2. Black cottonwood (Populus balsamifera)	50	Y	FAC
3. Pacific Willow (Salix lasiandra)	40	Y	FAC
4.			
5.			
	120 = Total Cover		
Herb Stratum (Plot size: 10ft)			
1. Reed canarygrass (Phalaris arundinacea)	40	Y	FACW
2. Soft rush (Juncus effusus)	40	Y	FACW
3. Lady's thumb (Persicaria maculosa)	25	N	FACW
4. Beggars tick (Bidens frondose)	25	N	FACW
5. Field horsetail (Equisetum arvense)	30	N	FAC
6. Tall fescue (Schedonorus arundinaceus)	60	Y	FAC
7. Oxeye daisy (Leucanthemum vulgare)	30	N	FACU
8. Red clover (Trifolium pratense)	30	N	FACU
9.			
10.			
11.			
	190 = Total Cover		
Woody Vine Stratum (Plot size: 10ft)			
1.			
2.			
	% = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	165	x 2 =	330
FAC species	180	x 3 =	540
FACU species	60	x 4 =	240
UPL species		x 5 =	
Column Totals:	405 (A)		1110 (B)

Prevalence Index = B/A = 2.74

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes XX No _____

Remarks:

SOIL

Sampling Point: Wpt. 131 (WL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/2	100					SL/LFS	mixed from plowing
6-12	10YR4/2	70	10YR5/6	30	C	M	SL/LFS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes XX No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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 XX No _____ Depth (inches): +12" mid WL

Water Table Present? Yes XX No _____ Depth (inches): Surface

Saturation Present? (includes capillary fringe) Yes XX No _____ Depth (inches): Surface

Wetland Hydrology Present? Yes XX 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: Grass Lake WL-D City/County: Pierce Sampling Date: 3/4/2021

Applicant/Owner: Running Bear Development State: WA Sampling Point: Wpt. 131 (WL)

Investigator(s): Lisa Palazzi, CPSS, PWS Section, Township, Range: S25 T20 R04E

Landform (hillslope, terrace, etc.): Depressional Swale Local relief (concave, convex, none): Concave Slope (%): 0-3%

Subregion (LRR): WMVC Lat: 47.185836 Long: -122.243531 Datum:

Soil Map Unit Name: Sultan silt loam and Briscot loam NWI classification: PEM/PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes XX No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes XX 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 XX	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No XX
Hydric Soil Present?	Yes _____	No XX	
Wetland Hydrology Present?	Yes _____	No XX	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 30ft)			
1. Black cottonwood (Populus balsamifera)	30	Y	FACW
2.			
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 10ft)			
1. Reed canarygrass (Phalaris arundinacea)	35	N	FACW
2. Soft rush (Juncus effusus)	20	N	FACW
3. Oxeye daisy (Leucanthemum vulgare)	35	N	FACU
4. Red clover (Trifolium pratense)	40	Y	FACU
5. Field horsetail (Equisetum arvense)	15	N	FAC
6. Tall fescue (Schedonorus arundinaceus)	40	Y	FAC
7.			
8.			
9.			
10.			
11.			
	185 = Total Cover		
Woody Vine Stratum (Plot size: 10ft)			
1.			
2.			
	% = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	85	x 2 =	170
FAC species	55	x 3 =	165
FACU species	75	x 4 =	300
UPL species		x 5 =	
Column Totals:	225 (A)		635 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes XX No _____

Remarks:

SOIL

Sampling Point: Wpt 131 UL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR4/3	100					SL/LFS	mixed from plowing

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** XX **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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 XX Depth (inches): _____

Water Table Present? Yes _____ No XX Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No XX Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** XX

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

Remarks:

Appendix C

SVC Critical Areas Report (2016)

CRITICAL AREAS ASSESSMENT REPORT

KNUTSON FARMS INDUSTRIAL PARK
3200 EAST MAIN AVENUE

SEPTEMBER 2016
REVISED DECEMBER 2016

Pierce County

Reviewed for Planning and Land Services Resource Management/Biologist

By Scott R. Sissons EB3

#834238 & #834

Date of Approval 12/23/2016

Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

CRITICAL AREAS ASSESSMENT REPORT

KNUTSON FARMS INDUSTRIAL PARK
3200 EAST MAIN AVENUE

SEPTEMBER 15, 2016
REVISED DECEMBER 12, 2016

PROJECT LOCATION

3200 EAST MAIN AVENUE
PUYALLUP, WASHINGTON 98372

PREPARED FOR

RUNNING BEAR DEVELOPMENT PARTNERS, LLC
7701 FORSYTH, SUITE 900
CLAYTON, MISSOURI 63105

PREPARED BY

SOUNDVIEW CONSULTANTS LLC
2907 HARBORVIEW DRIVE
GIG HARBOR, WASHINGTON 98335
(253) 514-8952

Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

Executive Summary

Soundview Consultants LLC has been contracted by Running Bear Development Partners, LLC (Applicant) to conduct a critical areas assessment for a proposed commercial development located at 3200 East Main Avenue in the Puyallup area of unincorporated Pierce County, Washington. This assessment considers wetland, shoreline, and fish and wildlife habitat for local critical area and shoreline management review. The subject property is situated in Sections 25 and 26, Township 20, Range 04 W.M. and includes seventeen mostly-undeveloped parcels comprising 165.88 acres (Pierce County Tax Parcel Numbers 0420252002, -2003, -2012, -2700, -3702, -3703, -3704, -3705, -3007, -3036, -3057, -3063, 3064, -0420261012, -4014, -4033).

The proposed project includes construction of seven commercial/industrial buildings (Buildings A-G), parking, utilities, stormwater facilities, and associated infrastructure. The project will be broken up into two phases, Phase I will include construction of 2,124,000 square feet consisting of Buildings A-E and associated parking areas. Phase II will include construction of 437,000 square feet consisting of Buildings F and G and associated parking areas

The subject property was investigated for the presence of potentially-regulated wetlands, waterbodies, fish and wildlife habitat, and/or priority species in the spring and summer of 2015. The site investigation identified three onsite wetlands (Wetlands A, B, and C) and one river (Puyallup River). In general, the wetlands were identified as Palustrine Emergent/Scrub-shrub, Seasonally Flooded/Saturated wetlands. Wetlands A and B are Category III depressional wetlands, and Wetland C is a Category II depressional wetland. The Puyallup River borders the northeastern boundary of the subject property and is considered a Shoreline of the State. The identified wetlands and river may contain sensitive fish or wildlife species. In addition, an off-site wetland was identified near the southeastern boundary of the property. The off-site wetland (Wetland D) was identified adjacent to the stormwater pond on the neighboring property. At the time of the site visit, a recently-excavated temporary stormwater pond associated with agricultural management uses was also identified on-site and has since been filled. As access was not granted to the off-site property, the off-site wetland boundary was estimated using hydrologic and vegetation patterns visible on aerial photography. Due to the small size and isolation of the wetland, Wetland D is exempt from the provisions of Title 18E, Development Regulations--Critical Areas, per PCC 18E.20.030K and no buffers will extend onto the project site from this off-site wetland. Direct impacts to wetlands, wetland buffers, and the Puyallup River are avoided.

The subject property also contains 46.95 acres of land located within the 100-year floodplain of the Puyallup River. All development is outside of this 100-year floodplain.

Feature Name	Size Onsite	Class	Category /Type	Regulated Under Pierce County Code Title 18E	Regulated Under RCW 90.48	Regulated Under Clean Water Act
Wetland A	26,869 sf	Depressional	III	Yes	Yes	Yes
Wetland B	11,396 sf	Depressional	III	Yes	Yes	Yes
Wetland C	3,916 sf	Depressional	II	Yes	Yes	Yes
Wetland D	Off-site	Depressional	IV	No	Yes	Not Likely
Puyallup River	3,908 lf	N/A	Type S	Yes	Yes	Yes

Table of Contents

Figures

Tables

Appendices

Chapter 1. Introduction

Soundview Consultants LLC has been contracted by Running Bear Development Partners, LLC (Applicant) to conduct a critical areas assessment for a proposed commercial development located at 3200 East Main Avenue in the Puyallup area of unincorporated Pierce County, Washington. This assessment considers wetland, shoreline, and fish and wildlife habitat for local critical area and shoreline management review. The subject property is situated in Sections 25 and 26, Township 20, Range 04 W.M. and includes eight mostly-undeveloped parcels comprising 165.88 acres (Pierce County Tax Parcel Numbers 0420252002, -2003, -2012, -2700, -3702, -3703, -3704, -3705, -3007, -3036, -3057, -3063, 3064, -0420261012, -4014, -4033).

The purpose of this critical areas assessment report is to identify the presence of potentially regulated wetlands and fish and wildlife species and habitat conservation areas on or near the subject property; assess potential impacts to any critical areas and/or species associated with the property; and provide impact avoidance and management recommendations.

This report is being used to satisfy the following review processes:

- Pierce County SEPA review
- Pierce County Critical Areas review
- Pierce County Shoreline Management Review

This report provides conclusions and recommendations regarding:

- Site description and area of assessment;
- Background research and identification of potentially regulated critical areas and shorelines in the vicinity of the subject property;
- Identification, delineation, and assessment of potentially regulated wetlands and waterbodies;
- Identification and assessment of potentially regulated species and habitat conservation areas on or near the subject property;
- Standard buffer recommendations, building setbacks, and development limitations;
- Existing site map detailing identified critical areas and standard buffers;
- Documentation of impact avoidance, minimization, and mitigation measures;
- Proposed site plan with proposed building sites, road alignments, and infrastructure;
- Supplemental information necessary for Federal, State, and Local regulatory review.

Chapter 2. Project Location

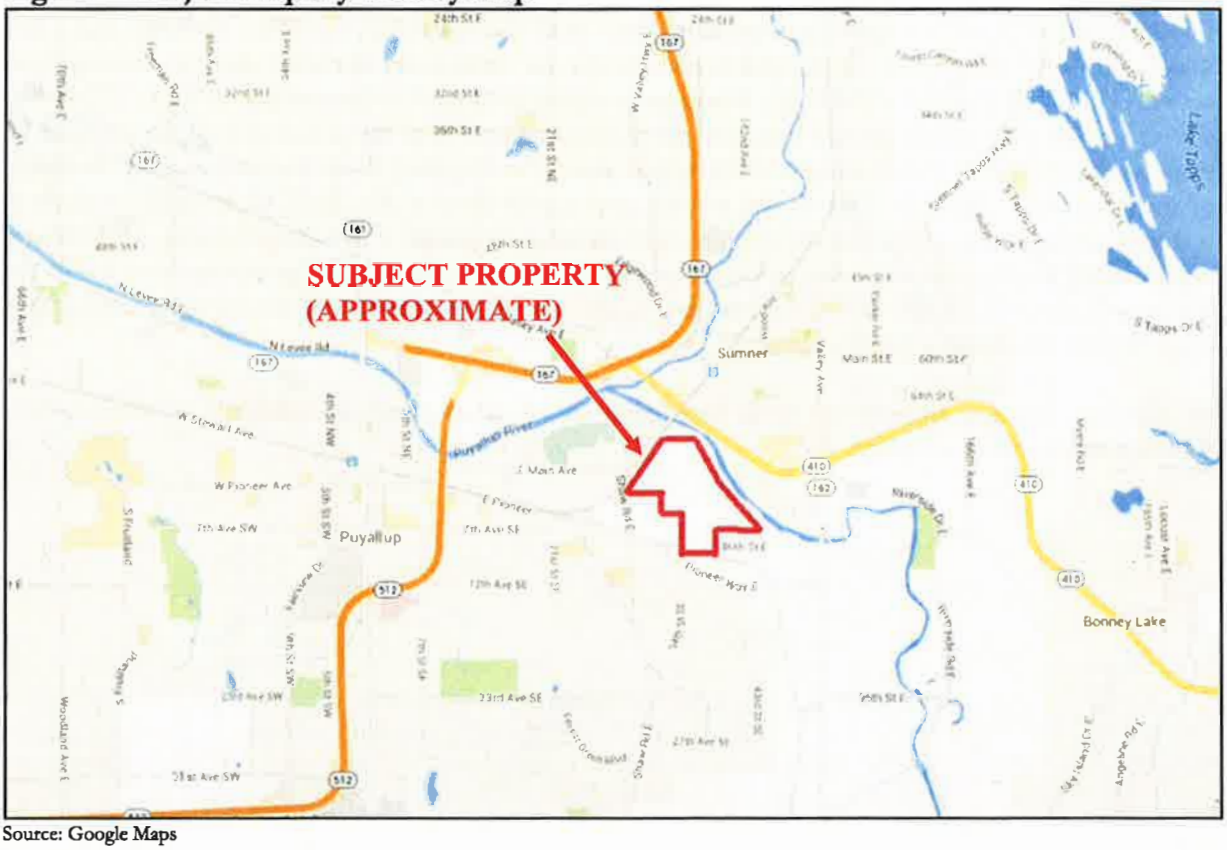
The project location, directions to the project site, purpose and need of the project, and a description of work that is being proposed are detailed below.

2.1 Location

The subject property is located at 3200 East Main Avenue in the Puyallup area of unincorporated Pierce County, Washington (Figure 1). The subject property is situated in Sections 25 and 26, Township 20, Range 04 W.M. (Pierce County Tax Parcel Numbers 0420252002, -2003, -2012, -2700, -3702, -3703, -3704, -3705, -3007, -3036, -3057, -3063, 3064, -0420261012, -4014, -4033).

To access the site from the Tacoma area via Interstate 5 North, take Exit 135 to merge onto Washington-167 North/East 28th Street toward Puyallup. Turn left onto 66th Avenue East and then turn right onto North Levee Road East and proceed approximately 2.3 miles. Turn right onto North Levee Road and proceed approximately 0.2 mile. Continue onto Washington-167 North and take the Washington-410 East exit toward Sumner/Yakima. Then take the exit toward East Main Traffic Avenue and turn right onto Inter Avenue East/Linden Avenue/East Main Avenue. The destination will be on the left in 0.4 mile.

Figure 1. Subject Property Vicinity Map



Source: Google Maps

2.2 Purpose and Need

The purpose of the proposed project is to establish additional industrial space and associated infrastructure near the southern extent of State-Route 167 and improve nearby arterial traffic corridors to meet the growing economic demands for such services in the Sumner/Puyallup valley. With the economic recovery of the region, large-scale industrial facilities that provide increased manufacturing warehousing and shipping capacity are in high demand. To meet this demand and provide the services and jobs associated with it, additional industrial facilities are needed.

2.3 Project Description

To meet the purpose and need of the project, the proposed site development actions include demolition of existing structures and agricultural facilities, removal of scrap and debris associated with the previous land use, clearing and grading for construction of seven commercial buildings (Buildings A-G), and construction of parking, utilities, and associated infrastructure along with floodplain and habitat restoration actions.

The project will be broken up into two phases, Phase I will include construction of 2,124,000 square feet consisting of Buildings A-E and Phase II will include construction of 437,000 square feet consisting of Buildings F and G (Appendix C).

While no in-water work is proposed and no direct discharges of construction stormwater will go into the Puyallup River, site grading could cause a temporarily increased level of turbidity entering the Puyallup River if stormwater management and best management practices (BMPs) fail. The Washington Administrative Code makes allowances for temporary turbidity due to construction activities in WAC 173-201A-200(1)(e). Temporary mixing is subject to constraints of WAC 173-201A-400(4) and (6). For waters greater than 100 cfs during construction, the point of compliance shall be three hundred (300) feet downstream of the action area. The Puyallup River has a mean daily discharge of approximately 3,300 cfs. Due to the volume and rate of flow of the river, measurable impacts to turbidity from construction stormwater are expected to be minimal if not discountable. In addition, any turbidity impacts are expected to be temporary due to the conservation measures and BMPs for the project; therefore a 300-foot downstream mixing zone will be considered in case any unanticipated construction stormwater release occurs.

In addition, the new impervious areas may have an effect on local hydrologic and water quality function within the watershed.

Chapter 3. Methods

The methods used to successfully comply with Federal, State, and local assessment requirements are detailed below. Please see Appendix A for further details of methods used in this report.

Wetlands, rivers, and other potentially regulated fish and wildlife habitat on or within 315 feet of the subject property boundaries were delineated and assessed by a qualified wetland specialist on May 22nd, 26th and August 8th, 2015. All wetland and ordinary high water (OHW) determinations were made using observable vegetation, hydrology, and soils in conjunction with data from the National Wetland Inventory, Pierce County Geographic Information Services, maps of the U.S. Fish and Wildlife Service, the Soil Survey of Pierce County (Zulauf, 1979), and various aerial photographs. See Appendix B for maps detailing background data such as soils, topography, and resource inventories.

Wetland boundaries were determined using the routine approach described in the U.S. Army Corps of Engineers' Wetlands Delineation Manual (Environmental Laboratory, 1987) and modified according to the guidelines established in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2.0 (USACE, 2010). The OHW was determined using Washington State Department of Ecology's (Ecology) method as detailed in Determining the Ordinary High Water Mark on Streams in Washington State (Olson, 2008) and definitions provided in RCW 77.55.011 (11) and WAC 220.110.020 (69).

All wetland boundaries and associated drainages were inspected, delineated and surveyed over several dates between May and August of 2015. To mark the boundary between wetlands and uplands, orange surveyor's flagging was alpha-numerically labeled and tied to vegetation or wood lath along the wetland boundary. To mark the points where data was collected, pink surveyor's flagging was alpha-numerically labeled and tied at each sampling location. To mark the centerline or banks of the regulated streams, blue surveyor's flagging was alpha-numerically labeled and tied to vegetation. The locations and features of the critical areas are described in Chapter 4 and are shown on site plan sheets in Appendix C.

Wetlands were classified using both the hydrogeomorphic (Brinson, 1993) and Cowardin (Cowardin, 1979) classification systems, and assessed using the Wetland Functions Characterization Tool for Linear Projects (WSDOT, 2000). Following classification and assessment, all wetlands were rated and categorized using both the Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby, 2014) and the definitions established in the Pierce County Code Title 18E. Streams and surface water features were classified using the Washington Department of Natural Resources Water Typing System as outlined in described in the Washington Administrative Code (WAC) Section 222-16 and the guidelines established in the Pierce County Code Title 18E.

The fish and wildlife habitat assessment was conducted by a qualified biologist during the same site visits. Publicly available background data was queried for documented wildlife observations and/or the presence of potentially regulated fish and wildlife habitat on or near the site. In addition, high-resolution aerial photography of the surrounding area was carefully examined. Visual observations using stationary and walking survey methods were utilized for both aquatic and upland habitats. Any special habitat features or signs of wildlife activity were noted, and these areas were thoroughly re-inspected as necessary.

Chapter 4. Existing Conditions

The landscape setting, existing conditions of the wetlands and streams within or near the project setting, and watershed conditions are detailed below.

4.1 Landscape Setting

With the exception of wetland areas, the subject property is entirely under active agricultural management surrounding one single-family residence and yard area in the middle of the site (Figure 2). Surrounding areas contain a mixture of residential, commercial, and agricultural lands with similar pending development. The subject property is bounded on the northeast by the Puyallup River. The vegetation on the subject property is primarily limited to agricultural crops, such as rhubarb and bulbs. The property is generally flat with terracing down to the Puyallup River. Since 1990, the site has remained similar to how it is used today and is currently subject to agricultural uses and other ongoing anthropogenic disturbances.

Figure 2. Aerial Photo of the Subject Property

Source: Google Maps

4.2 Wetlands

4.2.1 Overview

The site investigation identified a total of three potentially regulated wetlands on the subject property, Wetlands A, B, and C, with Wetland C extending easterly and offsite (Appendix C). One additional wetland, Wetland D, was identified off-site to the southwest of the property. The wetlands identified contained indicators of wetland hydrology, hydric soils, and a predominance of hydrophytic vegetation which satisfied the jurisdictional criteria set forth in Chapter 3 (Appendix A). Table 2 summarizes the wetlands identified on the subject property.

Table 2. Wetland Summary

Wetland	Predominant Wetland Classification / Rating			Wetland Size (square feet)	Buffer Width (feet)
	Cowardin	HGM	Rating		
A	PSS/EME	Depressional	Category III	26,869 onsite	150
B	PSS/EME	Depressional	Category III	11,396 onsite	150
C	PSS/EMB/H	Depressional	Category II	3,916 onsite	150
D	PEME	Depressional	Category IV	8,800 off-site	N/A[A]

[A]Per PCC 18E.20.030.K.2

Wetland A is approximately 26,869 square feet (0.62 acre) in area, and is located near the mid-eastern property boundary and near the Puyallup River (Appendix C). The wetland appears to have been created from an old oxbow that is upslope of the current bed of the Puyallup River. Vegetation within Wetland A is dominated by pacific willow, reed canary grass, and mannagrass. Hydric soils were confirmed by the presence of redox dark surface. Wetland hydrology primarily comes from upslope seeps, surface water runoff, and direct precipitation. Wetland hydrology indicators observed within the wetland included oxidized rhizospheres along living roots in the upper 12 inches. Wetland A is a Palustrine Scrub-Shrub/Emergent, Seasonally Flooded/Saturated wetland (PSS/EME). Wetland A is a Category III depressional wetland scoring 19 total function points with 5 habitat function points. Table 3 provides a detailed summary of Wetland A.

Wetland B is approximately 11,396 square feet (0.26 acre) in area, and is located near the mid-eastern property boundary, near the Puyallup River, and east of Wetland A (Appendix C). The wetland appears to have been created from an old oxbow that is upslope of the current bed of the Puyallup River. Vegetation within Wetland B is dominated by red-osier dogwood, mannagrass, reed canary grass, and American vetch. Hydric soils were confirmed by the presence of a redox dark surface. Wetland hydrology primarily comes from upslope seeps, surface water runoff, and direct precipitation. Wetland hydrology indicators observed within the wetland included saturation to a depth of 11 inches. Wetland B is connected to Wetland C via a small drainage located at the eastern end of Wetland B. Wetland B is a Palustrine Scrub-Shrub/Emergent, Seasonally Flooded/Saturated wetland (PSS/EME). Wetland B is a Category III depressional wetland scoring 19 total function points and 5 habitat function points. Table 4 provides a detailed summary of Wetland B.

Wetland C extends offsite with approximately 3,916 square feet (0.090 acre) in area onsite, and is located near the southeastern property corner and near the Puyallup River (Appendix C). The wetland

appears to have been created from an old oxbow that is upslope of the current bed of the Puyallup River. Wetland C is dominated by open water with isolated areas of skunk cabbage and reed canary grass and salmonberry along the perimeter. Hydric soils were confirmed by the presence of redox dark surface and hydrogen sulfide. Wetland hydrology primarily comes from high water from the Puyallup River, a seasonally high water table, surface water runoff, and direct precipitation. Wetland hydrology indicators observed within the wetland included a high water table, saturation within 10 inches, and hydrogen sulfide odor. Wetland C is connected to Wetland B via a small drainage, which is located at the western end of Wetland C. Wetland C is a Palustrine Scrub-Shrub/Emergent, Seasonally Saturated/Permanently Flooded wetland (PSS/EMB/H). Wetland C is a Category II depressional wetland scoring 20 total function points with 6 Habitat Function points. Table 5 provides a detailed summary of Wetland C.

Wetland D is located offsite near the southeastern property corner (Appendix C). The wetland appears to be associated with a low portion of the adjacent and actively grazed pasture/paddock and possibly an artifact of years of active livestock use. Use of the pasture appears to have compacted the soils sufficiently that infiltration is slower than surrounding areas. Vegetation within Wetland D is dominated by various pasture grasses with Himalayan blackberry growing along the fence line. A shallow farm pond was excavated onsite and adjacent to Wetland D to hold water being allowed to drain prior to relocating the irrigation system to another field. Wetland D is a Palustrine Emergent, Seasonally Flooded/Saturated wetland (PEME). Wetland D is a Category IV depressional wetland scoring 15 total function points with 3 Habitat Function points. Table 6 provides a detailed summary of Wetland D.

Table 3. Wetland A Summary.

WETLAND A – INFORMATION SUMMARY			
Location:	Located near the mid-eastern property boundary adjacent to the Puyallup River		
		**Local Jurisdiction**	Pierce County
		WRIA	10
		Ecology Rating[A]	III
		Pierce County Rating[B]	III
		Pierce County Buffer Width[C]	150 feet
		Estimated Wetland Size	26,869 square feet
		Cowardin Classification[D]	PSS/EME
		HGM Classification[E]	Depressional
		Wetland Data Sheet(s)	DP-2
		Upland Data Sheet (s)	DP-1
		Boundary Flag color	Orange
Dominant Vegetation	Wetland A is dominated by pacific willow and mannagrass.		
Soils	Soils are identified by NRCS as were identified as a Pilchuck fine sand. Field data shows the soils to be a sandy silt with a matrix color of 10YR 3/2 and 7 percent 10YR 3/3 redox features		
Hydrology	Observed wetland hydrology indicators included oxidized rhizospheres along living roots. Wetland hydrology primarily comes from seasonally high water table, surface water runoff, and direct precipitation.		
Rationale for Delineation	Upland areas were determined by a predominance of upland plant species, and a transition from hydric soils to non-hydric soils.		
Rationale for Local Rating	Local rating is based upon Ecology's current rating system in accordance with Pierce County Code.		
Wetland Functions Summary			
Water Quality	Wetland A has a high potential to retain sediments and pollutants from surface runoff of undeveloped and farmed upslope areas due to its location, relative size, and depressional geomorphology.		
Hydrologic	Wetland has moderate potential to reduce flooding and improve water quality through water retention and filtration of surface runoff associated with adjacent land use because of its location adjacent to the Puyallup River.		
Habitat	Wildlife habitat functions provided by the wetland may include small mammal forage and cover, and small bird forage and nesting.		
Buffer Condition	The buffer surrounding Wetland A is primarily cleared and in agricultural production. Uncleared areas are dominated by willow, cottonwood, red alder, colonial bentgrass, mannagrass and Japanese knotweed.		

A. Ecology rating according to Washington State wetland rating system for Western Washington – Revised Hruby (2014).
B. Pierce County Code Chapter 18E.30
C. Recommended wetland buffer width according to Pierce County Code Chapter 18E.30.060
D. Cowardin et al. (1979) or National Wetland Inventory (NWI) Class based on vegetation: PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub; PFO = Palustrine Forested; Modifiers (-C, -E, -H, -x, et cetera) = Water Regime or Special Situations
E. Brinson, M. M. (1993).

Table 4. Wetland B Summary.

WETLAND B – INFORMATION SUMMARY		
Location:	Located near the mid-eastern property boundary adjacent to the Puyallup River	
	**Local Jurisdiction**	Pierce County
	WRIA	10
	Ecology Rating[A]	III
	Pierce County Rating[B]	III
	Pierce County Buffer Width[C]	150 feet
	Estimated Wetland Size	11,396 square feet
	Cowardin Classification[D]	PSS/EME
	HGM Classification[E]	Depressional
	Wetland Data Sheet(s)	DP-3
	Upland Data Sheet (s)	DP-4
	Boundary Flag color	Orange
Dominant Vegetation	Wetland B is dominated by red-osier dogwood, snowberry, mannagrass, and vetch.	
Soils	Soils are identified by NRCS as were identified as a Pilchuck fine sand. Field data shows the soils to be a sandy silt with a matrix color of 10YR 3/2 to 4 inches and 2.5Y 2.5/1 with 5 percent 10YR 3/4 redox features.	
Hydrology	Observed wetland hydrology indicators included saturation to a depth of 11 inches. Wetland hydrology primarily comes from seasonally high water table, surface water runoff, and direct precipitation.	
Rationale for Delineation	Upland areas were determined by a predominance of upland plant species, and a transition from hydric soils to non-hydric soils.	
Rationale for Local Rating	Local rating is based upon Ecology's current rating system in accordance with Pierce County Code.	
Wetland Functions Summary		
Water Quality	Wetland B has a high potential to retain sediments and pollutants from surface runoff of undeveloped and farmed upslope areas due to its location, relative size, and depressional geomorphology.	
Hydrologic	Wetland has moderate potential to reduce flooding and improve water quality through water retention and filtration of surface runoff associated with adjacent land use because of its location adjacent to the Puyallup River.	
Habitat	Wildlife habitat functions provided by the wetland may include small mammal forage and cover, and small bird forage and nesting.	
Buffer Condition	The buffer surrounding Wetland B is primarily cleared and in agricultural production. Uncleared areas are dominated by red alder, Scouler's willow, cottonwood, oak sapling, Himalayan blackberry, salmonberry, trailing blackberry, reed canary grass, and horsetail.	

A. Ecology rating according to Washington State wetland rating system for Western Washington – Revised Hruby (2014).
B. Pierce County Code Chapter 18E.30
C. Recommended wetland buffer width according to Pierce County Code Chapter 18E.30.060
D. Cowardin et al. (1979) or National Wetland Inventory (NWI) Class based on vegetation: PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub; PFO = Palustrine Forested; Modifiers (-C, -E, -H, -x, et cetera) = Water Regime or Special Situations
E. Brinson, M. M. (1993).

Table 5. Wetland C Summary.

WETLAND C – INFORMATION SUMMARY			
Location:	Located near the southeastern property corner		
		**Local Jurisdiction**	Pierce County
		WRIA	10
		Ecology Rating[A]	II
		Pierce County Rating[B]	II
		Pierce County Buffer Width[C]	150 feet
		Estimated Wetland Size	3,916 square feet (onsite)
		Cowardin Classification[D]	PSS/EMB/H
		HGM Classification[E]	Depressional
		Wetland Data Sheet(s)	DP 5
		Upland Data Sheet (s)	DP 4
		Boundary Flag color	Orange
Dominant Vegetation	Wetland A is dominated by reed canary grass, willow, and open water.		
Soils	Soils are identified by NRCS as were identified as a Pilchuck fine sand. Field data shows the soils to be a sandy silt with a matrix color of 10YR 3/2 to 4 inches and 2.5Y 2.5/1 with 5 percent 10YR 3/4 redox features.		
Hydrology	Observed wetland hydrology indicators included high water table, saturation, hydrogen sulfide, and water stained leaves. Wetland hydrology primarily comes from seasonally high water table, surface water runoff, and direct precipitation.		
Rationale for Delineation	Upland areas were determined by a predominance of upland plant species, and a transition from hydric soils to non-hydric soils.		
Rationale for Local Rating	Local rating is based upon Ecology's current rating system in accordance with Pierce County Code.		
Wetland Functions Summary			
Water Quality	Wetland C has a high potential to retain sediments and pollutants from surface runoff of undeveloped and farmed upslope areas due to its location, relative size, and depressional geomorphology.		
Hydrologic	Wetland has moderate potential to reduce flooding and improve water quality through water retention and filtration of surface runoff associated with adjacent land use because of its location adjacent to the Puyallup River.		
Habitat	Wildlife habitat functions provided by the wetland may include water fowl feeding and breeding, amphibian habitat, small mammal forage and cover, and small bird forage and nesting.		
Buffer Condition	The buffer surrounding Wetland C is primarily cleared and in agricultural production. Uncleared areas are dominated by red alder, Scouler's willow, cottonwood, oak sapling, Himalayan blackberry, salmonberry, trailing blackberry, reed canary grass, and horsetail.		

A. Ecology rating according to Washington State wetland rating system for Western Washington – Revised Hruby (2014).
B. Pierce County Code Chapter 18E.30
C. Recommended wetland buffer width according to Pierce County Code Chapter 18E.30.060
D. Cowardin et al. (1979) or National Wetland Inventory (NWI) Class based on vegetation: PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub; PFO = Palustrine Forested; Modifiers (-C, -E, -H, -x, et cetera) = Water Regime or Special Situations
E. Brinson, M. M. (1993).

Table 6. Off-Site Wetland D Summary.

WETLAND D – INFORMATION SUMMARY			
Location:	Located near the southeastern property corner and north of 80th Street East		
		**Local Jurisdiction**	Pierce County
		WRIA	10
		Ecology Rating[A]	IV
		Pierce County Rating[B]	IV
		Pierce County Buffer Width[C]	N/A
		Estimated Wetland Size[D]	Approx. 8,800 sf
		Cowardin Classification[E]	PEME
		HGM Classification[F]	Depressional
		Wetland Data Sheet(s)	N/A (Off-site)
		Upland Data Sheet (s)	N/A (Off-site)
		Boundary Flag color	Orange
Dominant Vegetation	Wetland is dominated by various pasture grasses.		
Soils	Soils are identified by NRCS as were identified as non-hydric Sultan silt loam. Feature is offsite so no soil data was collected.		
Hydrology	Aerial photographic interpretation indicates the area is ponded for periods of time following rain events and after draining of irrigation systems.		
Rationale for Delineation	Boundary was estimated using historic precipitation data and aerial photographic interpretation.		
Rationale for Local Rating	Local rating is based upon Ecology's current rating system in accordance with Pierce County Code.		
Wetland Functions Summary			
Water Quality	Wetland D has a limited potential to retain sediments and pollutants from surface runoff of undeveloped and farmed upslope areas due to its location, relative size, vegetative cover and absence of drainage feature.		
Hydrologic	Wetland has low potential to reduce flooding and improve water quality through water retention and filtration of surface runoff because of its small size and adjacent land use as actively grazed pasture.		
Habitat	Wildlife habitat functions for Wetland D is limited due to the absence of cover and year-round grazing.		
Buffer Condition	The buffer surrounding Wetland D is dominated by actively grazed pasture grasses, Himalayan blackberry, agricultural crops, and farm roads.		

A. Ecology rating according to Washington State wetland rating system for Western Washington – Revised Hruby (2014).
B. Pierce County Code Chapter 18E.30
C. Recommended wetland buffer width according to Pierce County Code Chapter 18E.30.060
D. Cowardin et al. (1979) or National Wetland Inventory (NWI) Class based on vegetation: PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub; PFO = Palustrine Forested; Modifiers (-C, -E, -H, -x, et cetera) = Water Regime or Special Situations
E. Brinson, M. M. (1993).

4.2.2 Soils

The Natural Resources Conservation Service (NRCS) Soil Survey of Pierce County (Zulauf, 1979) identified five soil series on the subject property, Briscot loam, Pilchuck fine sand, Puyallup fine sandy loam, Riverwash, and Sultan silt loam (Appendix B).

Briscot loam (6A)
According to the survey, Briscot loam is a nearly level soil that is somewhat poorly drained. In a typical profile, the surface layer (0 to 11 inches) is dark brown loam. The subsoil (11 to 29 inches) is mottled, dark grayish brown fine sandy loam and silt loam. The lower part of the substratum (29 to more than 60 inches) is mottled, very dark grayish brown sand and gray silty clay loam. Briscot loam is listed as hydric on the Pierce County Hydric Soils List (NRCS, 2001).

Pilchuck fine sand (29A)
According to the survey, Pilchuck fine sand is excessively drained soil formed in major river valleys in mixed alluvium under hardwoods and conifers. In a typical profile, the surface layer is very dark brown fine sand about 7 inches thick. The underlying material to a depth of 36 inches is very dark brown fine sand, and it is very dark brown very gravelly sand to a depth of 60 inches or more. Pilchuck fine sand is considered non-hydric on the Pierce County Hydric Soils List (NRCS, 2010).

Puyallup fine sandy loam (31A)
Puyallup fine sandy loam (31A) soil series has 0-3 percent slopes and are well drained soils formed in recent alluvium on the natural levees in the Puyallup Rivers. Puyallup soils are usually found on floodplains and low-lying areas. In a typical profile, the surface layer is a very dark brown (10YR 2/2) fine sandy loam about 13 inches thick. The underlying material to a depth of 50 inches is a very dark grayish brown (10YR 4/2) loamy fine sand and fine sand. Between depths of 50 and more than 68 inches, it is dark grayish brown fine sandy loam and fine sand. The Puyallup soil series is considered non-hydric with hydric inclusions of Briscot soils found in depressional areas.

Riverwash (34A)
According to the survey, riverwash consists of recent coarse sand and gravelly alluvium. It is in areas adjacent to streams and is flooded by runoff from melting snow and heavy rains. These areas have sparse vegetation cover and are limited to as use as wildlife habitat. Riverwash soils are considered a hydric soil series on the Pierce County Hydric Soils List (NRCS, 2010).

Sultan silt loam (42A)
Sultan silt loam (42A) soil series are moderately well drained soils formed in recent alluvium on floodplains at the sea level to 120 feet, under deciduous and coniferous trees. This soil is on the bottom lands along the Puyallup and White Rivers at elevations ranging from near sea level to 100 feet. Slopes are less than 2 percent, and the surface is smooth. In a typical profile, the surface layer is a dark grayish brown (10YR 3/2) silt loam about 14 inches thick. The underlying material to a depth of 34 inches is a mottled, brown silt loam and dark yellowish brown (10YR 5/4) very fine sandy loam. To a depth of more than 60 inches, it is a mottled, dark gray fine sandy loam, gray silty clay loam, very dark grayish brown fine sand, and dark yellowish brown silt loam. The Sultan soil series is considered non-hydric with hydric inclusions of Briscot and Puget soils.

4.2.3 Vegetation

All three wetlands are dominated by scrub-shrub and emergent vegetation strata, though dominant species vary by wetland. Wetland A is dominated by reed canary grass, willow, and open water. Wetland B is dominated by red-osier dogwood, snowberry, mannagrass, and vetch. Wetland C is dominated by pacific willow and mannagrass.

4.2.4 Hydrology

The shape and location of the wetlands suggests they naturally developed from old oxbows of the Puyallup River with a short drainage that connected Wetland C to Wetland B. Aside from the Puyallup River, no other waterbodies were identified on-site or within 315 feet of the subject property and south of the Puyallup River. Wetland hydrology appears to be elevated above the river and thus is likely to come primarily from surface water runoff and direct precipitation.

Precipitation data was obtained from the National Oceanic and Atmospheric Administration (NOAA) weather station at SeaTac Airport for precipitation in the days and weeks, and month leading up to the site visits (August, 2014). A summary of data collected is provided in Table 7.

Table 7. Precipitation Summary.

Date	Day of	Day Before	1 Week Prior	2 Weeks Prior	Month[1]	Water Year[2]	% of Normal[3]
5/22/15	0.00	0.00	0.00	0.34	0.58	32.39	100
5/26/15	0.00	0.00	0.00	0.17	0.58	32.39	99
8/10/15	T	0.00	0.00	0.00	T	32.71	92

1. Month to date precipitation.
2. Water Year is precipitation from October 1, 2014.
3. Percent of normal is shown as for the water year.

The Precipitation data shows that 0.00 inches rain fell in the week prior to the site visits and precipitation was nearly normal for the water year. The lack of rain fall data suggests that precipitation levels would be considered normal at the time of the May site assessments and low at the time of the August site assessment. The precipitation levels were taken into account when determining wetland hydrology criteria.

4.2.5 Wetland Buffers

The site is mostly under active agricultural use, and buffer conditions onsite consist of predominately agricultural crops or plowed fields with a narrow vegetated buffer adjacent to the wetlands.

4.2.6 Wetland Functions

Table 8 provides a summary of existing functions and values associated with each wetland.

Table 8. Functions and Values of Existing Wetlands.

Function / Value[A]	Wetland		
	A	B	C
Water Quality Functions			
Sediment Removal	+	+	+
Nutrient and Toxicant Removal	+	+	+
Hydrologic Functions			
Flood Flow Alteration	+	+	+
Erosion Control & Shoreline Stabilization	-	-	-
Habitat Functions			
Production & Export of Organic Matter	x	x	x
General Habitat Suitability	x	x	x
Habitat for Aquatic Invertebrates	-	x	+
Habitat for Amphibians	x	x	+
Habitat for Wetland-Associated Mammals	x	x	+
Habitat for Wetland-Associated Birds	x	x	x
General Fish Habitat	-	-	-
Native Plant Richness	x	x	x
Special Characteristics			
Educational or Scientific Value	-	-	-
Uniqueness and Heritage	-	-	-

[A] "-" means that the function is not present; "x" means that the function is present is of lower quality; and "+" means the function is present an is of higher quality.

Due to their location downslope of active agricultural fields and upslope of the Puyallup River, the wetlands provide high water quality functions by removing sediment, nutrients, and toxins from runoff flowing in the Puyallup River. The wetlands provide moderate hydrologic function with high to moderate flood flow alteration potential due to their depressional morphology and location in relation to the Puyallup River. Habitat functions are also moderate as the wetlands provide potential small bird foraging and nesting, some fish-free amphibian breeding sites, and wildlife migration corridors.

4.3 Puyallup River

The site investigation identified one waterbody, the Puyallup River, which borders the northeastern boundary of the subject property. The project is located within Water Resources Inventory Area (WRIA) 10 for the Puyallup-White watershed. The Puyallup River is approximately 45 miles long. The river is formed from glacial runoff on the west side of Mount Rainier and flows into Puget Sound at the Port of Tacoma. The Puyallup River is considered to be a Shoreline of the State per the Shoreline Management Act of 1971 and the Pierce County Shoreline Management Use Regulations. The shoreline of the Puyallup River adjacent to the site is designated as Conservancy Environment. The Puyallup River is also regulated under the Pierce County Critical Areas Ordinance as a Regulated Fish and Wildlife Habitat Conservation Area and is classified as a Type F1 (salmonid-bearing) waterbody per PCC. Table 9 provides a detailed summary of the Puyallup River.

Table 9. Puyallup River Summary

PUYALLUP RIVER INFORMATION SUMMARY		
	**Feature Name**	Puyallup River
	WRIA	10
	WA Stream Catalog #	0021
	Local Jurisdiction	Pierce County
	DNR Stream Type	Type S
	Local Stream Rating	Type F1
	Buffer Width	150 feet from OHW
	Documented Fish Use	Yes
Location of Feature	The river is located along the eastern property boundary	
Connectivity (where water flows from/to)	The Puyallup River originates at the Puyallup and Tahoma Glaciers on Mount Rainier and flows westerly into the Puget Sound. One of two major tributaries, the White River, flows into the Puyallup River just downstream of the property.	
Documented Fish Species	The portion of the Puyallup River adjacent to the property is documented to contain Chinook salmon, chum salmon, steelhead trout, pink odd year salmon, bull trout, and coho salmon.	
Riparian/Buffer Condition	The buffer is dominated by cottonwood, big-leaf maple, and Himalayan blackberry.	

4.3.1 Puyallup River Buffer

As a Type F1 waterbody, the Puyallup River requires a buffer width of 150 feet. Buffer areas directly adjacent to the river are vegetated with cottonwood, big-leaf maple, and Himalayan blackberry. Beyond the shrub/tree line, buffers are actively under agricultural use with farm roads and agricultural fields located in the outer areas of the buffer.

4.4 Sensitive Plant, Fish and Wildlife

The WDFW PHS maps and data identify palustrine intertidal habitat, cutthroat, bull trout, chinook, chum, and pink odd year. WDFW SalmonScape maps identify Chinook salmon, chum salmon, steelhead trout, pink salmon, bull trout, and coho salmon (Appendix B).

Chapter 5. Regulatory Considerations

The proposed project is located in the Puyallup area of unincorporated Pierce County. The site investigation identified three potentially regulated wetlands and one regulated river on the property. One potentially non-regulated wetland was also identified off-site to the southeast. The project will not impact wetlands and their buffers, the Puyallup River or Puyallup River floodplain. The only action within these critical areas will be the installation of a stormwater outfall to the Puyallup River. Local, State, and Federal regulatory implications are addressed below:

5.1 Local Requirements

The Puyallup River is classified as a Type F1 waterbody under PCC 18E.40. According to PCC 18E.40.060 and WAC 222-16-031, Type F1 waterbodies require 150-foot buffers. The project is also regulated as a Shoreline of the State under PCC Title 20. Regulation under PCC Title 20 establishes a special management zone that extends 200 feet from OHWM of the river, plus associated wetlands. The shoreline is designated as Conservancy Environment. Preferred uses in Conservancy Environments include recreation activities, commercial timber harvesting, and passive agriculture. Per PCC 20.30.030.A, Commercial and light industrial development allowances within Conservancy Environments is limited to "Neighborhood Commercial," i.e. retail establishments scaled from 8,000 to 15,000 square feet servicing a localized population, and may only be permitted with a Conditional Use permit. Other than stormwater outfalls, the closest point of the proposed development to the Puyallup River is 301 feet and all activities are away from wetlands; therefore, the project will not require a conditional use permit or need to meet "Neighborhood Commercial" specifications.

Pierce County's Regional Trail Plan proposes connection between the Puyallup Riverwalk Trail and the Foothills Trail along the northeastern property boundary parallel to the Puyallup River. Hiking trails/bicycle paths such as these are considered to be Water Related Uses under PCC 20.60.010.B. Per PCC 20.60.030.A.1, water related recreational activities and facilities are allowed in the Conservancy Environment. The proposed Knutson Farms Industrial Park will include a 12 ft. wide pedestrian trail; it will be sited immediately outside of the floodplain and outside of regulated wetland buffers.

Wetlands A, B, and C were identified west of the Puyallup River. Wetlands A and B are Category III wetlands, and Wetland C is a Category II wetland. Under PCC 18E.30.060, Category III wetlands are subject to a 50-foot base buffer widths and Category II wetlands are subject to 100 foot base buffer widths. However, as the proposed commercial development meets the criteria of a "high impact" land use, PCC 18E.30.070 Appendix F requires the wetland buffers be increased to 150 feet for all wetlands A, B, and C. The project does not propose any direct impacts to the onsite wetlands nor to their buffers.

More than 28 percent of the site is encumbered by floodplain, shoreline, wetlands, and buffers. The project avoids all direct wetland impacts and development within the shoreline management zone.

Off-site Wetland D is not likely subject to development standards outlined in PCC 18E.30 due to its small size and lack of connection to other systems. Wetland D is not contiguous with any ditches, stream, or other fresh water systems. Per PCC 18E.20.030.K.2, Category IV wetlands smaller than 10,000 square feet in size, which are not contiguous with a freshwater or estuarine system, may be

exempt from regulation under PCC Title 18E. As Wetland D is less than 10,000 square feet in size and is not connected to other wetland systems, it meets exemption criteria under Pierce County critical areas regulations; therefore, no buffer from Wetland D extends onto the subject property

5.2 Federal and State Regulatory Considerations

The results of the site investigation identified three wetlands and one waterbody onsite. The Puyallup River is a Navigable Water of the U.S. known to be regulated under Section 10 of the Rivers and Harbors Act (RHA) downstream and Section 404 of the Clean Water Act (CWA) in its entirety. In a December 2, 2008 memorandum from the Environmental Protection Agency (EPA) and USACE, joint guidance is provided that describes waters that are to be regulated under section 404 of the CWA (USACE, 2008). This memorandum was amended on February 2, 2012 where the EPA and USACE issued a final guidance letter on waters protected by the CWA.

The 2012 guidance describes the following waters where jurisdiction would be asserted: 1) traditional navigable waters, 2) interstate waters, 3) wetlands adjacent to traditional navigable waters, 4) non-navigable tributaries of traditional navigable waters that are relatively permanent meaning they contain water at least seasonally (e.g. typically three months and does not include ephemeral waters), and 5) wetlands that directly abut permanent waters. The regulated waters are those associated with naturally occurring waters and water courses and not artificial waters (i.e. stormwater pond outfalls). The Puyallup River is considered to be a Traditional Navigable Water by the USACE. As Wetlands A-C are adjacent to the Puyallup River, these wetlands are likely subject to regulation under Section 404 of the CWA. Any placement of fill within or dredging of these wetlands or the Puyallup River would require additional Federal permitting.

As Wetland D is located off-site and as no fill or dredge actions are proposed with the onsite wetlands or below OHW of the Puyallup River, this project will not likely trigger Federal jurisdiction under Section 10 or Section 404 of the CWA. As such, a Section 401 Water Quality Certification will also not be necessary. Similarly, as no substantial development is proposed within the shoreline, nor are any variances needed. State regulation will be limited to SEPA comments and stormwater regulation.

Chapter 6. Mitigation of Critical Area Impacts

6.1 Description of Impacts

The proposed development includes construction of approximately 2,561,000 square feet of buildings (Buildings A-G). The project will be divided into two phases, Phase I and Phase II. Approximately 46.95 acres (28 percent) of the subject property is encumbered by wetland buffers, stream buffers, and floodplain. Impacts to all critical areas, buffers, and floodplain areas will be avoided.

6.2 Mitigation Sequencing

The first step in the mitigation sequence is avoidance. Impacts to all critical areas, buffers, and floodplain areas will be avoided so no compensatory mitigation or non-compensatory mitigation is required.

6.3 Best Management Practices

Temporary erosion and sediment control (TESC) measures will be implemented that consists of high-visibility fencing (HVF) installed around existing native vegetation within the floodplain, silt fencing between the graded areas and Puyallup River, plastic sheeting on stockpiled materials, and seeding of disturbed soils. A TESC plan will be prepared by the Project Engineer prior to construction. Additional erosion and sediment control measures may include hydro-mulching or seeding bare ground as soon as possible to minimize intrusion of invasive species, use of straw weirs and/or coir logs as necessary. These TESC measures should be installed prior to the start of development or enhancement actions and actively managed for the duration of the project. All TESC features will be removed after grading and planting have been completed and dense herbaceous cover is established.

Equipment used for project actions will be typical for small excavation and grading activities and will be kept in good working order free of leaks. All equipment staging and materials stockpiles will be kept out of wetlands, streams, and buffers and the area will be kept free of spills and/or hazardous materials. Any fill material will be sourced from upland areas onsite or from approved suppliers, and will be free of pollutants and hazardous materials, and all concrete wash water will be contained onsite.

Chapter 7. Closure

The findings and conclusions documented in this report have been prepared for specific application to this project. They have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. Our work was also performed in accordance with the terms and conditions set forth in our proposal. The conclusions and recommendations presented in this report are professional opinions based on an interpretation of information currently available to us and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, our observations and conclusions applicable to this site may need to be revised wholly or in part.

Wetland and OHW boundaries identified by Soundview Consultants LLC are based on conditions present at the time of the site visit and considered preliminary until the flagged wetland boundaries are validated by the jurisdictional agencies. Validation of the wetland and OHW boundaries by the regulating agency provides a certification, usually written, that the wetland and OHW boundaries verified are the boundaries that will be regulated by the agencies until a specific date or until the regulations are modified. Only the regulating agencies can provide this certification.

As wetlands and waterbodies are dynamic communities affected by both natural and human activities, changes in boundaries may be expected; therefore, delineations cannot remain valid for an indefinite period of time. Local agencies typically recognize the validity of wetland delineations for a period of 5 years after completion of a delineation report. Development activities on a site 5 years after the completion of this delineation report may require revision of the wetland delineation. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, our observations and conclusions applicable to this site may need to be revised wholly or in part.

Chapter 8. Report Summary

All initial field inspections, wetland boundary delineations, OHWM determinations, habitat assessments, and supporting documentation, including this ***Critical Areas Assessment*** prepared for ***Running Bear Development Partners, LLC*** were prepared by, or under the direction of, Jeremy Downs, Jim Carsner, and Hannah Blackstock of Soundview Consultants LLC. Jeremy Downs is a Pierce County approved Wetlands Specialist and Environmental Planner, Jim Carsner is a certified Professional Wetland Scientist, and Hannah Blackstock is a Pierce County approved Fisheries Biologist. Updates and modifications and field verification of wetlands were undertaken by Ann Boeholt (Professional Wetland Scientist) and Alex Callender, of Soundview Consultants LLC. Any deviations and/or alterations of the proposed project and/or habitat management recommendations provided in this document must be approved by the aforementioned parties at Soundview Consultants LLC. Please see Appendix F for a description of professional qualifications.

Sincerely,

Jeremy Downs

12/12/2016
Date

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Appendix A — Methods and Tools

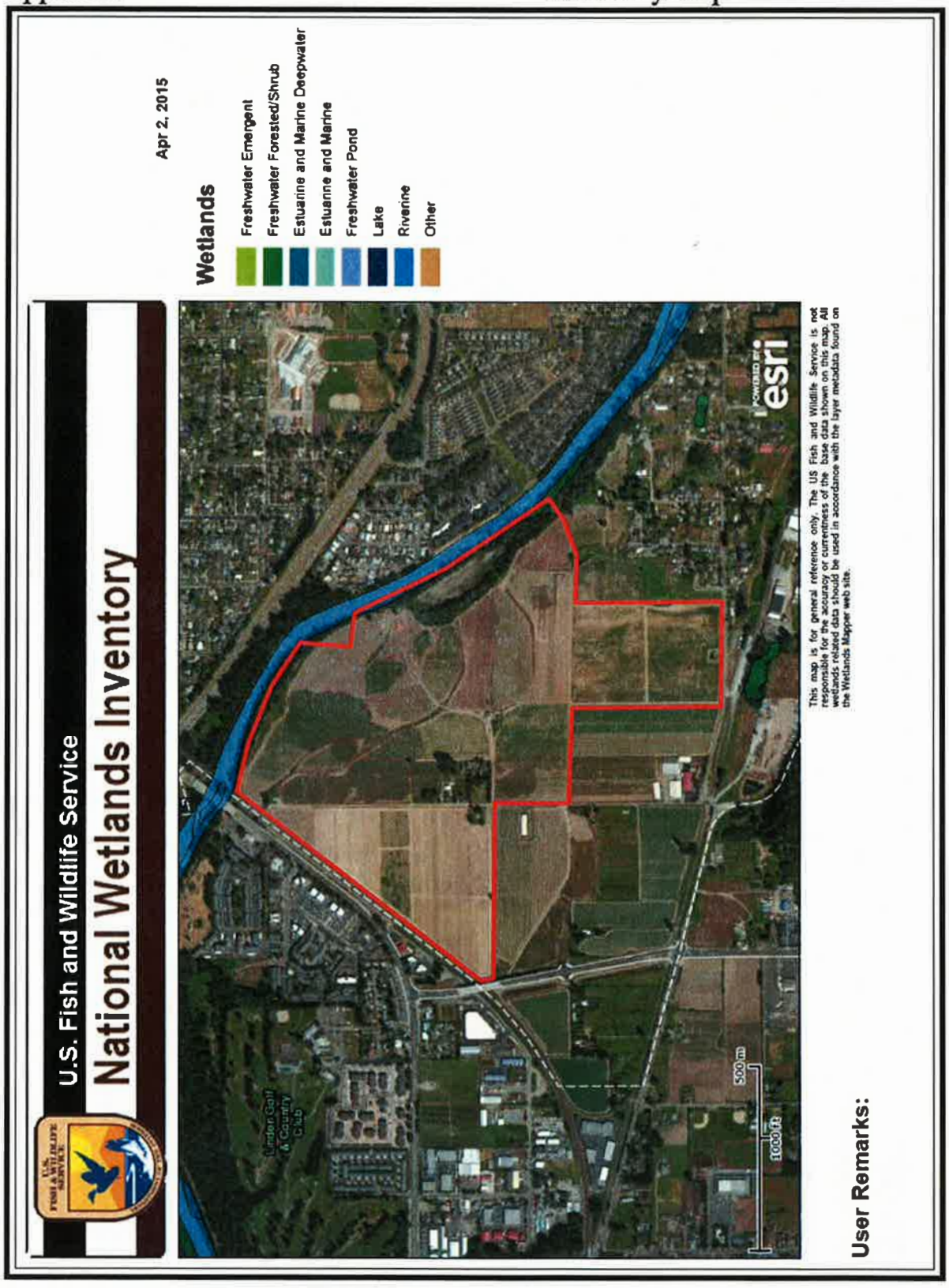
Parameter	Method or Tool	Website	Reference
Wetland Delineation	USACE 1987 Wetland Delineation Manual	http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf	**Environmental Laboratory.** 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
	Western Mountains, Valleys, and Coast Region Interim Regional Supplement	http://www.usace.army.mil/CECW/Documents/cecwo/reg/west_mt_finalsupp.pdf	**U.S. Army Corps of Engineers.** 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
Wetland Classification	USFWS / Cowardin Classification System	http://www.fws.gov/nwi/Pubs_Reports/Class_Manual/class_titlepg.htm	**Cowardin,** L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. Government Printing Office, Washington, D.C.
	Hydrogeomorphic Classification (HGM) System	http://el.erdc.usace.army.mil/wetlands/pdfs/wrpde4.pdf	**Brinson,** M. M. (1993). "A hydrogeomorphic classification for wetlands," Technical Report WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
Wetland Rating	Washington State Wetland Rating System	https://fortress.wa.gov/ecy/publications/documents/1406029.pdf	**Hruby,** T. (2014). *Washington State Wetland Rating System for Western Washington: 2014 Update.* (Publication #14-06-029). Olympia, WA: Washington Department of Ecology.
	Pierce County Code	http://www.codepublishing.com/wa/piercecounty/	Uses State Rating System under Pierce County Code Title 18E
Wetland Indicator Status	2013 National Wetland Plant List	http://wetland_plants.usace.army.mil/	**Lichvar,** R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42.
Plant Names	USDA Plant Database	http://plants.usda.gov/	Website (see Appendix A)
Soils Data	NRCS Soil Survey	http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx	Website GIS data based upon: Zulauf, Allen S., Miles L. Raver, Alfonso DeBose, and Jonathan F. Edwards. 1979. *Soil Survey of Pierce County Area, Washington.* Soil Conservation Service United States Department of Agriculture, Soil Conservation Service, in cooperation with the Washington Agricultural Experiment Station. Natural Resource Conservation Service
Hydric Soils Data	Pierce County Hydric Soils List	http://soils.usda.gov/use/hydric/	**Natural Resources Conservation Service.** 2001. Hydric Soils List: Pierce County, Washington. U.S. Department of Agriculture. Washington D.C.
Threatened and Endangered Species	Washington Natural Heritage Program	http://www.dnr.wa.gov/nhp/ and http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	**Washington Natural Heritage Program** (Data published 10/15/08). Endangered, threatened, and sensitive plants of Washington. Washington State Department of Natural Resources, Washington Natural Heritage Program, Olympia, WA
	Washington Priority Habitats and Species	http://wdfw.wa.gov/hab/phspage.htm	**Priority Habitats and Species (PHS) Program** Washington Department of Fish and Wildlife (WDFW).
	NOAA fisheries species list and maps	http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Index.cfm and http://www.nmfs.noaa.gov/pr/species/	Website
	USFWS species lists by County	http://www.fws.gov/westwafwo/se/SE_List/endangered_Species.asp	Website

Parameter	Method or Tool	Website	Reference
Stream Delineation	Federal Ordinary High Water Mark Definition	http://www.usace.army.mil/inet/functions/cw/cecwo/reg/33cfr328.htm	Congressional Federal Register 33 Part 328 Definition of Waters of the United States.
	Draft State Ordinary High Water Mark Protocol	http://www.ecy.wa.gov/pubs/0806001.pdf	Olson, P. and E. Stockdale. 2008. Determining the Ordinary High Water Mark on Streams in Washington State. Washington State Department of Ecology, Shorelands & Environmental Assistance Program, Lacey, WA. Ecology Publication # 08-06-001.
Stream Classification	Department of Natural Resources (DNR) Water Typing System	**Forest Practices Water Typing:** http://www.stage.dnr.wa.gov/forestpractices/watertyping/ **WAC 222-16-030:** http://apps.leg.wa.gov/WAC/default.aspx?cite=222-16-030 **Water Type Mapping:** http://www3.wadnr.gov/dnrapp5/website/fpars/viewer.htm	Washington Administrative Code (WAC) 222-16-030. DNR Water typing system.
	Pierce County Code	http://www.codepublishing.com/wa/piercecounty/	Uses State Water Typing System under Pierce County Code Title 18E
Species of Local Importance	WDFW GIS Data	http://wdfw.wa.gov/mapping/salmonscape/	Website
Report Preparation	Pierce County Code	http://www.codepublishing.com/wa/piercecounty/	Pierce County Code Title 18E

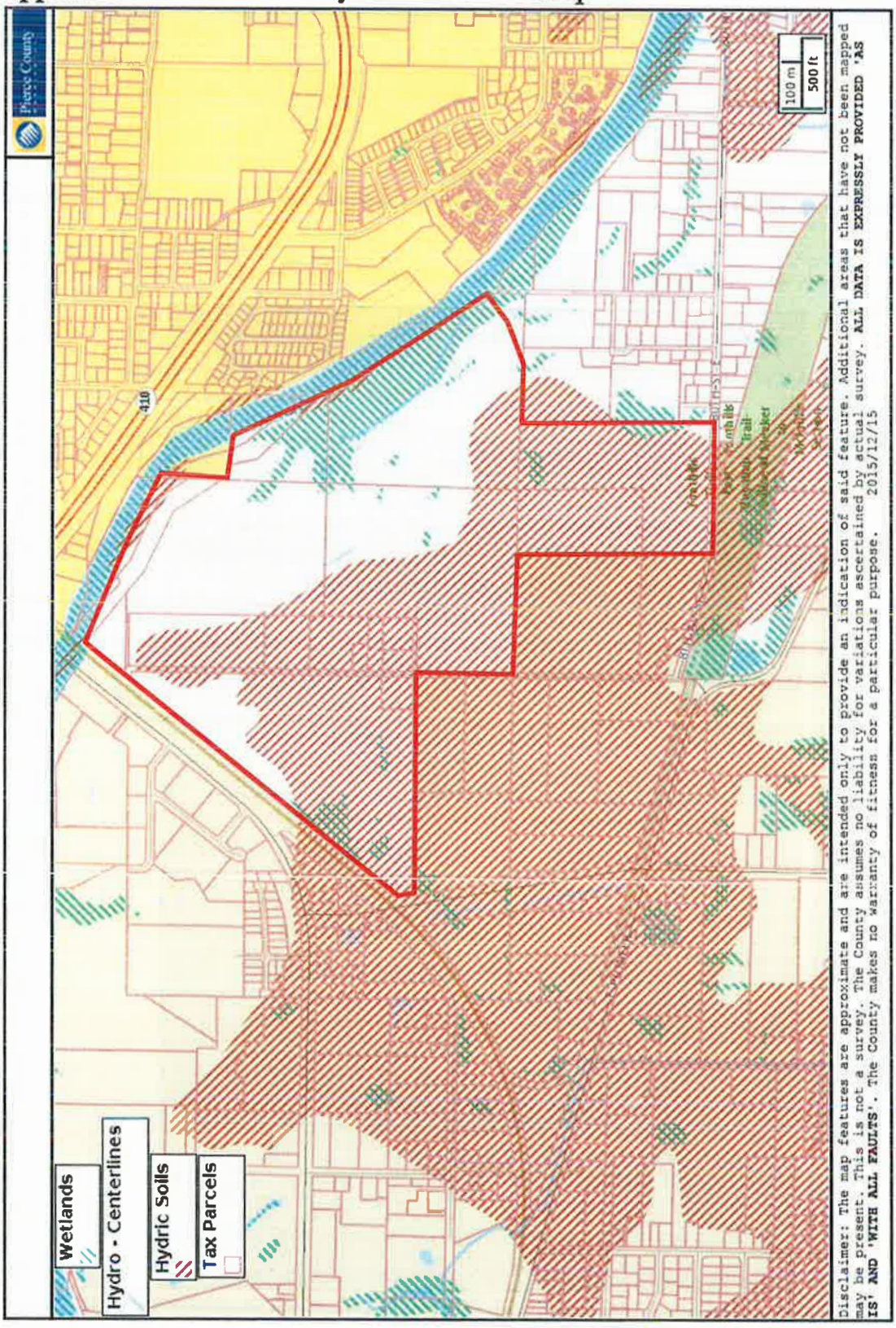
Appendix B — Background Information

This Appendix includes a USFWS National Wetland Inventory map (B1), a Pierce County Critical Areas Map (B2), an NRCS Soil Survey map (B3), a WDFW Priority Habitats and Species map (B4), and a WDFW SalmonScape map (B5).

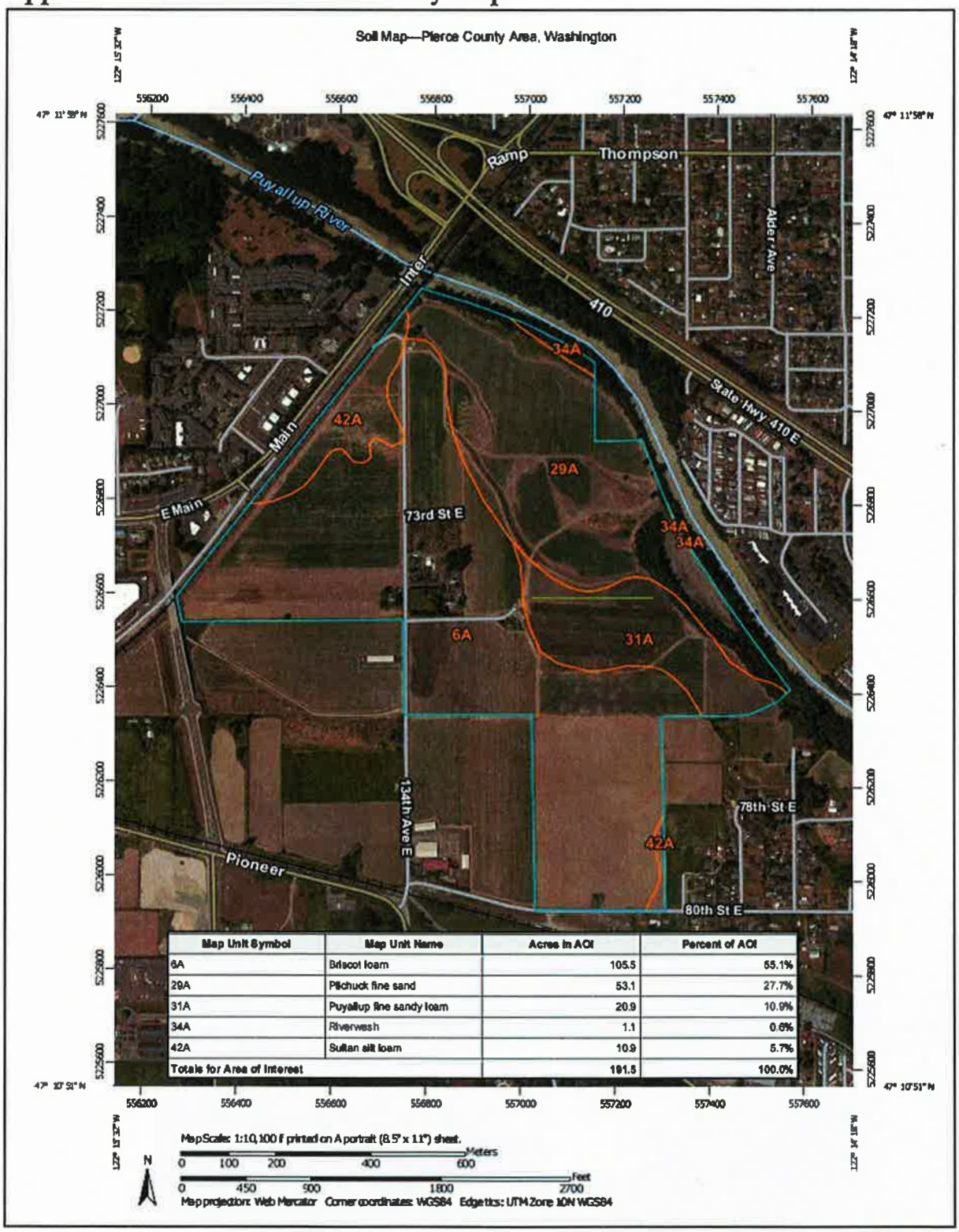
Appendix B1. USFWS National Wetland Inventory Map



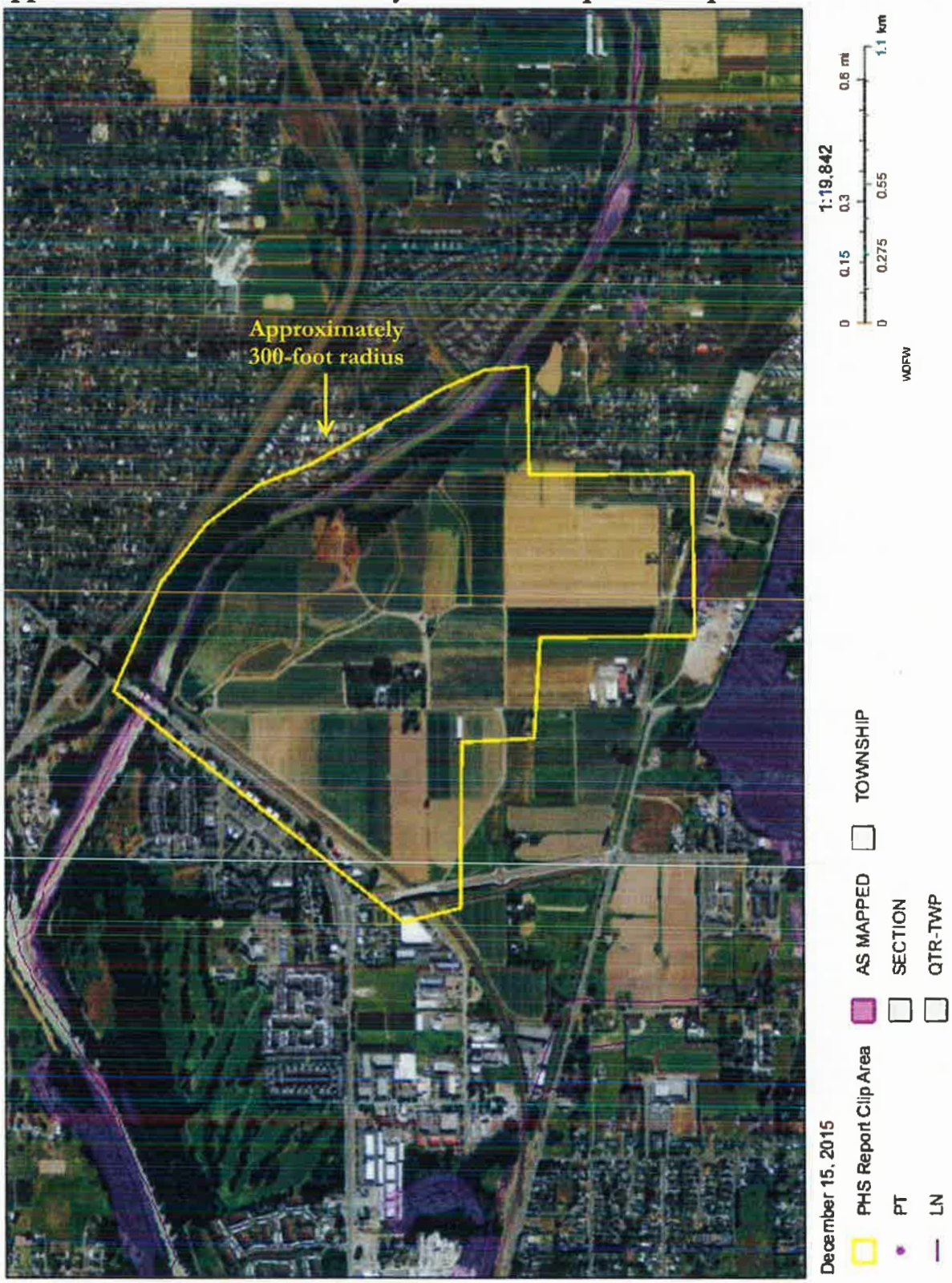
Appendix B2. Pierce County Critical Areas Map



Appendix B3. NRCS Soil Survey Map



Appendix B4. WDFW Priority Habitat and Species Map



WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

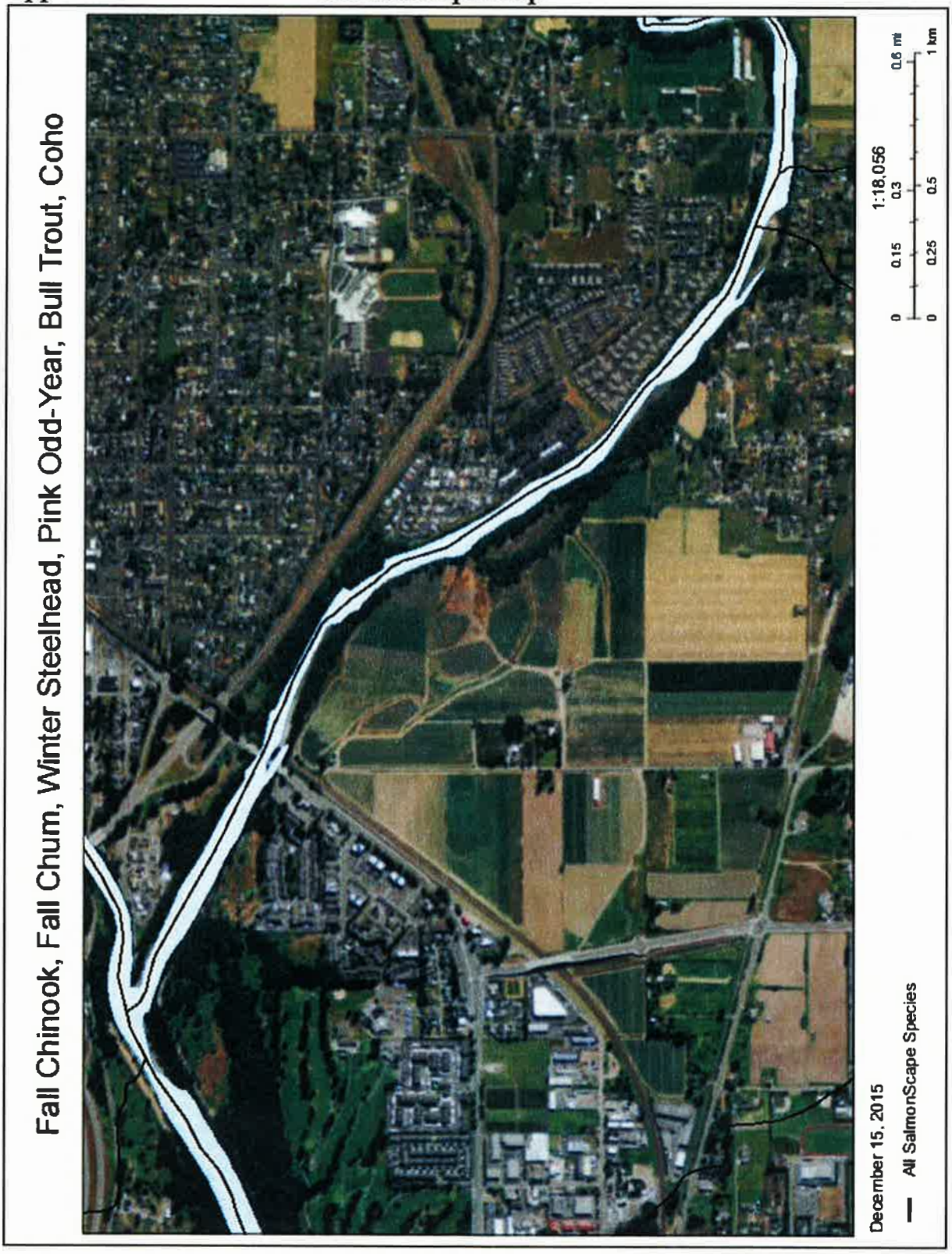
SOURCE DATASET: PHSPlusPublic
REPORT DATE: 12/15/2015 2.25

Query ID: P151215142512

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Bull Trout Salvelinus malma	Puyallup River SASI 8144	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Threatened N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Bull Trout Salvelinus malma	Puyallup River SASI 8168	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Threatened N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Chinook Oncorhynchus tshawytscha	Puyallup River SASI 1176	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Threatened N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Chum Oncorhynchus keta	Puyallup River SASI 2176	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Not Warranted N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Chum Oncorhynchus keta	Puyallup River SASI 2187	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Not Warranted N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Coho Oncorhynchus kisutch	Puyallup River SWIFD 45600	Breeding Area Breeding area http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Coho Oncorhynchus kisutch	Puyallup River SASI 3160	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Candidate N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Cutthroat Oncorhynchus clarki	Puyallup River SASI 7400	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Not Warranted N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Dolly Varden/ Bull Trout Salvelinus malma	Puyallup River SWIFD 45603	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Fall Chinook Oncorhynchus tshawytscha	Puyallup River SWIFD 45590	Breeding Area Breeding area http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Fall Chum Oncorhynchus keta	Puyallup River SWIFD 45593	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Pink Oncorhynchus gorbuscha	Puyallup River SASI 4520	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Not Warranted N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Pink Salmon Odd Year Oncorhynchus gorbuscha	Puyallup River SWIFD 45605	Breeding Area Breeding area http://wdfw.wa.gov/wlm/diversity/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Resident Coastal Cutthroat Oncorhynchus clarki	Puyallup River SWIFD 45588	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversity/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Riverine	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Riverine	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Steelhead Oncorhynchus mykiss	Puyallup River SASI 6182	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversity/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Threatened N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Steelhead Oncorhynchus mykiss	Puyallup River SASI 6196	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversity/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Threatened N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Wetlands	LOWER PUYALLUP RIVER PHSREGION 902559	Aquatic Habitat N/A http://www.ecy.wa.	1/4 mile (Quarter	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Winter Steelhead Oncorhynchus mykiss	Puyallup River SWIFD 45611	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversity/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines

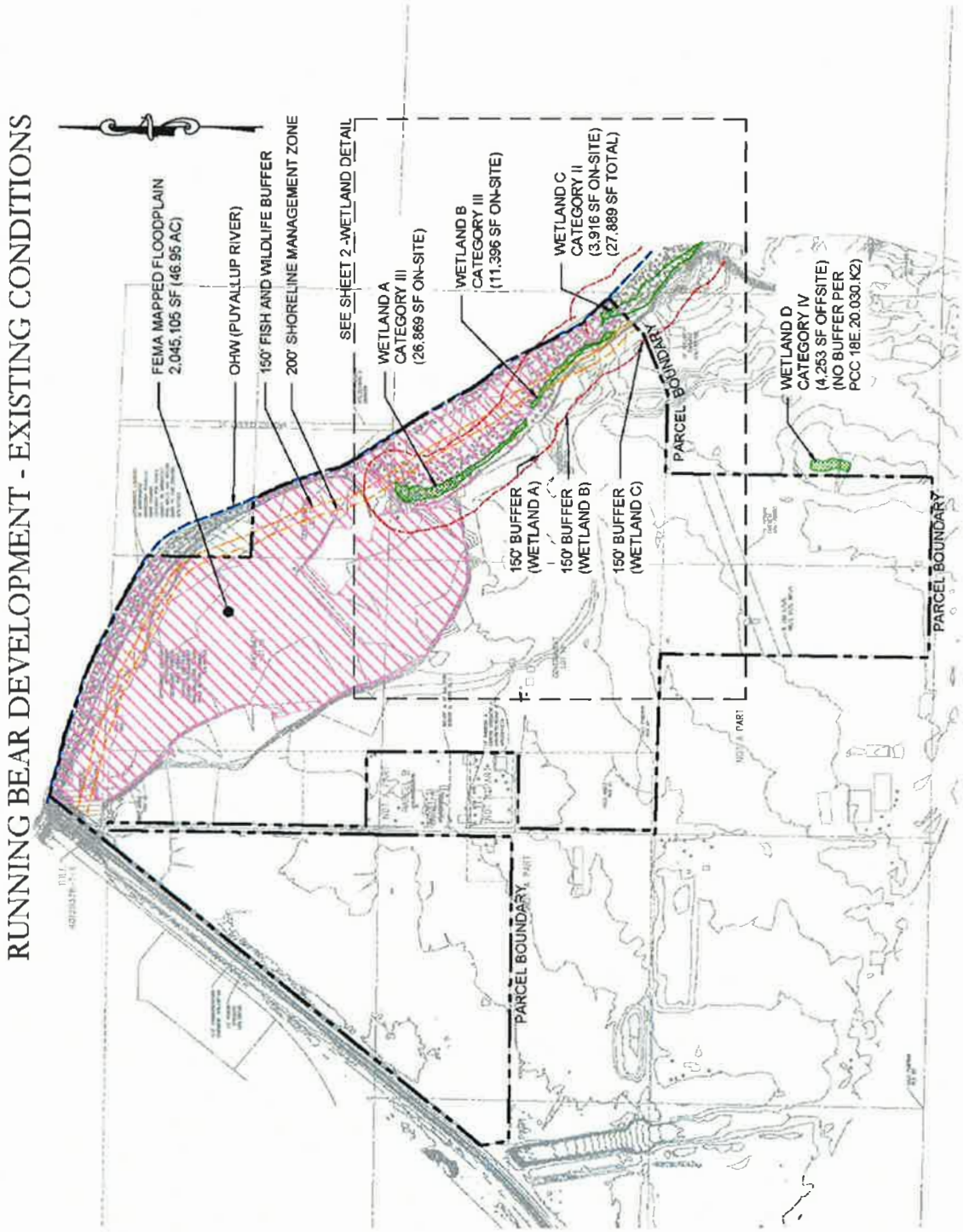
Appendix B5. WDFW SalmonScape Map



Appendix C — Plan Sheets

This Appendix includes the map of the subject property showing the locations of existing physical features of the site including the delineated wetland boundaries, ordinary high water of the shoreline, and protective buffers.

Site Map


RUNNING BEAR DEVELOPMENT - EXISTING CONDITIONS
FEMA MAPPED FLOODPLAIN 2,045,105 SF (46.95 AC)
OHW (PUYALLUP RIVER)
150' FISH AND WILDLIFE BUFFER
200' SHORELINE MANAGEMENT ZONE
SEE SHEET 2-WETLAND DETAIL
WETLAND A CATEGORY III (26,869 SF ON-SITE)
WETLAND B CATEGORY III (11,396 SF ON-SITE)
WETLAND C CATEGORY II (3,916 SF ON-SITE) (27,889 SF TOTAL)
WETLAND D CATEGORY IV (4,253 SF OFFSITE) (NO BUFFER PER PCC 18E.20.030.K2)
150' BUFFER (WETLAND A)
150' BUFFER (WETLAND B)
150' BUFFER (WETLAND C)
PARCEL BOUNDARY
PARCEL BOUNDARY
PARCEL BOUNDARY

Appendix D — Data Sheets

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

Project/Site: Knutson Property City/County: Puyallup / Pierce Sampling Date: 8.10.2015

Applicant/Owner: Running Bear Development Partners LLC State: WA Sampling Point: DP-1

Investigator(s): Jim Carsner - Bronte Hopkins Section, Township, Range: 04, T20N, R25E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): A2 Lat: 47.191667 Long: -122.243889 Datum: WGS 84

Soil Map Unit Name: Pilchuck fine sand NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: Precipitation was 92% of normal for the water year and 97% of normal for the yeat-to-date. Not all three wetland criteria observed.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Alnus rubra	90	Yes	FAC
2.			
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Salix lucida	10	Yes	FACW
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. Agrostis capillaris	30	Yes	FAC
2. Glyceria elata	30	Yes	OBL
3. Polygonum cupidatum	20	Yes	FACU
4. Rubus ursinus	5	No	FACU
5. Urtica dioica	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

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 =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Dominance test criteria met.

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 5/2	98	10YR 3/3	2	C	M	SaL	Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators 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: Redox features considered faint and soil does not meet hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Precipitation was 92% of normal for the water year and 97% of normal for the yeat-to-date. No wetland hydrology indicators observed.

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

Project/Site: Knutson Property City/County: Puyallup / Pierce Sampling Date: 8.10.2015

Applicant/Owner: Running Bear Development Partners LLC State: WA Sampling Point: DP-2

Investigator(s): Jim Carsner - Bronte Hopkins Section, Township, Range: 04, T20N, R25E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): A2 Lat: 47.19194 Long: -122.24250 Datum: WGS 84

Soil Map Unit Name: Pilchuck fine sand NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: Precipitation was 92% of normal for the water year and 97% of normal for the yeat-to-date. All three wetland criteria observed.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Salix lucida	90	Yes	FACW
2. Alnus rubra	10	No	FAC
3.			
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. Glyceria elata	40	Yes	OBL
2. Epilobium ciliatum	10	No	FACW
3. Solanum dulcamara	10	No	FAC
4. Vicia americana	5	No	FAC
5. Iris pseudacorus	2	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	67	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 33

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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 =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Dominant test criteria met.

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/1	93	10YR 3/3	7	C	M	SaSi	Sandy silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators 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 F3 observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Precipitation was 92% of normal for the water year and 97% of normal for the yeat-to-dat. No water table or saturation observed; however, primary wetland hydrology indicator C3 observed.

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

Project/Site: Knutson Property City/County: Puyallup / Pierce Sampling Date: 8.10.2015

Applicant/Owner: Running Bear Development Partners LLC State: WA Sampling Point: DP-3

Investigator(s): Jim Carsner - Bronte Hopkins Section, Township, Range: 04, T20N, R25E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): A2 Lat: 47.19144 Long: -122.24250 Datum: WGS 84

Soil Map Unit Name: Pilchuck fine sand NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: Precipitation was 92% of normal for the water year and 97% of normal for the yeat-to-date. All three wetland criteria observed.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Symphoricarpos albus	15	Yes	FACU
2. Cornus sericea	5	Yes	FACW
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. Glyceria elata	30	Yes	OBL
2. Vicia americana	20	Yes	FAC
3. Equisetum sp.	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

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 = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Dominance test criteria met.

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	–	–	–	–	–	Si	Silt
4-20	2.5Y 2.5/1	95	10YR 3/4	5	C	M	Sa	fine Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators 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 indicators A11 and F6 observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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): 13

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 11

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Precipitation was 92% of normal for the water year and 97% of normal for the yeat-to-date. Primary wetland hydrology indicators A2 and A3 observed.

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

Project/Site: Knutson Property City/County: Puyallup / Pierce Sampling Date: 8.10.2015

Applicant/Owner: Running Bear Development Partners LLC State: WA Sampling Point: DP-4

Investigator(s): Jim Carsner - Bronte Hopkins Section, Township, Range: 04, T20N, R25E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): A2 Lat: 47.188889 Long: -122.240833 Datum: WGS 84

Soil Map Unit Name: Pilchuck fine sand NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: Precipitation was 92% of normal for the water year and 97% of normal for the yeat-to-date. Not all three wetland criteria observed.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Alnus rubra	30	Yes	FAC
2. Populus balsamifera	15	Yes	FAC
3.			
4.			
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Acer macrophyllum (sapling)	30	Yes	FACU
2. Salix scouleriana	15	Yes	FAC
3. Rubus armeniacus	10	No	FACU
4.			
5.			
	55	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. Equisetum sp.	70	Yes	FAC
2. Glyceria elata	10	No	OBL
3. Urtica dioica	5	No	FAC
4. Ranunculus repens	1	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	86	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 14

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

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 =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Dominance test criteria met

SOIL

Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	5YR 3/2	100	--	--	--	--	Sa	Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators 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 hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Precipitation was 92% of normal for the water year and 97% of normal for the yeat-to-date. No primary or secondary wetland hydrology indicators observed.

Appendix E — Rating Forms

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): A Date of site visit: 7/27/2016

Rated by AB and AC Trained by Ecology? ☑ Yes ☐ No Date of training May-07

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out 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	
	List appropriate rating (H, M, L)			
Site Potential	M	M	L	
Landscape Potential	M	M	L	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	5	**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	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

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	1
Hydroperiods	D 1.4, H 1.2	1
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	5
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	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	7

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 another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*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	

Wetland name or number A

HGM Classification of Wetland in Western Washington

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

NOTES and FIELD OBSERVATIONS:
Wetland A is a depressional wetland upslope of the OHW mark of the Puyallup River east of Puyallup, WA. The wetland area appears to be a historic remnant of an old river meander before the river was channelized.

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. Characteristics of surface water outflows from the wetland:		2
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	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):		1
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 > $^1/_{10}$ of area	points = 1	
Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:		4
This is the area that is ponded for at least 2 months. See description in manual.		
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	
Total for D 1	Add the points in the boxes above	7

Rating of Site Potential If score is: ☐ **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?	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	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	1

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **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	1
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	3

Rating of Value If score is: ☑ **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. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	2
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	
D 4.2. 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.*		3
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	
D 4.3. 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.*		3
☐ 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	
Total for D 4	Add the points in the boxes above	8

Rating of Site Potential If score is: ☐ **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 function of the site?

D 5.1. Does the wetland unit 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	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	1
Total for D 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **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. 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.*		2
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.	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. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
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	2

Wetland name or number A

Total for D 6	Add the points in the boxes above	4

Rating of Value If score is: ☑ **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
- ☑ Emergent
- ☑ Scrub-shrub (areas where shrubs have > 30% cover)
- ☐ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
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

1

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
- ☑ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☑ Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream or in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
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***

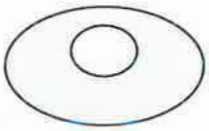
If you counted:
- > 19 species — points = 2
- 5 - 19 species — points = 1
- < 5 species — points = 0

1

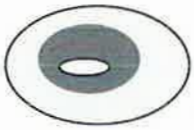
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion 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

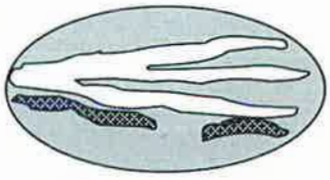


Low = 1 point



Moderate = 2 points

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



1

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*)	2
Total for H 1 Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **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 function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 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	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 1.2 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 1.2% 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	0
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 1km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**-2**

Rating of Landscape Potential If Score is: ☐ **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) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Wetland name or number A

Rating of Value If Score is: ☑ **2 = H** ☐ **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.

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
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**	
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 *Spartina*, see page 25) ☐ At least ¾ 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**	
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 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 to SC 2.4** ☑ No = **Not 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 WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** 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

Wetland name or number A

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **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).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ 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 (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ 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 un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ 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

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

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)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

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?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): B Date of site visit: 7/27/2016

Rated by AB & AC Trained by Ecology? ☑ Yes ☐ No Date of training May-07

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out 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	
	List appropriate rating (H, M, L)			
Site Potential	M	M	L	
Landscape Potential	M	M	L	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	5	**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	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

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	2
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	5
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	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	7

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 another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*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	

Wetland name or number B

HGM Classification of Wetland in Western Washington

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

NOTES and FIELD OBSERVATIONS:
Wetland A is a depressional wetland upslope of the OHW mark of the Puyallup River east of Puyallup, WA. The wetland area appears to be a historic remnant of an old river meander before the river was channelized.

Wetland name or number B

Wetland name or number B

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. Characteristics of surface water outflows from the wetland: 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	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (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 > $^1/_{10}$ of area Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	1
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* 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	7

Rating of Site Potential If score is: ☐ **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?	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	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	1

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **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	1
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	3

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

Wetland name or number B

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. Characteristics of surface water outflows from the wetland:		2
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	
D 4.2. 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.*		3
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	
D 4.3. 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.*		3
☐ 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	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **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 function of the site?		
D 5.1. Does the wetland unit 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	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	1
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **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. 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.*		2
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.	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. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
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	2

Wetland name or number B

Total for D 6	Add the points in the boxes above	4

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

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: *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
- ☑ Emergent
- ☑ Scrub-shrub (areas where shrubs have > 30% cover)
- ☐ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
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

1

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
- ☑ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☑ Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream or in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
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 interspersion 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

1

Wetland name or number B

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*)	2
Total for H 1 Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **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 function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 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	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 3.1 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 3.1% 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	0
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 1km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**-2**

Rating of Landscape Potential If Score is: ☐ **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) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Wetland name or number B

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

Wetland name or number B

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.

Wetland name or number B

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
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**	
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 *Spartina*, see page 25) ☐ At least ¾ 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**	
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 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 to SC 2.4** ☑ No = **Not 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 WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions***. 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

Wetland name or number B

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **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).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ 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 (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ 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 un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ 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

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

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)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

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?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Wetland name or number C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): C Date of site visit: 7/27/2016

Rated by AB & AC Trained by Ecology? ☑ Yes ☐ No Date of training May-07

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out 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 - 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	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	M	M	L	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	6	**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	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

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	3
Hydroperiods	D 1.4, H 1.2	3
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	5
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	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	7

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 another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*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	

Wetland name or number C

HGM Classification of Wetland in Western Washington

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

NOTES and FIELD OBSERVATIONS:
Wetland A is a depressional wetland upslope of the OHW mark of the Puyallup River east of Puyallup, WA. The wetland area appears to receive water from the Puyallup River up-stream of the subject property duirng high tide or flow events.

Wetland name or number C

Wetland name or number C

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. Characteristics of surface water outflows from the wetland: 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	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (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 > $^1/_{10}$ of area Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	1
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* 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	7

Rating of Site Potential If score is: ☐ **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?	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	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	1
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** ☑ **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	1
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	3

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

Wetland name or number C

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. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	2
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	
D 4.2. 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.*		3
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	
D 4.3. 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.*		3
☐ 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	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **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 function of the site?		
D 5.1. Does the wetland unit 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	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	1
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **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. 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.*		2
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.	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. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
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	2

Wetland name or number C

Total for D 6	Add the points in the boxes above	4

Rating of Value If score is: ☑ **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	1
☑ 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

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

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2. *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***

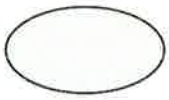
1

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

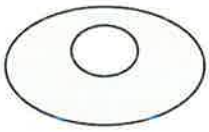
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion 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.*

1



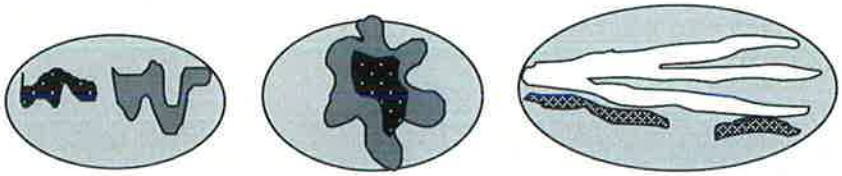
None = 0 points



Low = 1 point

Moderate = 2 points

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



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*)	3
Total for H 1 — Add the points in the boxes above	7

Rating of Site Potential If Score is: ☐ **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 function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 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	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 3.8 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 3.8% 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	0
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 1km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	-2

Rating of Landscape Potential If Score is: ☐ **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) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Wetland name or number C

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

Wetland name or number C

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.

Wetland name or number C

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
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**	
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 *Spartina*, see page 25) ☐ At least ¾ 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**	
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 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 to SC 2.4** ☑ No = **Not 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 WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** 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**

Wetland name or number C

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **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).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ 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 (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ 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 un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ 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

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

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)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

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?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Wetland name or number D - offsite

RATING SUMMARY – Western Washington

Name of wetland (or ID #): D - offsite Date of site visit: 7/27/2016

Rated by AB & AC Trained by Ecology? ☑ Yes ☐ No Date of training May-07

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map

OVERALL WETLAND CATEGORY IV (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
_____ **Category III** - Total score = 16 - 19
X **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	L	L	
Landscape Potential	M	M	L	
Value	H	H	L	**Total**
Score Based on Ratings	6	6	3	**15**

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	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

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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	4
Hydroperiods	D 1.4, H 1.2	4
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	4
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	4
Map of the contributing basin	D 4.3, D 5.3	5
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	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	7

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 another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*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 Wetland in Western Washington

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number D - offsite

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. Characteristics of surface water outflows from the wetland: 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	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (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 > $^1/_{10}$ of area Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	0
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* 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	0
Total for D 1	Add the points in the boxes above	**2**

Rating of Site Potential If score is: ☐ **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?	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	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 Agricultural runoff	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **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	1
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	**3**

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

Wetland name or number D - offsite

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. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	2
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	
D 4.2. 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.*		3
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	
D 4.3. 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.*		0
☐ 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	
Total for D 4	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐ **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 function of the site?

D 5.1. Does the wetland unit 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	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	1
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **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. 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.*		2
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.	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. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
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	2

Wetland name or number D - offsite

Total for D 6	Add the points in the boxes above	4

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

Wetland name or number D - offsite

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
- ☑ Emergent
- ☐ Scrub-shrub (areas where shrubs have > 30% cover)
- ☐ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
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
- ☑ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☐ Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types 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

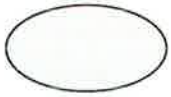
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

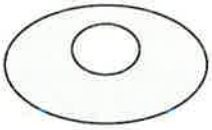
1

H 1.4. ~~Interspersion~~ of habitats

Decide from the diagrams below whether interspersion 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 D - offsite

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** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 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	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 8.5 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 8.5% 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	0
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 1km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	**-2**

Rating of Landscape Potential If Score is: ☐ **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) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	0

Wetland name or number D - offsite

Rating of Value If Score is: ☐ 2 = H ☐ 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.

Wetland name or number D - offsite

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
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**	
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 *Spartina*, see page 25) ☐ At least ¾ 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**	
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 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 to SC 2.4** ☑ No = **Not 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 WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** 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**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **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).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ 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 (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ 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 un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ 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

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

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)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

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?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Appendix F — Biologist Qualifications

Jeremy Downs, Principal Scientist and Environmental Planner

Jeremy Downs is the Principal Scientist and Environmental Planner for the project with professional training and extensive experience in land use, site planning and design, project coordination, permitting and management, marine and wetland ecology, habitat restoration, wetland, stream, and benthic delineations and assessments, stream assessments, underwater and terrestrial monitoring programs, and mitigation planning and design since 1987. Jeremy earned a Bachelor's of Science degree in Biology from the University of California, Davis. In addition, he studied under the Environmental Risk and Recovery program at the Australian Institute of Marine Science. He also holds graduate-level professional certifications in various advanced wetland science and management programs from both Portland State University and San Francisco State University, and he has received professional training in Salmonid Biology from the University of California Extension.

Jeremy is a certified wetlands delineator under US Army Corps of Engineers guidelines. He has been formally trained in the use of the Washington State Wetland Rating System, Determination of Ordinary High Water Mark, Designing Compensatory Mitigation and Restoration Projects, and Reviewing Wetland Mitigation and Monitoring Plans from the US Army Corps of Engineers and Washington State Department of Ecology, and in conducting Biological Assessments from the Washington Department of Transportation. He is also a Pierce County Qualified Wetland Specialist and Fisheries Biologist, and he holds similar qualifications from other jurisdictions.

Ann Boeholt

Ann Boeholt is a Senior Environmental Planner and a Certified Professional Wetland Scientist with 28 years of experience in aquatic resources management in western Washington. She has worked within all levels of government. Ann began her career working two part-time positions--with a local government (Mason County) and the US Fish and Wildlife Service. This transitioned to a full-time position as a Wetland Biologist with the USFWS, then 14 years as a regional Wetland Specialist at the Washington State Department of Ecology where she had a hand in developing many of the wetland tools in use to this day within the State of Washington. Also, during that time, Ann served an 8 month appointment as a Marine Habitat Biologist with the State Department of Fish and Wildlife and attended graduate school. She then served 12 years at Pierce County Surface Water Management as a Wetland Biologist and Project Manager. She joined SVC in July 2016. Ann has extensive experience in wetlands delineation and rating, native plant selection and care, restoration design, maintenance, monitoring, and mitigation banking and In-Lieu Fee Programs.

Ann earned a Bachelor of Science degree from The Evergreen State College, in Olympia Washington and completed coursework and a thesis towards a Master of Science at the University of Washington's School of Fisheries and Aquatic Sciences. On the job education and training has included training in wetland delineation, the use of the Washington State Wetland Rating System and Credit/Debit Assessment, Determination of Ordinary High Water Mark, Designing Compensatory Mitigation and Restoration Projects, Construction Management, and more.

James H. Carsner, Senior Scientist and Wetland Scientist

Jim Carsner, a certified Professional Wetland Scientist (#1461) with professional training and extensive experience in planning and design, project coordination, permitting and management, aquatic and wetland ecology, habitat restoration, wetland, stream, and benthic delineations and assessments, stream assessments, and mitigation planning and monitoring since 1979. Jim earned a Bachelor's of Science degree from the University of Washington, College of Fisheries and undertook post-graduate studies in wetland ecology at Portland State University. He has served on the Board of Directors of the Washington State Weed Association and instructed courses on pesticide laws, regulations, and uses.

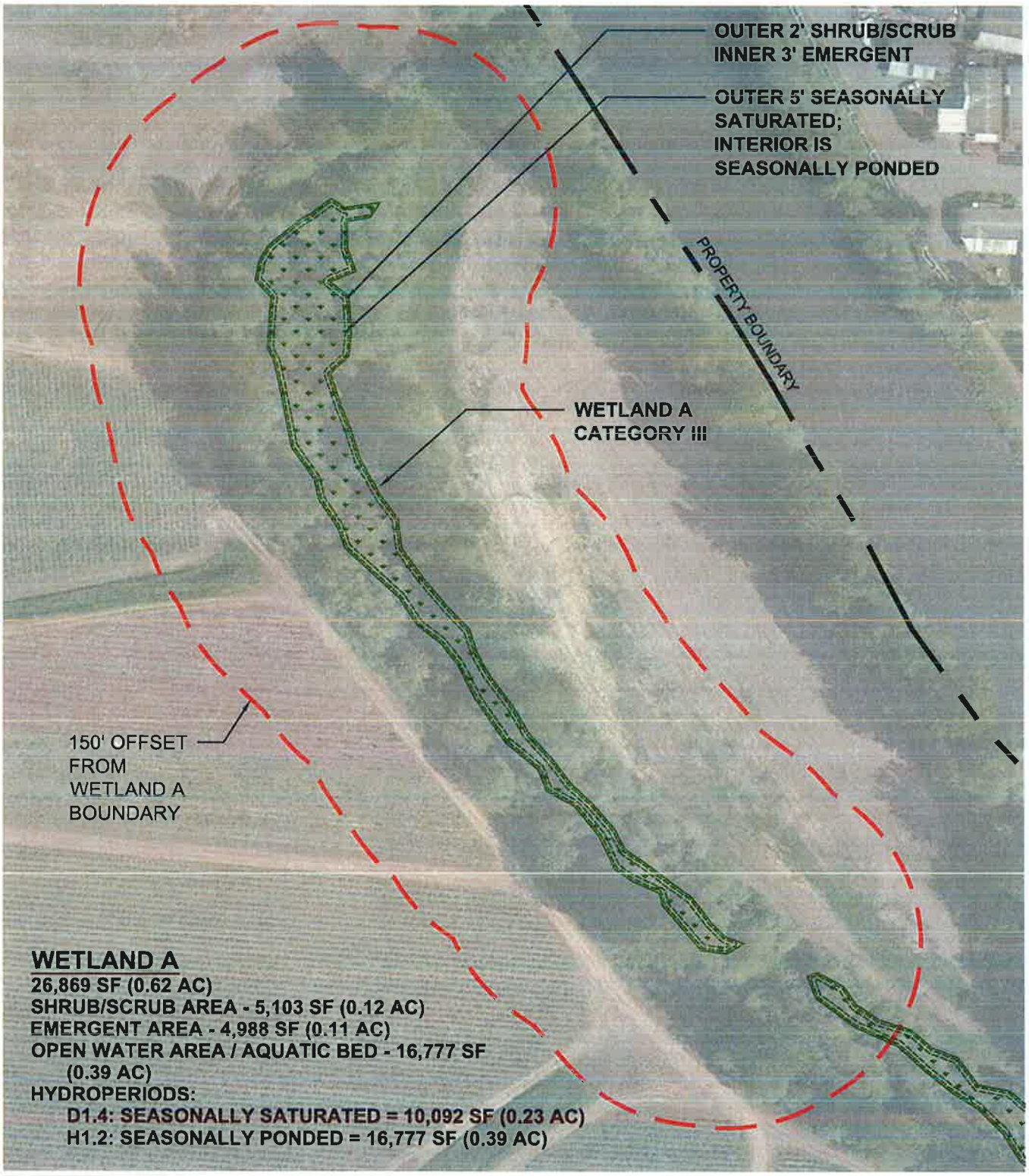
Jim has been formally trained in the use of the Washington State Wetland Rating System, Determination of Ordinary High Water Mark, Designing Compensatory Mitigation and Restoration Projects, and Reviewing

Wetland Mitigation and Monitoring Plans from the US Army Corps of Engineers and Washington State Department of Ecology. He is also a Pierce County Qualified Wetland Specialist and Fisheries Biologist, and he holds similar qualifications from other jurisdictions.

Hannah Blackstock, Staff Scientist and Project Manager

Hannah Blackstock is a Staff Scientist with a background in both forest and wetland ecology and fisheries biology and experience with various Federal agencies. Hannah earned a Bachelor's of Science with a double major in Environmental Science and Resource Management as well as Aquatic and Fisheries Sciences at the University of Washington. Hannah has an extensive knowledge of restoration ecology, ranging in topics such as soils, plant familiarity, hydrology, and wetland ecology. Furthermore, she has been certified by the Washington Department of Ecology in the use of the Washington State Wetland Rating System and Selecting Wetland Mitigation Sites Using a Watershed Approach and has received training from the PNW Invasive Plant Council on the identification of newly emerging invasive plant species. She is also a Pierce County Qualified Fisheries Biologist.

RUNNING BEAR DEVELOPMENT - WETLAND "A" - 150' OFFSET



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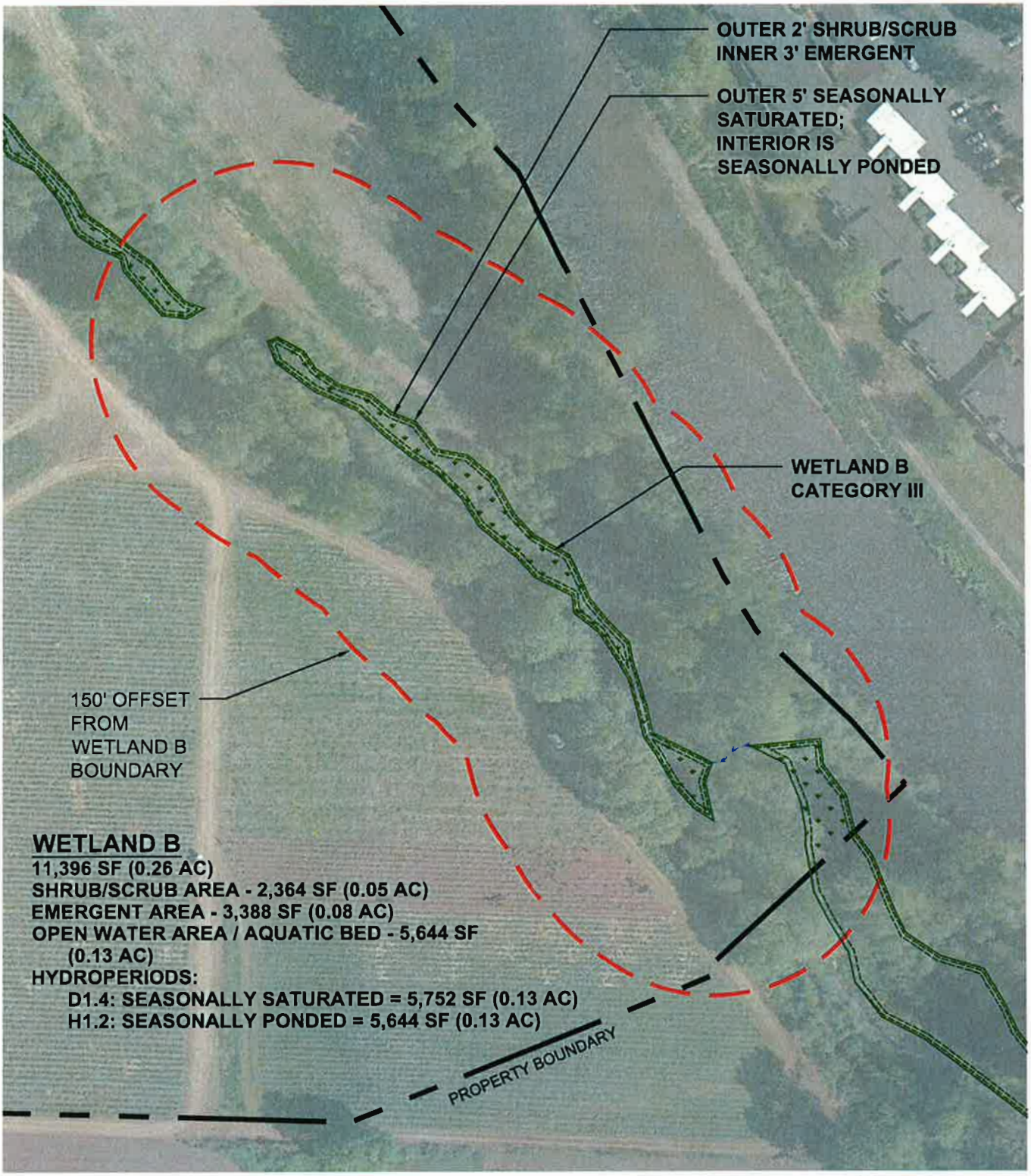
RUNNING BEAR DEVELOPMENT
PUYALLUP, WASHINGTON 98329

A PORTION OF Q23 OF SECTION 25,
TOWNSHIP 20N, RANGE O4E, W.M.

DATE:	12/09/2016
JOB:	1412.0001
BY:	DS
SCALE:	1" = 120'
FIGURE NO.	1

RUNNING BEAR DEVELOPMENT - WETLAND "B" - 150' OFFSET



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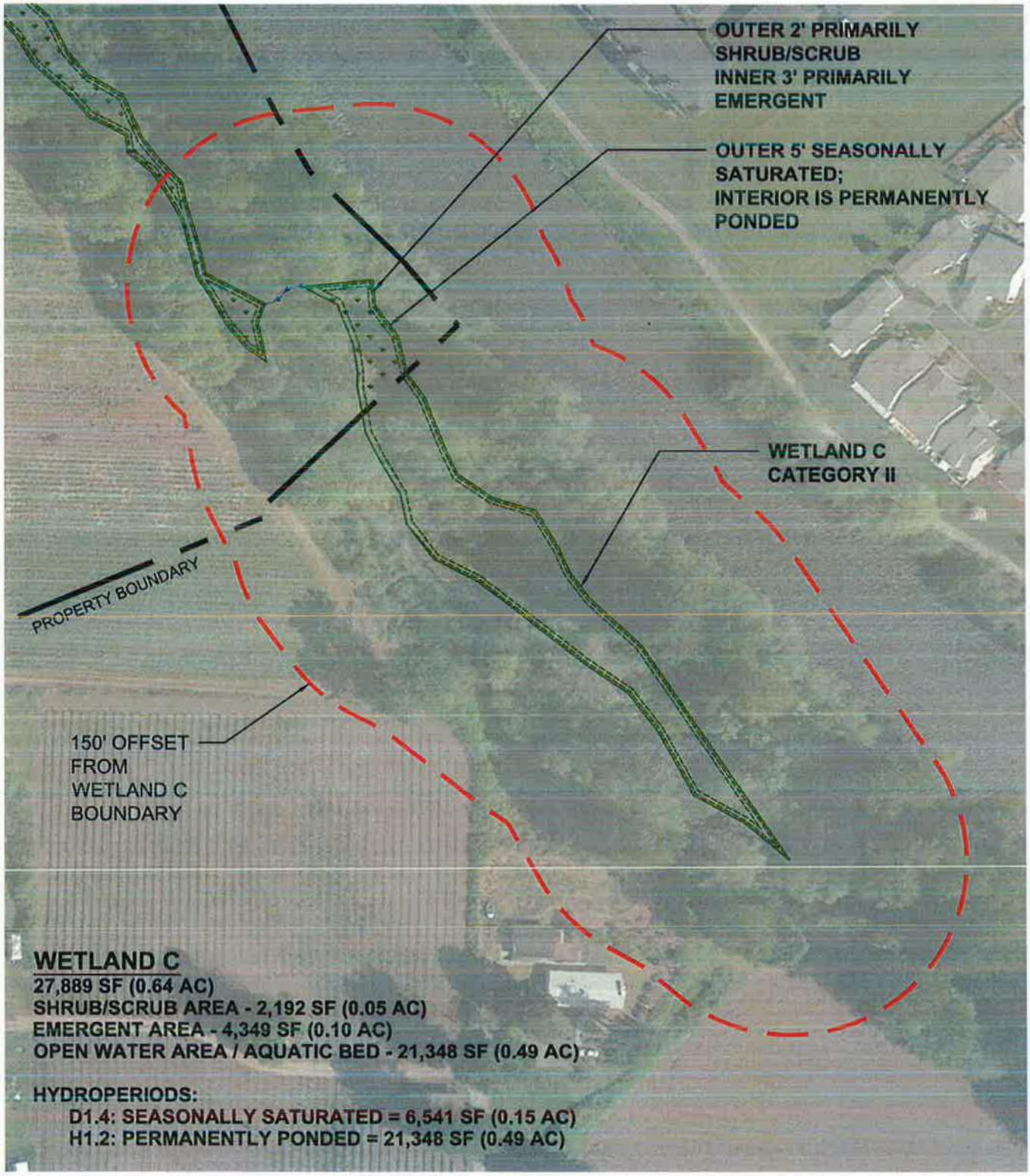
DATE:	12/09/2016
JOB:	1412.0001
BY:	DS
SCALE:	1" = 120'
FIGURE NO.	2

RUNNING BEAR DEVELOPMENT - WETLAND "C" - 150' OFFSET



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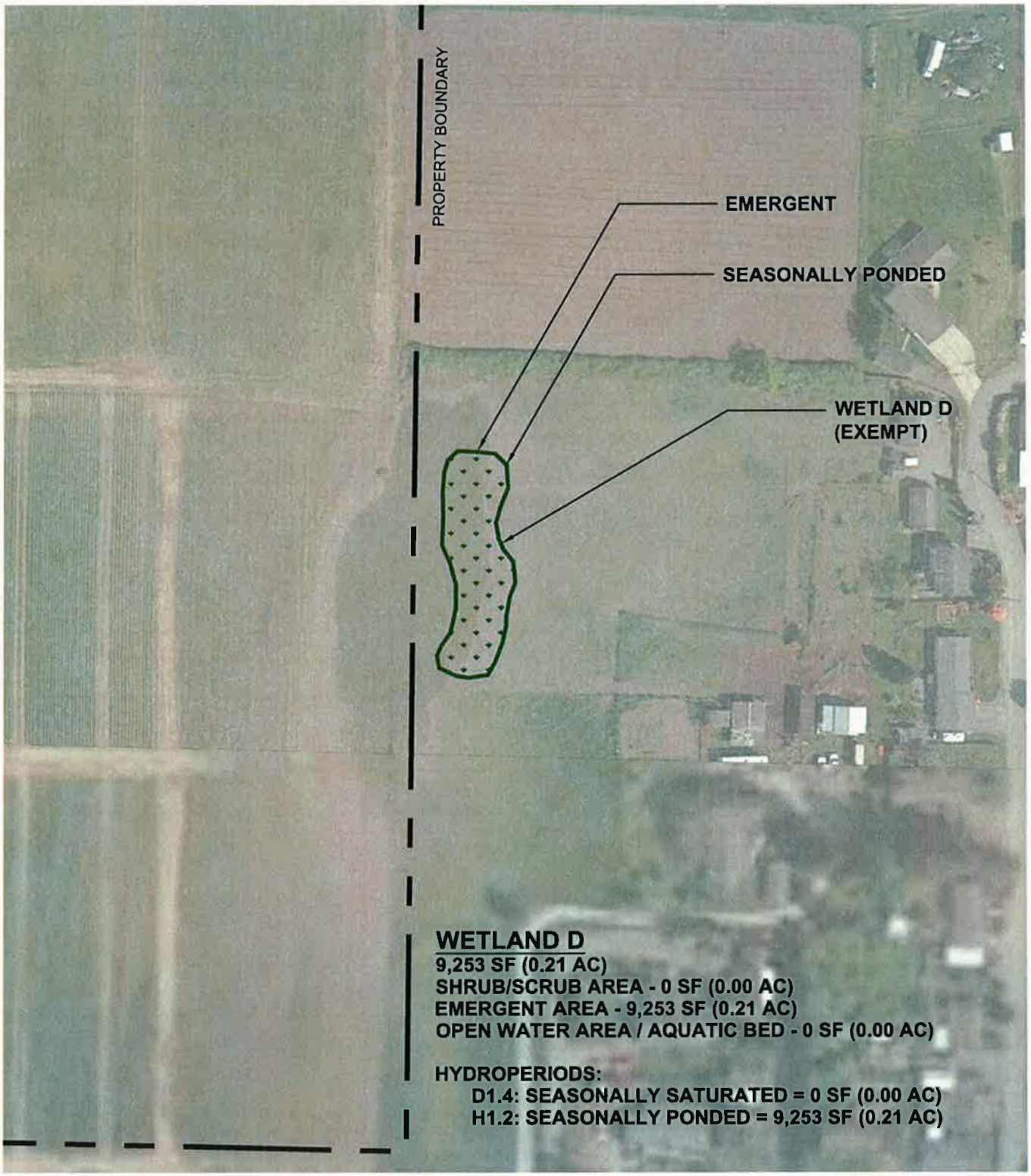
DATE:	12/09/2016
JOB:	1412.0001
BY:	DS
SCALE:	1" = 120'
FIGURE NO.	3

RUNNING BEAR DEVELOPMENT - WETLAND "D" - EXEMPT



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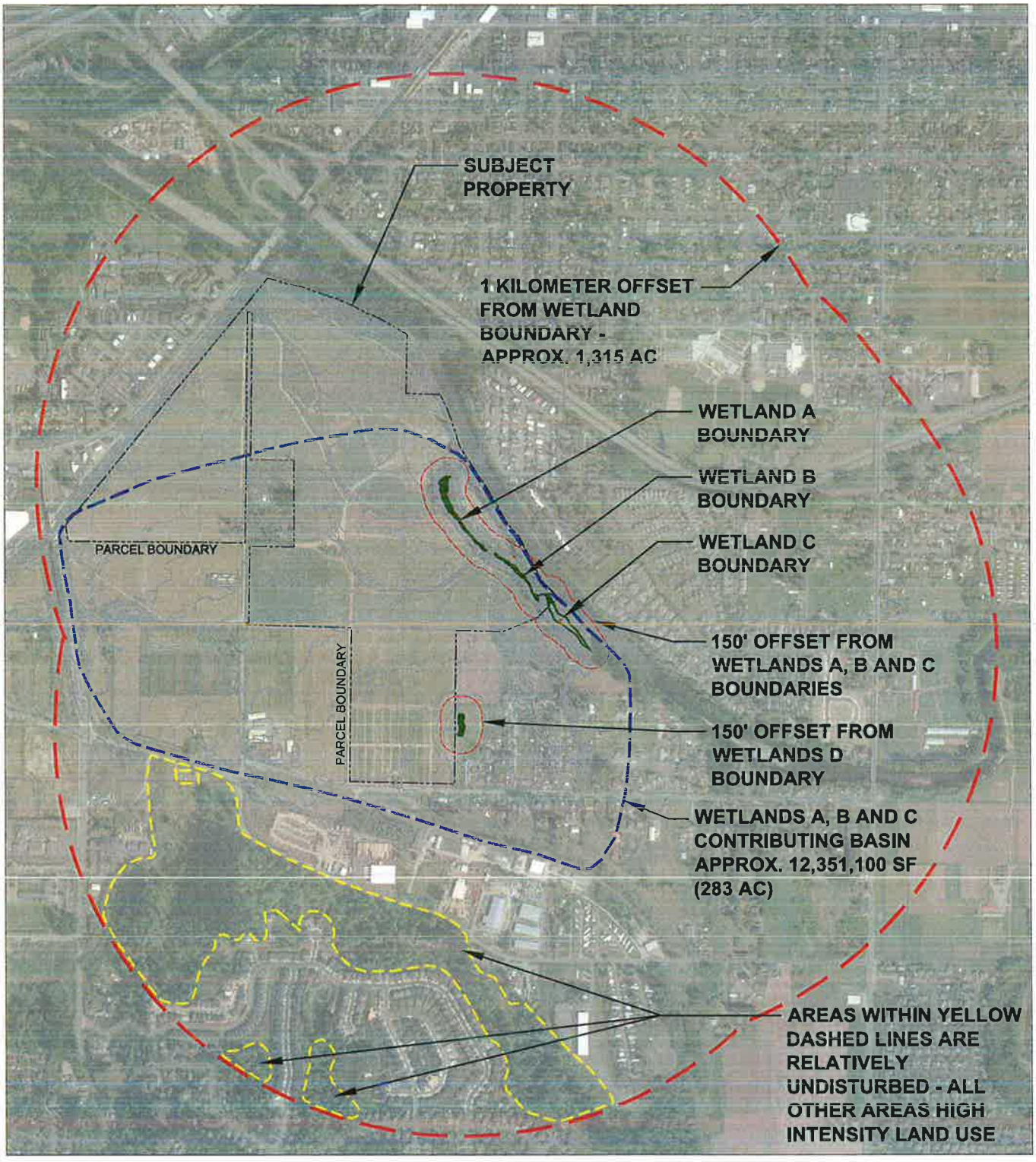
DATE:	12/09/2016
JOB:	1412.0001
BY:	DS
SCALE:	1" = 120'
FIGURE NO.	4

RUNNING BEAR DEVELOPMENT - WETLANDS - 1 KM OFFSET



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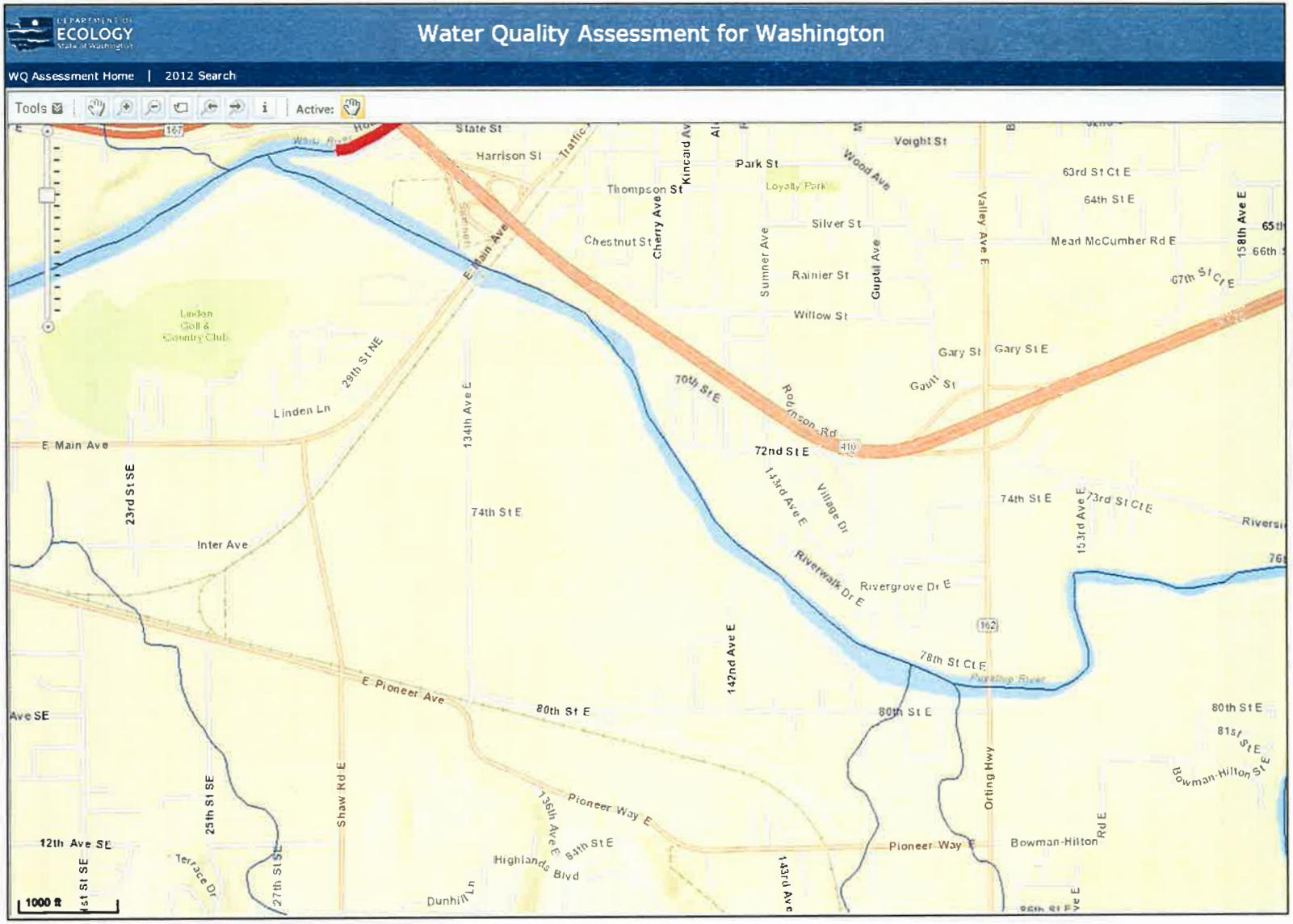
TOWNSHIP 20N, RANGE 04E, W.M.

DATE:	12/09/2016
JOB:	1412.0001
BY:	DS
SCALE:	1" = 1,200'
FIGURE NO.	5

Figure 6: Map of 303(d) Listed Waters in Basin



SOURCE: Department of Ecology

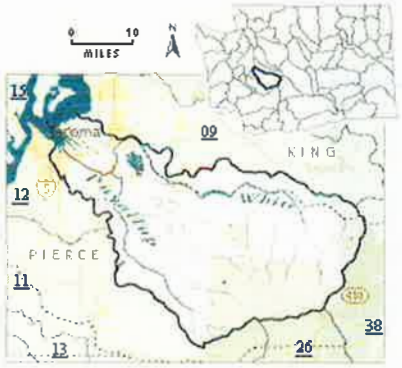
Figure 7: TMDLs for WRIA

Water Quality Improvement Projects (TMDLs)

Water Quality Improvement > Water Quality Improvement Projects by WRIA > WRIA 10: Puyallup-White

WRIA 10: Puyallup-White

The following table lists overview information for water quality improvement projects (also known as total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.



Counties

- King County
- Pierce County

Waterbody Name	Pollutant	Status**	TMDL Leads
Clarks Creek Meeker Creek	Dissolved Oxygen Sediment	Approved by EPA Has an implementation plan	Brett Raunig 360-690-4660
	Fecal Coliform	Approved by EPA Has an implementation plan	
Commencement Bay	Dioxin	Approved by EPA	Donovan Gray 360-407-6407
Puyallup River Watershed	Fecal Coliform	Approved by EPA	Donovan Gray 360-407-6407
	Multi-parameter Ammonia-N BOD (5-day)	Approved by EPA	
	White River Watershed Upper White: • Sediment • Temperature Lower White • pH	Approved by EPA Under Development	
South Prairie Creek Tributary: Wilkeson/Gale Creek	Fecal Coliform Temperature	Approved by EPA Has an implementation plan	Donovan Gray 360-407-6407

** ***Status*** *will be listed as one of the following: Approved by EPA, Under Development or Implementation*

SOURCE: DEPARTMENT OF ECOLOGY WEBSITE