## **EVERETT SMELTER PLUME** CITY OF EVERETT

February 01, 2023



Prepared for:

WA Department of Ecology



#### Title-page image: Wetland B at the Everett Smelter Plume site.

The information contained in this report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.



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## 1 Introduction

### 1.1 Background and Purpose

The Washington State Department of Ecology (Ecology) identified the Everett Smelter Plume Site as a contaminated site in 1990 following the discovery of high concentrations of metals in the soil from the former smelting facility. Contaminated particles from the facility smokestacks settled over the surrounding area. Ecology is conducting a clean up to reduce the risks to human health and the environment from soils contaminated with arsenic, lead, and other metals. Everett Smelter Plume Site is divided into two areas, Uplands and Lowlands. The Lowlands are located between East Marine View Drive and the Snohomish River, east of the Uplands. The Lowlands area is divided into cleanup areas (Figure 1). Area B1 includes wetlands areas located in parcel numbers 29050800400100 and 29050800401900 which are the focus of this wetland study. The final Cleanup Action Plan (CAP), for the Lowlands Area of Everett Smelter Site, (GeoEngineers 2016) identified a low permeability cap for remedial action of Area B1.

In preparation for the design for the proposed cap, The Watershed Company visited the Area B1 study area on September 12, 13, and 15, 2022, to delineate, survey, and map the wetlands, where capping activities may impact wetlands.

### 1.2 Study Area

The study area is defined as the Lowlands subarea B1 of the Everett Smelter Plume Site. Subarea B1 is defined as the area between East Marine View Drive and the active Delta Yard railway, including parcels #29050800400100, 29050800401100, and 290508401900 (Figure 1). Adjacent public or private property within 300 feet was also screened visually from the edge of the parcel or nearest publicly accessible property and by using aerial photos.

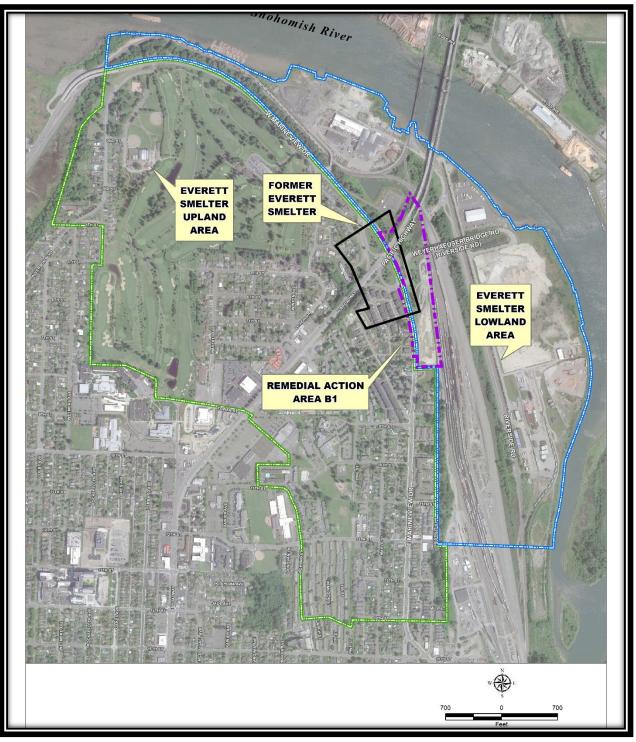


Figure 1. The Lowlands are located between East Marine View Drive and the Snohomish River, east of the Uplands. The Lowlands area is divided into cleanup areas. The study area for this wetland delineation is located in Remedial Action Area B1 (Purple Outline).

### 1.3 Methods

### 1.3.1 Fieldwork

Field investigations for the delineation study were conducted on September 12, 13, and 15, 2022, by The Watershed Company ecologists: Nell Lund and Sage Yuasa.

The study area was evaluated for wetlands using methodology from the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) 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). Presence or absence of wetlands was determined on the basis of an examination of vegetation, soils, and hydrology. These parameters were sampled at several locations along the wetland boundaries to determine the wetland edge. Wetlands were classified using the Department of Ecology's *Washington State Wetland Rating System for Western Washington: 2014 Update* (Hruby 2014). Adjacent public or private property within 300 feet was also screened from the edge of the parcel or nearest publicly accessible property and by using aerial photos.

Characterization of climatic conditions for precipitation in the Wetland Determination Data Forms were determined using the WETS table methodology (USDA, NRCS 2015). The "Everett" station from 1991-2020 was used as a source for precipitation data (http://agacis.rcc-acis.org/). The WETS table methodology uses climate data from the three months prior to the site visit month to determine if normal conditions are present in the study area region.

Wetland flag locations were collected using a Trimble GeoXH handheld unit. GPS satellite data were differentially corrected using Pathfinder Office software. Data were then converted to AutoCAD formatting for export and for preparation of provided delineation sketch (see Appendix A).

### 1.3.2 Existing Documentation Review

Public-domain information on the subject site and surrounding area was reviewed for this wetland and stream delineation report and are summarized in Table 1.

Table 1. Summary of online mapping and inventory resources.

Resource	Summary
USDA NRCS: Web Soil Survey	Most of site is mapped Urban land; SW corner of study area is mapped Alderwood-Urban land complex, 8 to 15 percent slopes. North end of pond (Wetland B) mapped Xerorthents, nearly level.
USFWS: NWI Wetland Mapper	On-site: PSSC wetland at north end of site (Wetland B). Off-site: PFO/EM1C wetland approximately 200-ft east of the study area; Snohomish River (R1UBV) approximately 1,000-ft each of the study area.
WDFW: PHS on the Web	Two freshwater forested/shrub wetlands in project vicinity.
WDFW & NWIFC: Statewide Washington Integrated Fish Distribution (SWIFD)	No streams mapped on-site. Snohomish River off-site to east.
WA-DNR: Forest Practices Application Mapping Tool	Pond at north end of Wetland B is mapped as a Type F water. Wetland off-site to the southeast is mapped as a Type N water. The Snohomish River to the east is a Type S water.
Everett GIS Interactive Map (Property Report Tool)	On-site: Northern wetlands mapped (approximate match for Wetlands B and C). Off-site: Wetland mapped east of the railway lines.
WETS Climatic Condition	Drier than Normal (Station: Everett Snohomish County AP).
WA Department of Ecology, Water Quality Atlas	12-digit HUC 171100110203 – Snohomish River-Frontal Possession Sound. Union Slough, approximately 1.4-miles down basin on 303(d) list, within same 12-digit HUC.

## 2 Findings

### 2.1 Site Description

The study area is within in the Snohomish River Mainstem sub-basin of the Lower Snohomish Basin in the Snohomish watershed (WRIA 7); Section 08 of Township 29 North, Range 05 East of the Public Land Survey System. It is located in the Delta/Mills neighborhood, in the lowlands of the Snohomish River. The study area is approximately 7 acres in size and is developed with utilities and access for the adjacent railway facilities. Vegetation in the developed areas of the site is comprised of Himalayan blackberry (Rubus bifrons), scotch broom (Cytisus scoparius), poison hemlock (Conium maculatum), white sweet clover (Melilotus albus), orchard grass (Dactylis glomerata), and bentgrass (Agrostis sp.). Immediately east of East Marine View Drive with a steep slope with a forested canopy of big-leaf maple (Acer macrophyllum) and red alder (Alnus rubra). The understory is densely vegetated with Himalayan blackberry (Figure 2). Two depressional wetlands, Wetlands B and C, are located at the toe of slope (see Critical Areas section). Wetland B is hydrologically connected to a constructed detention pond on the Snohomish County Public Utility Department (PUD) transfer station property. The detention pond is mapped as a Type F water body per online mapping and inventory resources (see Table 1). The detention pond is an off-site feature that was not observed during this delineation study. One stormwater and one artificial feature are also present within the study area and summarized below.



Figure 2. View of steep slope densely vegetated with Himalayan blackberry from Wetland B.

### 2.2 Stormwater Features

One artificial storm pond (Storm Pond 1) was identified within the study area (Figure 3). Storm Pond 1 appears to align with area formerly designated, Wetland A (GeoEngineers 2016); it is located east of the access road on parcel #29050800400100 (Appendix A). The stormwater feature is comprised of an excavated linear rip-rap lined swale and a small storm pond meeting wetland criteria of hydrophytic vegetation, hydric soils, and hydrology (see DP-7). The storm pond is vegetated with black cottonwood saplings (*Balsamifera involucrata*), Pacific willow saplings (*Salix lucida*), soft rush (*Juncus effusus*), slender rush (*Juncus tenuis*), and woolly sedge (*Carex pellita*). Algal mats were present in Storm Pond 1 (Figure 3).



Figure 3. Storm Pond 1, formerly Wetland A, with rip-rap lined swale (outlined in yellow).

### 2.3 Artificial Features

Artificial Feature 1 is located between Wetland C and the railway (Appendix A). Artificial Feature 1 is a small roughly rectangular structure with a concrete foundation. The structure was inundated at the time of our site visit, exhibiting wetland characteristics of hydrophytic vegetation and hydrology. The artificial feature is vegetated with common cattail (*Typha latifolia*) and bittersweet nightshade (*Solanum dulcamara*) (Figure 4).



Figure 4. Artificial Feature 1 in a rectangular concrete structure.

### 2.4 Critical Areas - Wetlands

Two wetlands were identified in the study area, Wetlands B and C. As noted above, former Wetland A is in a location that was clearly modified or constructed for stormwater management. Wetland naming follows the same conventions applied in the 2016 GeoEngineers study on-file.

Wetland square footages are as follows:

Wetland B

- within study area: 48,485 SF
- <u>off-site estimate: 10,789 SF</u> total estimate: 59,274 SF (1.36-acres)

Wetland C

- north segment: 1,672 SF
- <u>south segment: 4,696 SF</u> total area: 6,368 SF (0.15-acre)

Wetland B is a depressional wetland that continues off-site to the north. Aerial photographs indicate the wetland connects to a large, constructed detention pond on the Snohomish County PUD transfer station property, approximately 48,578 square feet (1.12 acres) in size. Wetland B

is comprised of Palustrine forested, scrub-shrub and emergent vegetation classes. Common wetland vegetation includes red alder, Pacific and Sitka willows, red-osier dogwood, cattails, bulrush, and non-native blackberry. Sampled soils exhibit Redox Dark Surface (F6) hydric soil indicators. Some portions of the wetland were saturated at the time of our site visit. The late-summer delineation primarily relied on secondary indicators of wetland hydrology, Geomorphic Position (D2) and FAC-Neutral Test (D5). See the summary in Table 2 below.

Wetland C is a depressional wetland containing Palustrine forested, scrub-shrub and emergent vegetation classes. Vegetation in Wetland C is characterized by red alder, black cottonwood, red osier dogwood, twinberry, willows, non-native blackberry, cattail, and soft rush. Sampled soils exhibit Redox Dark Surface (F6) hydric soil indicators. Secondary indicators of wetland hydrology were documented, Geomorphic Position (D2) and FAC-Neutral Test (D5) at the time of our visit. Stormwater outfalls discharge to Wetland C at the north and south ends. A rip-rap lined ditch is present within the wetland at the south end. See the summary in Table 3 below.

### Table 2. Wetland B assessment summary.

THE			nt summar	,.								
WAT	T <mark>ershe</mark> Apany	D	WETL	AND E	8 – Ass	essment	Sumn	nary				
Location:	ea B1											
WRIA / Sub-ba	asin: Sno	homish	River (WRIA	A 7) / Sn	ohomish	n River-Fror	ntal Poss	ession So	und Bas	in		
				¥ 1		2014 We Ecology	estern W Rating:	A	Catego	ory II		
	and the second	3				Buffer W Setback:	/idth and	Buffer		et stand and 10- k		
						Wetland	Size:		1.36-a	cre		
						Cowardin Classification(s):			Palustrine Forested, Palustrine Scrub-Shru Palustrine Emergent			
			NIS IS				HGM Classification(s):			Depression		
			Y AN				Wetland Data Sheet(s):			DP-1		
			WARD		市场	Upland [	Data She	et (s):	DP-2			
Southwest vie	w of donco	omora	ant voqetati	on in W	latiand P	Flag Cold	or:		Pink- a	ind blac	k-striped	
Southwest vie	w oj uense	entery	ent vegetuti	011 111 VV	епини в	Flag Nur	nbers:		B-1 to	B-80		
	Tree stra	tum:	Alnus rubro	a, Salix	lucida sp	p. lasiandr	а					
Vegetation	Shrub str	atum:	Cornus sericea, Spiraea douglasii, Rubus bifron, Salix sitchensis									
	Herb stra	itum:	Typha latif	folia, Ca	rex onbu	pta, Scirpus microcarpus, Equisetum telmateia						
Soil s		ey:	Urban Lan	d								
Soils Field		a:	Redox Dar	k Surfac	e (F6)							
	Source:		High Wate	High Water Table, Stormwater runoff								
Hydrology	Field dat	data: Geomorphic Position (D2), F					FAC-Neutral Test (D5)					
				Wetla	and Fu	nctions						
Improving Water Quality					Hydrologic			Habitat				
Site Potential		н	M	L	н	M	L	н	M	L		
Landscape Pot	tential	<u>H</u>	Μ	L	<u>н</u>	Μ	L	н	М	L		
Value		<u>H</u>	Μ	L	<u>H</u>	Μ	L	Н	Μ	L	TOTAL	
Score Based o	n Ratings		8			8			4		20	

### 2.4.1 Wetland C

### Table 3. Wetland C assessment summary.

THE WATERS Compan			WETLAND C – Assessment Summary								
Location:	Locat	ed in F	Remedial Actio	on Area l	31						
WRIA / Sub-basin:	Snoł	omisł	n River (WRIA	4 7) / Sn	ohomish	n River-F	rontal	Posse	ssion S	Sound	d Basin
					-	/estern V / Rating:	VA	Cate	gory II		
				Width ar Setback:	d		feet sta 10-foot		d buffer ack		
			N.	Wetlan	d Size:		0.15-	acre			
		Cowardin Classification(s):			Palus	Palustrine Foreste Palustrine Scrub-S Palustrine Emerge					
		Con E	HGM Classification(s):			Depr	Depressional				
	2 Marson	Wetland Data Sheet(s):			DP-3	DP-3, DP-5					
K. MARK			Upland Data Sheet (s):			DP-4	, DP-6				
		Flag Color:			Pink-	and b	lack-s	triped			
Northwest view of Wetland C.					Flag Nu	C-1 t	C-1 to C-41				
	Alnus rubra,	Alnus rubra, Salix lucida, Populus balsamifera									
Vegetation	Shrub strat	um:	Salix sitchensis, Cornus sericea, Lonicera involucrata								
vegetation	Herb stratu	m:	Juncus effusus, Typha latifolia, Equisetum telmateia, Athyrium filix- femina, Solanum dulcamara								
Soil survey:			Urban Land								
Soils Field data:			Redox Dark Surface (F6)								
Source:			High Water Table, Stormwater runoff								
Hydrology	Geomorphic Position (D2), FAC-Neutral Test (D5)										
			Wetlar	nd Fun	ctions						
			Improving Water Quali		Hydrologic			Habitat			
Site Potential		H	М	L	Н	<u>M</u>	L	Н	M	L	
Landscape Potential		<u>H</u>	М	L	<u>H</u>	Μ	L	Н	М	L	
Value		<u>H</u>	М	L	<u>H</u>	Μ	L	Н	М	L	TOTAL
Score Based on Ratir	ngs		9			8			4		21

## 3 Regulatory Implications

### 3.1 Local Regulations

Wetlands in the City of Everett are regulated under Chapter 19.37 - *Critical Areas* of the Everett Municipal Code (EMC). Wetlands are defined by the city under EMC 19.04.110 (bold emphasis added):

"Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. Regulated wetlands generally include swamps, marshes, ponds, bogs and similar areas. **Regulated wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including**, but not limited to, irrigation and **drainage ditches, grasslined swales**, canals, **detention facilities**, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands created as regulated wetlands modified for approved land use activities shall be considered as regulated wetlands. For identifying and delineating regulated wetlands, the city shall use the Washington State Wetland Identification and Delineation Manual.

As noted in our findings above, the stormwater ponds observed on-site did not appear to be connected to any natural wetland features and were clearly constructed for stormwater management. In our best professional judgement, they do not meet the city's definition of a regulated wetlands.

Wetlands in the City of Everett are classified using the 2014 Update to the Western Washington Wetland Rating System (Publication #14-06-029). According to the EMC, wetlands are rated as one of four categories based on the Rating System, and wetland buffers are determined based upon a combination of the wetland category and habitat score. Wetlands B and C are Category II wetlands, each with a habitat score of four points and, therefore, requires a standard buffer of 150-feet per EMC 19.37.100 Table 37.3. Additionally, to maintain the integrity of the buffer, principal buildings shall be set back a minimum of 10 feet from the edges of all critical area buffers and all other structures and improvements shall maintain a setback of five feet from the edge of the buffer per EMC 19.37.220(B).

Feature Name	Category	Habitat Score	Buffer (ft)	Setback (ft)	Wetland Size (sq ft)
Wetland B	Category II	4	150	5 to 10	59,274 SF
Wetland C	Category II	4	150	5 to 10	6,368 SF

#### Table 4. Summary of wetlands and required buffers per EMC 19.37.100.

### 3.2 State and Federal Regulations

### Federal Agencies

Most wetlands and streams are regulated by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act. Any proposed filling or other direct impacts to Waters of the U.S., including wetlands (except isolated wetlands), would require preconstruction notification and permit authorization from the Corps. If isolation is presumed, a Jurisdictional Determination from the Corps would be required to confirm jurisdictional status of the wetlands. Unavoidable impacts to jurisdictional wetlands are typically required to be compensated through implementation of an approved mitigation plan. If activities requiring a Corps permits are proposed, a Joint Aquatic Resource Permit Application (JARPA) could be submitted to obtain authorization.

Federally permitted actions that could affect endangered species may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Compliance with the Endangered Species Act must be demonstrated for activities within jurisdictional wetlands and the 100-year floodplain. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology and a cultural resource study in accordance with Section 106 of the National Historic Preservation Act.

### Washington Department of Ecology (Ecology)

Similar to the Corps, Ecology is charged with reviewing, conditioning, and approving or denying certain federally permitted actions that result in discharges to state waters under Section 401 of the Clean Water Act. However, Ecology review under the Clean Water Act would only become necessary if a Section 404 permit from the Corps was issued. Ecology also regulates wetlands, including isolated wetlands, under the Washington Water Pollution Control Act, but only if direct wetland impacts are proposed. Therefore, authorization from Ecology would not be needed if filling activities are avoided. A JARPA may also be submitted to Ecology in order to obtain a Section 401 Water Quality Certification and Coastal Zone Management Consistency Determination if filling is proposed. Ecology permits are either issued concurrently with the Corps permit or within 90 days following the Corps permit.

In general, neither the Corps nor Ecology regulates wetland and stream buffers, unless direct impacts are proposed. When direct impacts are proposed, buffers may be applied based on Corps and Ecology joint regulatory guidance or local jurisdictional requirements.

### Washington Department of Fish and Wildlife (WDFW)

Chapter 77.55 of the RCW (the Hydraulic Code) gives WDFW the authority to review, condition, and approve or deny "any construction activity that will use, divert, obstruct, or change the bed or flow of state waters." This provision includes any in-water work, the crossing or bridging of any state waters and can sometimes include stormwater discharge to state waters. WDFW will issue a Hydraulic Project Approval (HPA) if a project meets regulatory requirements.

WDFW can also restrict activities to a particular timeframe through the conditions of approval on an HPA. Work is typically restricted to late summer and early fall, however, WDFW has in the past allowed some crossings that don't involve in-stream work to occur at any time during the year.

### 4 Summary

In preparation for the design for the proposed cap, The Watershed Company visited the Area B1 study area to delineate, survey, and map the wetlands, where capping activities may impact wetlands. Two wetlands were identified within the study area, Wetlands B and C. Wetlands B and C appeared to be relatively the same in shape and size as delineated by GeoEngineers in a 2015 study. In our study Wetlands B and C were rated as Category II wetlands, each with a habitat score of four points and, therefore, requires a standard buffer of 150-feet and a 10-foot building setback. Two artificial features were identified within the study area, Storm Pond 1 and Artificial Feature 1. Storm Pond 1, formerly delineated as Wetland A, did not appear to be connected to any natural wetland features and were clearly constructed for stormwater management. A concrete structure, Artificial Feature 1, was identified between Wetland C and the rails. At the time of the site visit, the artificial feature was inundated and vegetated with hydrophytic vegetation, although the feature appeared to be a preexisting concrete structure rather than a stormwater pond or a regulated wetland. In our best professional judgement,

Storm Pond 1 and Artificial Feature 1 do not meet the City of Everett definition of a regulated wetlands.

This current wetland delineation study differs in some ways from the prior 2015 study by GeoEngineers. The updated Wetland Rating System for Western Washington (2014 Wetland Rating) (Hruby 2014) was used in the current study. Whereas the 2015 study used the older 2004 version, revised 2008, of the wetland rating system. As a result, the rating of Wetland C changed from a Category III to a Category II in this current study. The sizes of Wetlands B and C also changed since the 2015 GeoEngineers Wetland Delineation Report. GeoEngineers' larger size for Wetland B indicates the off-site connected detention pond was included in their calculation Current wetland and detention pond area calculations are noted on the Wetland Delineation Map in Appendix A.

## 5 Report Information

The information contained in this report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available to us at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, State, and Federal regulatory authorities. No other warranty, expressed or implied, is made.

Please call if you have any questions or if we can provide you with any additional information.

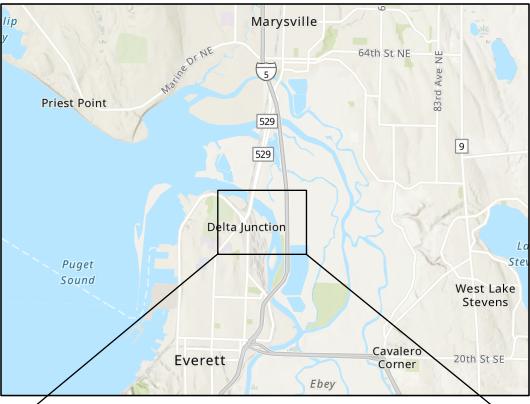
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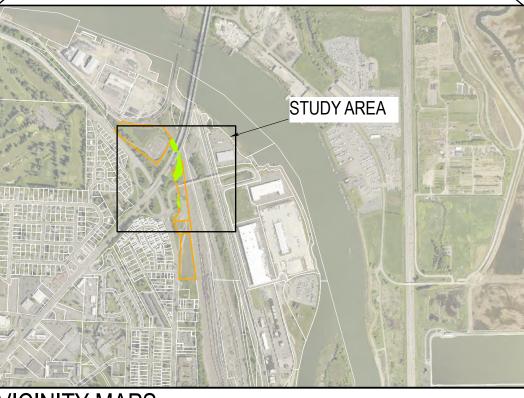
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Appendix A

# WETLAND DELINEATION MAP







VICINITY MAPS

## LEGEND

<b>+</b>	DATA POINT
+ + + + + + + + + + + + + + + + + + +	DELINEATED WETLAND AREA
	DELINEATED WETLAND BOUNDARY
	APPROXIMATE WETLAND BOUNDARY
	WETLAND BUFFER (150 FT)
	WETLAND SETBACK (10 FT)
	RIP-RAP
	STORM POND
	SUBJECT PARCELS
	SNOHOMISH COUNTY PARCELS

## NOTES

1. CRITICAL AREAS DELINEATED BY THE WATERSHED COMPANY ON SEPTEMBER 12, 13, AND 15, 2022

60

120 180 240

Feet

THE WATERSHED COMPANYSCIENCE & DESIGN750 6TH STREET SOUTH KIRKLAND WA 98033425.822.5242 WWW.WATERSHEDCO.COM
PROJECT: EVERETT SMELTER PLUME WETLAND DELINEATION EAST MARINE VIEW DR EAST MARINE VIEW DR EAST MARINE VIEW DR EAST WARINE VIE
PRINCIPLE: <u>HM</u> PM: <u>NL</u> FIELDWORK: <u>NL, SP</u> DRAFTED BY: <u>NB</u> JOB NO.: <u>220702</u> DATE: <u>11/30/2022</u>
NO.         DESCRIPTION         DATE           1         DRAFT         09/23/2022           2         FINAL MAP         11/30/2022
NOT FOR CONSTRUCTION WETLAND DELINEATION 11/30/2022
WETLAND DELINEATION MAP 1 OF 1

Appendix B

# WETLAND DATA FORMS



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

#### DP - 1

Project/Site: Everett Smelter Plume	City/County: City of Everett Sampling date: 09/12/2022
Applicant/Owner: Department of Ecology	State: WA Sampling Point: DP-1
Investigator(s): Nell Lund, Sage Yuasa	Section, Township, Range: S8. T29N, R05E
Landform (hillslope, terrace, etc): Depression	Local relief (concave, convex, none): <u>Concave</u> Slope (%): <u>&lt;5%</u>
Subregion (LRR): A Lat: - Lo	ng: Datum:
Soil Map Unit Name: Urban Land	NWI classification: PSSC
Are climatic / hydrologic conditions on the site typical for this time of year	ar? 🗆 Yes 🛛 No (If no, explain in remarks.)
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$ significantly disturbed?	Are "Normal Circumstances" present on the site? $\ igtimes$ Yes $\ \Box$ No
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$ naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sample	ling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes 🛛 No 🗆	
Hydric Soils Present? Yes ⊠ No □	Is the Sampled Area Yes ⊠ No □
Wetland Hydrology Present? Yes 🛛 No 🗆	
Remarks: Drier than normal per WETS methodology. Wetland	J B in-pit.

#### **VEGETATION** – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:		
Tree Stratum (Plot size: 5-m diameter) 1	% Cover	Species?	Status	Number of Dominant Species that are OBL, FACW, or FAC:	3	(A)
2				Total Number of Dominant Species Across all Strata:	3	(B)
4.				Percent of Dominant Species		(-)
	0	= Total Co	ver	that are OBL, FACW, or FAC:	100%	(A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter)				Prevalence Index worksheet:		
1. Salix sitchensis	35	Y	FACW	Total % Cover of:	Multiply by:	
2.				OBL species	x 1 =	
3.				FACW species	x 2 =	
4.					x 3 =	
5.					x 4 =	
	35	= Total Co	ver		x 5 =	
Herb Stratum (Plot size: 1-m diameter)		-			(A)	(B)
1. Phalaris arundinacea	100	Y	FACW		()	(-)
2. Typha latifolia	2	N	OBL	Prevalence Index = B/A =		
3. Equisetum telmateia	30	Y	FAC	Hydrophytic Vegetation I	ndicators:	
4.				□ 1 – Rapid Test for Hydroph		1
5.				$\boxtimes$ 2 – Dominance Test is > 50	, ,	
0				$\Box$ 3 – Prevalence Index is $\leq 3$	3.0 <sup>1</sup>	
6. 7.				4 – Morphological Adaptati		upporting
8.				data in Remarks or on		
9.				5 – Wetland Non-Vascular	•	,
10				Problematic Hydrophytic V	egetation <sup>1</sup> (Exp	olain)
11				<sup>1</sup> Indicators of hydric soil and we	•	
	132	= Total Co	ver	present, unless disturbed or pro		,
Woody Vine Stratum (Plot size: 3-m diameter)						
1				Hydrophytic		
				Vegetation Yes	🛛 No	
2	0	= Total Co	ver	Present?		
% Bare Ground in Herb Stratum: 0						
Remarks:						

#### SOIL

#### Sampling Point: DP-1

Depth (inches)	<u>Matrix</u> Color (moist)	0,	6	Color (r		Features Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-7	10YR 3/1	9		7.5YR	,	C	M	Silt loam	-
7-17			-	7.5YR		C			
7-17	10YR 3/1	7	0	7.518	4/6 30	C	M	Silt loam	-
Type: C=0	Concentration, D=	Deplet	ion, R	M=Reduce	ed Matrix, CS=Co	overed or Coated S	and Grains.	<sup>2</sup> Loc: PL=Pore Lini	ng, M=Matrix.
<ul> <li>Histos</li> <li>Histic</li> <li>Black</li> <li>Black</li> <li>Hydro</li> <li>Deple</li> <li>Thick</li> <li>Sandy</li> </ul>	il Indicators: (Ap sol (A1) Epipedon (A2) Histic (A3) ogen Sulfide (A4) eted Below Dark S Dark Surface (A1 y Mucky Mineral ( y Gleyed Matrix (S	Surface			Sandy Redox (S Stripped Matrix	S5) (S6) Matrial (F1) (except Matrix (F2) (F3) face (F6) Surface (F7)	MLRA 1)	<ul> <li>2cm Muck (A1</li> <li>Red Parent Mi</li> <li>Very Shallow</li> <li>Other (Explain</li> <li><sup>3</sup> Indicators of hydro</li> </ul>	aterial (TF2) Dark Surface (TF12) in Remarks) ophytic vegetation and ogy must be present, unless
<b>estrictive</b> Type:	e Layer (if prese				·		Hydric soil present?	Yes	No 🗆
	OGY Iydrology Indica	tors:							
	dicators (minimun		e requ	ired: checl	c all that apply)			Secondary Indicat	ors (2 or more required)
<ul> <li>High \</li> <li>Satura</li> <li>Water</li> <li>Sedim</li> <li>Drift I</li> <li>Algal</li> <li>Iron D</li> <li>Surfac</li> <li>Inunda</li> </ul>	ce water (A1) Water Table (A2) ation (A3) r Marks (B1) nent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) ce Soil Cracks (B ation Visible on A sely Vegetated Co	6) erial In		(B7)	<ul> <li>&amp; 4B) (B9)</li> <li>Salt Crust (B1</li> <li>Aquatic Invert</li> <li>Hydrogen Sul</li> <li>Oxidized Rhiz</li> <li>Presence of F</li> <li>Recent Iron R</li> <li>Stunted or Str</li> </ul>	ebrates (B13) fide Odor (C1) ospheres along Livi Reduced Iron (C4) reduction in Tilled S ressed Plants (D1)	ng Roots (C3) Soils (C6)	<ul> <li>2, 4A &amp; 4B)</li> <li>Drainage Pa</li> <li>Dry-Season</li> <li>Saturation V</li> <li>Geomorphic</li> <li>Shallow Aqu</li> <li>FAC-Neutra</li> <li>Raised Ant</li> </ul>	atterns (B10) Water Table (C2) Sible on Aerial Imagery (C Position (D2) uitard (D3)
Field Obse	ervations:								
Surface W	ater Present?	Yes		No 🖂	Depth (in):	-	Wetland Hydi	rology ,	
	le Present?	Yes		No 🛛	Depth (in):	- 14"	Present		Yes 🛛 No 🗌
	Present?	Yes	$\boxtimes$	No 🗆	Depth (in):	14			
Saturation (includes c	apillary fringe)				· · · -	tos, previous inspe	ctions), if availa	able:	



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

### DP - 2

Project/Site: Everett Smelter Plume	City/County: City of Everett Sampling date: 09/12/2022								
Applicant/Owner: Department of Ecology	State: WA Sampling Point: DP-2								
Investigator(s): Nell Lund, Sage Yuasa	Section, Township, Range: S8. T29N, R05E								
Landform (hillslope, terrace, etc): Hillslope	Local relief (concave, convex, none): <u>Concave</u> Slope (%): <u>&lt;5%</u>								
Subregion (LRR): A Lat: -	Long: Datum:								
Soil Map Unit Name: Urban Land	NWI classification: PSSC								
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 on the site? 🛛 Yes 🛛 No									
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$ naturally problematic?	(If needed, explain any answers in Remarks.)								
SUMMARY OF FINDINGS – Attach site map showing sam	npling point locations, transects, important features, etc.								
Hydrophytic Vegetation Present? Yes 🛛 No 🗆									
Hydric Soils Present? Yes 🗆 No 🖾	Is the Sampled Area Set Is th								
Wetland Hydrology Present? Yes  Ves  No									
Remarks: Drier than normal per WETS methodology. Wetla	nd B out-pit.								

**VEGETATION** – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:		
Tree Stratum (Plot size: 5-m diameter) 1.	% Cover	Species?	Status	Number of Dominant Species that are OBL, FACW, or FAC:	3	(A)
2				Total Number of Dominant Species Across all Strata:	3	(B)
4.				Percent of Dominant Species	100%	
	0	= Total Co	ver	that are OBL, FACW, or FAC:	100%	(A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter)				Prevalence Index worksheet:		
1. Salix sitchensis	15	Y	FACW	Total % Cover of:	Multiply by:	
2.				OBL species	x 1 =	
3.				FACW species	x 2 =	
4.				FAC species	x 3 =	
5.					x 4 =	
	15	= Total Co	ver		x 5 =	
Herb Stratum (Plot size: 1-m diameter)		-			(A)	(B)
1. Holcus lanatus	40	Y	FAC	Prevalence Index = B/A =		( )
2. Equisetum arvense	90	Y	FAC	Prevalence Index = B/A =		
3. Galium aparine	20	Ν	FACU	Hydrophytic Vegetation I	ndicators:	
4. Epilobium ciliatum	5	Ν	FACW	1 – Rapid Test for Hydroph	ytic Vegetation	
5.				☑ 2 – Dominance Test is > 50	0%	
6.				□ $3 - Prevalence Index is ≤ 3$	3.0 <sup>1</sup>	
7.				🚽 4 – Morphological Adaptati		
8				data in Remarks or on	a separate she	et)
9				□ 5 – Wetland Non-Vascular		
10				Problematic Hydrophytic V	egetation1 (Exp	lain)
11				<sup>1</sup> Indicators of hydric soil and we		must be
	155	= Total Co	ver	present, unless disturbed or pro	blematic.	
Woody Vine Stratum (Plot size: 3-m diameter)						
1				Hydrophytic		
2				Vegetation Yes	🛛 No	
	0	= Total Co	ver	Present?		
% Bare Ground in Herb Stratum: 0						
Remarks:						
Remarks.						

#### SOIL

#### Sampling Point: DP-2

		ibe to th	e depth	needed	to document the indicator	or confirm the at	osence	of indicators.)	
Depth (inches)	<u>Matrix</u> Color (moist)	%	C	olor (mo	ist) % Type	<sup>1</sup> Loc <sup>2</sup>	2	Texture	Remarks
0-10	10YR 3/2	100		-		-		Gravelly sandy loam	-
10-16	10YR 3/2	98	-	7.5YR 4/	′6 2 C	М		Gravelly	-
								sandy loam	
1Turney C. C		Depletie			Matrix CC Caused as Cast	d Canad Crains	21	Di Dana Lining M	Mateire
					Matrix, CS=Covered or Coate less otherwise noted.)	a Sana Grains.		PL=Pore Lining, M= tors for Problemat	
•	••	plicable	to all Lr	•	,				ic nyuric Solis":
	ol (A1) Epipedon (A2)				andy Redox (S5) tripped Matrix (S6)			cm Muck (A10) ed Parent Material (	
	Histic (A3)				pamy Mucky Mineral (F1) (ex	Cont MI RA 1)		ery Shallow Dark Si	
	gen Sulfide (A4)				pamy Gleyed Matrix (F2)			ther (Explain in Rer	
•	ted Below Dark S	urface (A	(11)		epleted Matrix (F3)				hantoj
	Dark Surface (A1		,		edox Dark Surface (F6)		<sup>3</sup> Indica	ators of hydrophytic	vegetation and
□ Sandy	Mucky Mineral (	S1)		D	epleted Dark Surface (F7)				st be present, unless
Sandy	Gleyed Matrix (S	64)		🗆 R	edox Depressions (F8)		dis	sturbed or problema	tic.
Restrictive	Layer (if preser	nt):							
Type:						Hydric soil		Yes 🗌	No 🛛
						present?			
Depth	(inches):								
IYDROLO	DGY								
	ydrology Indicat licators (minimum		equired:	check a	ll that apply)		Seco	ndary Indicators (2 d	or more required)
	e water (A1)				Water-Stained Leaves (exce	pt MLRA 1, 2, 4A		Water-Stained Lea	ves (B9) ( <b>MLRA 1,</b>
	Vater Table (A2)			_	<del>&amp; 4B) (B9)</del>			2, 4A & 4B)	
	tion (A3)				Salt Crust (B11)			Drainage Patterns	
	Marks (B1)				Aquatic Invertebrates (B13)			Dry-Season Water	
	ent Deposits (B2)	)			Hydrogen Sulfide Odor (C1)				n Aerial Imagery (C9
	eposits (B3)				Oxidized Rhizospheres along	• • • •		Geomorphic Positi	
	Mat or Crust (B4) eposits (B5)				Presence of Reduced Iron (C Recent Iron Reduction in Tille	,		Shallow Aquitard ( FAC-Neutral Test (	
	e Soil Cracks (B6	5)			Stunted or Stressed Plants (I	. ,		Raised Ant Mound	. ,
	ation Visible on A	,	nerv (B7		Other (explain in remarks)			Frost-Heave Humr	( ) ( )
	ely Vegetated Co			,					
Field Obse				,					
Surface Wa	ater Present?	Yes 🗆	No	$\boxtimes$	Depth (in):	Wetland Hyd	rology		
Water Tabl	e Present?	Yes 🗆	No	$\boxtimes$	Depth (in):	Present	•••	Yes [	□ No ⊠
Saturation (includes ca	Present? apillary fringe)	Yes 🗆	No	$\boxtimes$	Depth (in):				
		ream gau	ige, mon	itoring w	vell, aerial photos, previous in	spections), if avail	able:		
Domortion									
Remarks:									



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

### DP - 3

Project/Site: Everett Smelter Plume	City/County: City of Ev	verett	Sam	pling date:	09/12/	2022				
Applicant/Owner: Department of Ecology				State:	WA Sa	ampling Po	int: DP	-3		
Investigator(s): Nell Lund, Sage Yuasa	Section, Township, Range:	S8. T29	N, R05E							
Landform (hillslope, terrace, etc): Depression/Swale					Local relief (concave, convex, none): <u>Concave</u> Slope (%): <u>2</u>				2%	
Subregion (LRR): <u>A</u> Lat:				Lon	g:		Datum:	-		
Soil Map Unit Name: Urban Land					NWI classifie	cation:	None			
Are climatic / hydrologic conditions on the site typical for this time of year?  Yes  No (If no, explain in remarks.)										
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$ sign	nificant	ly dist	urbed?		Are "Normal Circumstand	ces" preser	nt on the sit	e? 🛛 Yes	🗆 No	
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$ nat	urally p	roble	matic?		(If needed, explain any a	nswers in l	Remarks.)			
SUMMARY OF FINDINGS - Attach si	ite ma	o sho	wing s	ampli	ng point locations, transec	cts, impor	tant featur	es, etc.		
Hydrophytic Vegetation Present?	Yes	$\boxtimes$	No							
Hydric Soils Present?	Yes	$\boxtimes$	No		Is the Sampled Area within a Wetland?		Yes		No 🗆	
Wetland Hydrology Present?	Yes	$\boxtimes$	No							

Remarks: Drier than normal per WETS methodology. Wetland C in-pit.

**VEGETATION** – Use scientific names of plants.

Tree Stratum         (Plot size: 5-m diameter)           1.		Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: Total Number of Dominant Species Across all Strata: Percent of Dominant Species	3	(A) (B)
	0	= Total Co	ver	that are OBL, FACW, or FAC:	100%	(A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter)         1.       Rubus bifrons         2.       Lythrum salicaria         3.	<u>20</u> 60	Y Y = Total Cor Y		UPL species Column Totals: Prevalence Index = B/A =	Multiply by:         x 1 =         x 2 =         x 3 =         x 4 =         x 5 =         (A)	
3				Hydrophytic Vegetation 1 – Rapid Test for Hydrop		
4.	60	_ = Total Co		<ul> <li>Z – Dominance Test is &gt; 5</li> <li>3 – Prevalence Index is ≤</li> <li>4 – Morphological Adaptai data in Remarks or or</li> <li>5 – Wetland Non-Vasculai</li> <li>Problematic Hydrophytic \         <sup>1</sup>Indicators of hydric soil and w present, unless disturbed or pr</li> <li>Hydrophytic</li> </ul>	50% 3.0 <sup>1</sup> tions <sup>1</sup> (Provide supp a separate sheet) r Plants <sup>1</sup> /egetation <sup>1</sup> (Explair etland hydrology m	ר)
% Bare Ground in Herb Stratum: 40	0					
Remarks: *Presumed FAC.						

#### SOIL

#### Sampling Point: DP-3

		e to the d	epth needed to			nfirm the a	bsen	ce of indicators.)		
Depth	<u>Matrix</u>	0/		Redox Featu		1	2	Tautum	Descela	
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc	<u>;</u>	Texture	Remarks	
0-5	10YR 3/1	100	-	-	-	-		Sand	-	
5-12	10YR 2/2	75	7.5YR 4/6	25	С	М		Loamy sand	-	
<sup>1</sup> Type: C=C	<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Loc: PL=Pore Lining, M=Matrix.									
Hydric Soi	I Indicators: (App	licable to a	all LRRs, unless	otherwise not	ed.)	Indicators for Problematic Hydric Soils <sup>3</sup> :				
Histos	ol (A1)		Sandy	/ Redox (S5)				2cm Muck (A10)		
□ Histic	Epipedon (A2)		Stripp	ed Matrix (S6)				Red Parent Material (	(TF2)	
Black	Histic (A3)		🗆 Loam	y Mucky Minera	al (F1) (except M	ILRA 1)		Very Shallow Dark Su	urface (TF12)	
□ Hydro	gen Sulfide (A4)		🗆 Loam	y Gleyed Matrix	(F2)			Other (Explain in Rer	narks)	
Deplet	ted Below Dark Su	rface (A11)		ted Matrix (F3)	<b>、</b> ,				,	
□ Thick	Dark Surface (A12)	)	⊠ Redo	x Dark Surface	(F6)		<sup>3</sup> In	dicators of hydrophytic	vegetation and	
□ Sandy	Mucky Mineral (S	1)	Deple	ted Dark Surfac	ce (F7)			wetland hydrology mu	st be present, unless	
□ Sandy	Gleyed Matrix (S4	)		x Depressions (	(F8)			disturbed or problemation	tic.	
Restrictive	Layer (if present	):								
Туре:						lydric soi present?	il	Yes 🛛	No 🗆	
Depth	(inches):									
Remarks:	Upslope to the e	ast is fill ma	aterial from active	e train/rail land u	use.					

#### HYDROLOGY

Wetland Hydrology Indicators:           Primary Indicators (minimum of one required: check all that apply)         Secondary Indicators (2 or 10 o									
<ul> <li>Surface water (A1)</li> <li>High Water Table (A2)</li> </ul>	Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9)		□ Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)						
□ Saturation (A3) □	Salt Crust (B11)		Drainage Patterns (B10)						
□ Water Marks (B1) □	Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)						
□ Sediment Deposits (B2) □	Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)						
□ Drift Deposits (B3) □	Oxidized Rhizospheres along Living Roots (C3)	$\boxtimes$	Geomorphic Position (D2)						
□ Algal Mat or Crust (B4) □	Presence of Reduced Iron (C4)		Shallow Aquitard (D3)						
□ Iron Deposits (B5) □	Recent Iron Reduction in Tilled Soils (C6)	$\boxtimes$	FAC-Neutral Test (D5)						
□ Surface Soil Cracks (B6) □		Raised Ant Mounds (D6) (LRR A)							
□ Inundation Visible on Aerial Imagery (B7) □		Frost-Heave Hummocks							
□ Sparsely Vegetated Concave Surface (B8)									
Field Observations:									
Surface Water Present? Yes □ No ⊠	Depth (in): - Wetland Hydr	ology							
Water Table Present? Yes  No  No	Depth (in): - Present		Yes 🛛 No 🗆						
Saturation Present? Yes □ No ⊠ (includes capillary fringe)	Depth (in):								
Describe Recorded Data (stream gauge, monitoring v	well, aerial photos, previous inspections), if availa	ble:							
Remarks: Soils are damp, but not saturated to 12	2".								



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

#### DP - 4

Project/Site: Everett Smelter Plume					City/County: City of Ev	/erett	Sampling date: 09/12/2022
Applicant/Owner: Department of Ecology	,					State:	WA Sampling Point: DP-4
Investigator(s): Nell Lund, Sage Yuasa					Section, Township, Range:	S8. T29	9N, R05E
Landform (hillslope, terrace, etc): Hillslo	pe				Local relief (concave, conve	x, none):	Concave Slope (%): <5%
Subregion (LRR): <u>A</u> Lat: -				Loi	ng:		Datum:
Soil Map Unit Name: Urban Land					NWI classifi	cation:	None
Are climatic / hydrologic conditions on the s	ite typica	al for th	nis time o	of yea	r? 🗆 Yes 🛛 No (If no, ex	plain in re	emarks.)
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$	significar	ntly dis	sturbed?		Are "Normal Circumstand	ces" prese	ent on the site? $ extsf{X}$ Yes $ extsf{D}$ No
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$	naturally	proble	ematic?		(If needed, explain any a	nswers in	Remarks.)
SUMMARY OF FINDINGS – Attack	n site ma	ap sh	owing s	ampl	ing point locations, transed	cts, impo	rtant features, etc.
Hydrophytic Vegetation Present?	Yes	$\boxtimes$	No				
Hydric Soils Present?	Yes		No	$\boxtimes$	Is the Sampled Area within a Wetland?		Yes 🗌 No 🖾
Wetland Hydrology Present?	Yes		No	$\boxtimes$			
Remarks: Drier than normal per W	ETS met	hodol	ogy. We	tland	C out-pit.		

**VEGETATION** – Use scientific names of plants.

Tree Stratum       (Plot size: 5-m diameter)         1.       Alnus rubra         2.       Acer macrophyllum         3.		Dominant Species? Y Y	Indicator Status FAC FACU	Dominance Test worksheet:Number of Dominant Speciesthat are OBL, FACW, or FAC:Total Number of DominantSpecies Across all Strata:	
4.	25	= Total Co	ver	Percent of Dominant Species 67% that are OBL, FACW, or FAC: (A/E	
Sapling/Shrub Stratum         (Plot size: 3-m diameter)           1.				Prevalence Index worksheet:         Total % Cover of:       Multiply by:         OBL species       x 1 =         FACW species       x 2 =         FAC species       x 3 =	
5 <u>Herb Stratum</u> (Plot size: 1-m diameter)	0	= Total Co		FACU species         x 4 =           UPL species         x 5 =           Column Totals:         (A)	B)
Equisetum telmateia     Holcus lanatus	<u>80</u> 20	YN	FACW FAC	Prevalence Index = B/A =	
3.         Convolvulus sp.           4.	5 105	= Total Cor	FACU	Hydrophytic Vegetation Indicators:         □       1 – Rapid Test for Hydrophytic Vegetation         ☑       2 – Dominance Test is > 50%         □       3 – Prevalence Index is ≤ 3.01         □       4 – Morphological Adaptations1 (Provide supportindata in Remarks or on a separate sheet)         □       5 – Wetland Non-Vascular Plants1         □       Problematic Hydrophytic Vegetation1 (Explain)         ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         Hydrophytic	-
<ol> <li>2.</li> <li>% Bare Ground in Herb Stratum: 0</li> </ol>	0	= Total Co	ver	Vegetation Yes X No Present?	
Remarks:					

SOIL

Color (moist)       %       Color (moist)       %       Type         0-9       10YR 2/2       100       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -         -       -       -       -       -       -       -         -       -       -       -       -       -       -       -         -       -       -       -       -       -       -       -       -         ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coate <th>-</th> <th>Texture Sandy gravelly Ioam</th> <th>Remarks y _</th>	-	Texture Sandy gravelly Ioam	Remarks y _
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coate         ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)         Histosol (A1)       □ Sandy Redox (S5)         Histic Epipedon (A2)       □ Stripped Matrix (S6)		loam	,
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)         Histosol (A1)       □         Histic Epipedon (A2)       □         Stripped Matrix (S6)		<sup>2</sup> Loc: PL=Pore Lini	
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)         Histosol (A1)       □       Sandy Redox (S5)         Histic Epipedon (A2)       □       Stripped Matrix (S6)		<sup>2</sup> Loc: PL=Pore Lini	
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)         Histosol (A1)       □         Histic Epipedon (A2)       □         Stripped Matrix (S6)		<sup>2</sup> Loc: PL=Pore Lini	
Histosol (A1)     Image: Sandy Redox (S5)       Histic Epipedon (A2)     Image: Stripped Matrix (S6)	I		ng, M=Matrix.
Histic Epipedon (A2)		Indicators for Prob	blematic Hydric Soils <sup>3</sup> :
Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)	ept MLRA 1)	<ul> <li>2cm Muck (A1</li> <li>Red Parent Ma</li> <li>Very Shallow I</li> <li>Other (Explain</li> </ul>	aterial (TF2) Dark Surface (TF12)
Thick Dark Surface (A12) Redox Dark Surface (F6)Sandy Mucky Mineral (S1) Depleted Dark Surface (F7)Sandy Gleyed Matrix (S4) Redox Depressions (F8)	:		ophytic vegetation and ogy must be present, unle oblematic.
estrictive Layer (if present): Type: Gravel/fill	Hydric soil present?	Yes	5 🗆 No 🛛
Depth (inches): 9"			
DROLOGY		Socondon / Indicate	
			ors (2 or more required)
Surface water (A1)     Water-Stained Leaves (exception)       High Water Table (A2)     & 4B) (B9)	<del>)t MLRA 1, 2, 4A</del>	└── 2, 4A & 4B)	ned Leaves (B9) ( <b>MLRA 1</b> )
Saturation (A3)		-	atterns (B10)
Water Marks (B1) <ul> <li>Aquatic Invertebrates (B13)</li> <li>Sediment Deposits (B2)</li> <li>Hydrogen Sulfide Odor (C1)</li> </ul>			n Water Table (C2) /isible on Aerial Imagery (C
Drift Deposits (B3)	Livina Roots (C3)		c Position (D2)
Algal Mat or Crust (B4)	0, (, ,	Shallow Aqu	ι,
Iron Deposits (B5)		□ FAC-Neutra	. ,
<ul> <li>Surface Soil Cracks (B6)</li> <li>Inundation Visible on Aerial Imagery (B7)</li> <li>Other (explain in remarks)</li> </ul>	01) ( <b>LRR A</b> )		Mounds (D6) ( <b>LRR A</b> ) e Hummocks
Sparsely Vegetated Concave Surface (B8)			
eld Observations:			
urface Water Present? Yes $\Box$ No $oxtimes$ Depth (in):	Wetland Hydr	ology	
ater Table Present? Yes  No  Depth (in):	Present?		Yes 🗌 No 🖾
aturation Present? Yes  No  Depth (in):			
escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous ins	spections), if availa	ble:	



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

### DP - 5

State: WA Sampling Point: DP-5
ection, Township, Range: S8. T29N, R05E
ocal relief (concave, convex, none): <u>Concave</u> Slope (%): <u>&lt;5%</u>
- Datum: -
NWI classification: None
$\Box$ Yes $\boxtimes$ No (If no, explain in remarks.)
Are "Normal Circumstances" present on the site? $\boxtimes$ Yes $\Box$ No
(If needed, explain any answers in Remarks.)
point locations, transects, important features, etc.
Is the Sampled Area Yes ⊠ No □
0

**VEGETATION** – Use scientific names of plants.

Tree Stratum       (Plot size: 5-m diameter)         1.	Absolute % Cover	Dominant Species? = Total Co	Indicator Status	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: Total Number of Dominant Species Across all Strata: Percent of Dominant Species that are OBL, FACW, or FAC:		2 2 100%	(A) (B) (A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter)         1.       Lythrum salicaria         2.	30	- Y		Prevalence Index worksheet:         Total % Cover of:         OBL species         FACW species         FAC species	<u>Multiply</u> x 1 = x 2 = x 3 =		_
<ol> <li><u>Herb Stratum</u> (Plot size: 1-m diameter)</li> <li><u>Solanum dulcamara</u></li> <li>Poa sp.</li> </ol>	<u> </u>	= Total Co N Y	FACW	FACU species UPL species Column Totals: Prevalence Index = B/A =	x 4 = x 5 = (A)		(B)
1     1       3.				Hydrophytic Vegetation         □       1 – Rapid Test for Hydrop         ☑       2 – Dominance Test is > 5         □       3 – Prevalence Index is ≤         □       4 – Morphological Adaptat data in Remarks or on         □       5 – Wetland Non-Vascular         □       Problematic Hydrophytic V         ¹Indicators of hydric soil and w present, unless disturbed or pr	hytic Veg 50% 3.0 <sup>1</sup> tions <sup>1</sup> (Pr a separ r Plants <sup>1</sup> /egetatio etland hy	getation rovide supp ate sheet) n <sup>1</sup> (Explain /drology mu	)
Woody Vine Stratum       (Plot size: 3-m diameter)         1.	0	_ = Total Co	ver	Hydrophytic Vegetation Yes Present?	s 🛛	No 🗌	

SOIL

Depth inches)	<u>Matrix</u> Color (moist)	%	Color (n		Features Type <sup>1</sup>	Loc <sup>2</sup>	Те	exture	Remarks
0-6	10YR 2/2	80	10YR		21	M	Sandy	/ gravelly pam	-
уре: С=(	Concentration, D=	Depletion,	RM=Reduce	ed Matrix, CS=C	overed or Coated S	and Grains.		Pore Lining, M=	=Matrix.
ydric Soi	I Indicators: (Ap	plicable to	o all LRRs, ι	Inless otherwis	e noted.)		Indicators	for Problema	tic Hydric Soils <sup>3</sup> :
<ul> <li>Histic</li> <li>Black</li> <li>Hydro</li> <li>Deple</li> <li>Thick</li> <li>Sandy</li> </ul>	sol (A1) Epipedon (A2) Histic (A3) gen Sulfide (A4) ted Below Dark S Dark Surface (A1 Mucky Mineral ( Gleyed Matrix (S	2) S1)	1) 🗆	Sandy Redox ( Stripped Matrix Loamy Mucky M Loamy Gleyed Depleted Matrix Redox Dark Su Depleted Dark Redox Depress	(S6) Mineral (F1) (except Matrix (F2) (F3) rface (F6) Surface (F7)	MLRA 1)	<ul> <li>Red P</li> <li>Very S</li> <li>Other</li> <li><sup>3</sup> Indicators wetland</li> </ul>	(Explain in Re of hydrophytic	Surface (TF12) marks) vegetation and ust be present, unles
-	E Layer (if preser			•					
Type:	Compact					Hydric soil present?		Yes 🛛	No 🗆
Depth	(inches):	6"				<b>I</b>			
emarks:					I				
DROL(		ors:							
rimary Inc	ydrology Indicat		quired: check	11 37			,	· ·	or more required)
YDROLO Vetland H Primary Inco Surfac High V Satura Water Sedim Sedim Drift D Algal I Inon D Surfac Inunda	ydrology Indicat	n of one re		Water-Staine & 4B) (B9) Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhiz Presence of I Recent Iron F Stunted or St	tebrates (B13) Ifide Odor (C1) cospheres along Livi Reduced Iron (C4) Reduction in Tilled S ressed Plants (D1)	ng Roots (C3) ioils (C6)	Wat 2, 4 Drai Dry: Satu Geo Sha FAC Rais	ter-Stained Lea A & 4B) inage Patterns -Season Wate uration Visible omorphic Posit illow Aquitard C-Neutral Test	aves (B9) ( <b>MLRA 1</b> , s (B10) r Table (C2) on Aerial Imagery (C ion (D2) (D3) (D5) ds (D6) ( <b>LRR A</b> )
<b>/DROLO</b> <b>/etland H</b> rimary Inc Surfac High V Satura Water Sedim Drift D Algal I Iron D Surfac Inunda Spars	ydrology Indicat dicators (minimum ce water (A1) Vater Table (A2) ation (A3) Marks (B1) nent Deposits (B2) Deposits (B3) Mat or Crust (B4) eposits (B5) ce Soil Cracks (B6 ation Visible on Ad	n of one re		Water-Staine & 4B) (B9) Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhiz Presence of I Recent Iron F Stunted or St	11) tebrates (B13) lfide Odor (C1) cospheres along Livi Reduced Iron (C4) Reduction in Tilled S ressed Plants (D1)	ng Roots (C3) ioils (C6)	Wat 2, 4 Drai Dry: Satu Geo Sha FAC Rais	ter-Stained Lea A & 4B) inage Patterns -Season Wate uration Visible pomorphic Posit illow Aquitard C-Neutral Test sed Ant Mound	aves (B9) ( <b>MLRA 1</b> , s (B10) r Table (C2) on Aerial Imagery (C ion (D2) (D3) (D5) ds (D6) ( <b>LRR A</b> )
Vetland H rimary Ind Surfac High V Satura Sedim Sedim Sedim Algal I Iron D Surfac Inunda Sparse ield Obse	ydrology Indicat dicators (minimum ee water (A1) Vater Table (A2) ation (A3) Marks (B1) eent Deposits (B2) Deposits (B3) Mat or Crust (B4) eposits (B5) ee Soil Cracks (B6 ation Visible on A ely Vegetated Co	n of one re		Water-Staine & 4B) (B9) Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhiz Presence of I Recent Iron F Stunted or St	11) tebrates (B13) lfide Odor (C1) cospheres along Livi Reduced Iron (C4) Reduction in Tilled S ressed Plants (D1) n in remarks)	ng Roots (C3) soils (C6) (LRR A)	U Wat 2, 4 □ Dra □ Dry □ Satu ⊠ Geo □ Sha ⊠ FAC □ Rais □ Fros	ter-Stained Lea A & 4B) inage Patterns -Season Wate uration Visible pomorphic Posit illow Aquitard C-Neutral Test sed Ant Mound	aves (B9) ( <b>MLRA 1</b> , s (B10) r Table (C2) on Aerial Imagery (C ion (D2) (D3) (D5) ds (D6) ( <b>LRR A</b> )
Yetland H Primary Inco Surface Surface Satura Satura Sedim Sedim Algal I Iron D Surface Sparse Surface Wa	ydrology Indicat dicators (minimum ce water (A1) Water Table (A2) ation (A3) Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4) eposits (B5) ce Soil Cracks (B6 ation Visible on Ai ely Vegetated Co ervations:	a of one re ) erial Image ncave Sur	ery (B7)	Water-Staine & 4B) (B9) Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhiz Presence of I Recent Iron F Stunted or St Other (explai	11) tebrates (B13) lfide Odor (C1) cospheres along Livi Reduced Iron (C4) Reduction in Tilled S ressed Plants (D1) n in remarks)	ng Roots (C3) ioils (C6)	Wat     2, 4     Dra     Dry     Dry     Satu     Gec     Sha     FAC     Rais     Fros	ter-Stained Lea A & 4B) inage Patterns -Season Wate uration Visible pomorphic Posit illow Aquitard C-Neutral Test sed Ant Mound	aves (B9) ( <b>MLRA 1</b> , r Table (C2) on Aerial Imagery (C ion (D2) (D3) (D5) ds (D6) ( <b>LRR A</b> ) mocks
Vetland H rimary Ind Surfac High V Satura Sedim Sedim Sedim Nater Sedim Surfac Inunda Spars ield Obse vurface Wa Vater Tabl	ydrology Indicat dicators (minimum ee water (A1) Vater Table (A2) ation (A3) Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4) eposits (B5) ee Soil Cracks (B6 ation Visible on Ar- ely Vegetated Co- ervations: ater Present?	) erial Image ncave Sur Yes □	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	Water-Staine & 4B) (B9) Salt Crust (B Aquatic Inver Hydrogen Su Oxidized Rhiz Presence of I Recent Iron F Stunted or St Other (explain Depth (in):	11) tebrates (B13) lfide Odor (C1) cospheres along Livi Reduced Iron (C4) Reduction in Tilled S ressed Plants (D1) n in remarks)	ng Roots (C3) coils (C6) (LRR A) Wetland Hydr	Wat     2, 4     Dra     Dry     Dry     Satu     Gec     Sha     FAC     Rais     Fros	ter-Stained Lea A & 4B) inage Patterns -Season Wate uration Visible omorphic Posit illow Aquitard C-Neutral Test sed Ant Mound st-Heave Hum	aves (B9) ( <b>MLRA 1</b> s (B10) r Table (C2) on Aerial Imagery (C ion (D2) (D3) (D5) ds (D6) ( <b>LRR A</b> ) mocks



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

### **DP - 6**

Project/Site: Everett Smelter Plume	City/County: City of Everett Sampling date: 09/13/2022
Applicant/Owner: Department of Ecology	State: WA Sampling Point: DP-6
Investigator(s): Nell Lund, Sage Yuasa	Section, Township, Range: S8. T29N, R05E
Landform (hillslope, terrace, etc): Terrace	Local relief (concave, convex, none): <u>None</u> Slope (%): <u>&lt;5%</u>
Subregion (LRR): A Lat: - Lor	ng: Datum:
Soil Map Unit Name: Urban Land	NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year	? 🗆 Yes 🛛 No (If no, explain in remarks.)
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$ significantly disturbed?	Are "Normal Circumstances" present on the site? $\boxtimes$ Yes $\Box$ No
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$ naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampli	ng point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes 🛛 No 🗆	

Remarks: Drier than normal per W	ETS met	hodo	loav. W	/etland	C out-pit. Raised area/fill associated w	ith buried gas lir	ne. Small break in
Wetland Hydrology Present?	Yes		No	$\boxtimes$			
Hydric Soils Present?	Yes		No	$\boxtimes$	Is the Sampled Area within a Wetland?	Yes 🗌	No 🛛
Hydrophytic Vegetation Present?	Yes	$\boxtimes$	No				

rks: Drier than normal per WETS methodology. Wetland C out-pit. Raised area/fill associated with buried gas line. Small break in Wetland C for gas line fill material.

**VEGETATION** – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 5-m diameter) 1 2		Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species that are OBL, FACW, or FAC: Total Number of Dominant	3	(A)
3.				Species Across all Strata:	3	(B)
4	0	= Total Co	ver	Percent of Dominant Species that are OBL, FACW, or FAC:	100%	(A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter)         1.       Salix scouleriana         2.       Cornus sericea         3.       Corylus cornuta         4.	90 10 5 	Y N N = Total Cov	FAC FACW FACU	OBL species     x       FACW species     x       FAC species     x       FACU species     x       UPL species     x	Multiply by:         < 1 =	_
1. <u>Equisetum telmateia</u>	90	Y Y	FACW	Prevalence Index = B/A =		
2.       Rubus bifrons         3.	160	_ = Total Cor		Hydrophytic Vegetation In         1 - Rapid Test for Hydrophy         2 - Dominance Test is > 50°         3 - Prevalence Index is ≤ 3.         4 - Morphological Adaptation data in Remarks or on a         5 - Wetland Non-Vascular F         Problematic Hydrophytic Ve         ¹Indicators of hydric soil and wetl present, unless disturbed or problematic         Hydrophytic Vegetation         Yes         Present?	vtic Vegetation % 0 <sup>1</sup> a separate sheet Plants <sup>1</sup> egetation <sup>1</sup> (Expla land hydrology n olematic.	in)
Remarks:						

SOIL

chesp       Color (moles)       %       Type!       Loc <sup>2</sup> Texture       Remarks         of 10 YR 2/2       100       -       -       -       Gravelly sandy loam         of 10 YR 2/2       100       -       -       -       Gravelly sandy loam         of 10 YR 2/2       100       -       -       -       -       Gravelly sandy loam         of 10 YR 2/2       100       -       -       -       -       -       -       -       Gravelly sandy loam         of 10 YR 2/2       100       -		Matrix Color (moist)	0/	Color (~	Nict) <u>Redox Features</u>	no <sup>1</sup> Le- <sup>2</sup>	Texture	Domortico
UPU0       10/1K 2/2       100       .       .       sandy loam         rep:			%	Color (mc	<i>i i i</i>	pe' Loc		Remarks
rdric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>2</sup> Histic Epipedon (A2)       Sandy Redox (S5)       Com Muck (A10)         Histic Epipedon (A2)       Sitpped Matrix (R5)       Red Parent Material (TF2)         Black Histic (A3)       Loamy Wucky Mineral (F1) (except MLRA 1)       Other (Explain in Remarks)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Indicators of hydrophytic vegetation and wetland hydrology must be present, un disturbed or problematic.         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       3 Indicators of hydrophytic vegetation and wetland hydrology must be present, un disturbed or problematic.         strictive Layer (if present):       Type:       Hydric soil       Yes       No       Xo         Surface water (A1)       Water-Stained Leaves (except MLRA 1, 2, 4A       Secondary Indicators (2 or more required)       Yeter-Stained Leaves (8(9) (MLRA 2, 4A 8)       Secondary Indicators (2 or more required)         Surface water (A1)       Water-Stained Leaves (except MLRA 1, 2, 4A 8)       Canada 4A 8)       Canada 4A 8)       Canada 4A 8)         Saturation (A3)       Saturation (A1)       Water-Stained Leaves (8(13)       Dry-Seasen Water Table (A2)       Saturation Yeshe A 8)       Canada 4A 8)         Surface S(B2)       Hydrogen Suiface Aleroy       Saturation Yeshe A 8)       Canada 4A 8)	0-10	10YR 2/2	100	-				-
dric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>2</sup> Histic Epipedon (A2)       Sandy Redox (S5)       Cm Muck (A10)         Histic Epipedon (A2)       Sitpped Matrix (R5)       Red Parent Material (TF2)         Black Histic (A3)       Loamy Wucky Mineral (F1) (except MLRA 1)       Verty Shaltow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Indicators of hydrophytic vegetation and wetland hydrology must be present, undicators of hydrophytic vegetation and wetland hydrology must be present, undicators (G1)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Black Hydrology must be present, undicators of problematic.         Strictive Layer (if present):       Type:       Hydric soil       Present?         Depth (inches):       marks:       Hydric soil       Yes       No         Surface water (A1)       Water-Stained Leaves (except MLRA 1, 2, 4A       2, 4A & 4B)       Secondary Indicators (2 or more required)         Saturation (A3)       G1 Hydrogen Sulface Odor (C1)       Dry-Season Water Table (C2)       Saturation Yable on Aetial Imagery         Drift Deposits (B2)       Hydrogen Sulface Odor (C1)       Geomorphic Position (D2)       Saturation Yable on Aetial Imagery         Drift Deposits (B3)       Oxidized Rhizospheres along Living Roots (C3)       Geomorphic Position (D2)       Satura								
dric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>2</sup> Histic Epipedon (A2)       Sandy Redox (S5)       Cm Muck (A10)         Histic Epipedon (A2)       Sitpped Matrix (S1)       Red Parent Material (F2)         Black Histic (A3)       Loamy Wucky Mineral (C1) (except MLRA 1)       Verty Shaltow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Indicators of hydrophytic vegetation and wetland hydrology must be present, undicators of hydrophytic vegetation and wetland hydrology must be present, undicators (CF7)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       Indicators of hydrophytic vegetation and wetland hydrology must be present, undicators (C1)         Strictive Layer (if present):       Type:       Hydric soil       Present?         Pepth (inches):       marks:       Hydric soil       Yes       No         Surface water (A1)       Water Stained Leaves (except MLRA 1, 2, 4A       Secondary Indicators (2 or more required)         Surface water (A1)       Water Stained Leaves (B13)       Dry.Season Water Table (A2)       Judiced Natrix (B1)       Dry.Season Water Table (A2)         Saturation (A3)       Sall Crust (B1)       Dry.Season Water Table (C2)       Hydric soils Presence (Steps)       Dry.Season Water Table (A2)         Sufface Water (A1)       Presence of Reduced fron (C4)       Satu								
dric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>2</sup> Histos Dipedon (A2)       Sandy Redox (S5)       Com Muck (A10)         Histos Dipedon (A2)       Stripped Matrix (R5)       Red Parent Material (TF2)         Black Histic (A3)       Loamy Klivek Mineral (F1) (except MLRA 1)       Vert Shaltow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Indicators of hydrophytic vegetation and wetland hydrology must be present, undicators of hydrophytic vegetation and wetland hydrology must be present, undicators (S1)         Back Mucky Mineral (S1)       Depleted Dark Surface (F7)       Bredox Dark Surface (F7)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       disturbed or problematic.         strictive Layer (if present):       Type:       Hydric soil       Present?         Type:       Hydric Soil       Vert Simed Laewes (except MLRA 1, 2, 4A       Secondary Indicators (2 or more required)         Surface water (A1)       Water-Stained Leaves (except MLRA 1, 2, 4A       Vater-Stained Leaves (B9) (MLRA 2, 4A B)       Saturation (A3)       Saturation (A1)       Presence (B1)       Dry-Season Water Table (C2)         Surface X(B1)       Saturation (A3)       Saturation (C4)       Saturation Yable on Aerial Imagery Diving Roots (C3)       Geomorphic Position (D2)         Surface Soit (B2)       Hydrogen Su								
dric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>2</sup> Histos Dipedon (A2)       Sandy Redox (S5)       Com Muck (A10)         Histos Dipedon (A2)       Stripped Matrix (R5)       Red Parent Material (TF2)         Black Histic (A3)       Loamy Klivek Mineral (F1) (except MLRA 1)       Vert Shaltow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Indicators of hydrophytic vegetation and wetland hydrology must be present, undicators of hydrophytic vegetation and wetland hydrology must be present, undicators (S1)         Back Mucky Mineral (S1)       Depleted Dark Surface (F7)       Bredox Dark Surface (F7)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       disturbed or problematic.         strictive Layer (if present):       Type:       Hydric soil       Present?         Type:       Hydric Soil       Vert Simed Laewes (except MLRA 1, 2, 4A       Secondary Indicators (2 or more required)         Surface water (A1)       Water-Stained Leaves (except MLRA 1, 2, 4A       Vater-Stained Leaves (B9) (MLRA 2, 4A B)       Saturation (A3)       Saturation (A1)       Presence (B1)       Dry-Season Water Table (C2)         Surface X(B1)       Saturation (A3)       Saturation (C4)       Saturation Yable on Aerial Imagery Diving Roots (C3)       Geomorphic Position (D2)         Surface Soit (B2)       Hydrogen Su								
Histosol (A1)       Sandy Redox (S5)       2cm Muck (A10)         Histosol (A2)       Stripped Matrix (S6)       Red Parent Material (TF2)         Black Histic (A3)       Loarny Mucky Mineral (F1) (except MLRA 1)       Very Shallow Dark Surface (TF12)         Depleted Bork Wineral (S1)       Depleted Dark Surface (F6)       **indicators of hydrophytic vegetation and wetland hydrology must be present, un disturbed or problematic.         sandy Gleyed Matrix (S4)       Redox Dark Surface (F7)       **indicators of hydrophytic vegetation and wetland hydrology must be present, un disturbed or problematic.         sandy Gleyed Matrix (S4)       Redox Depressions (F8)       **indicators of hydrophytic vegetation and wetland hydrology must be present, un disturbed or problematic.         strictive Layer (If present):       Type:		· · ·			•	ted Sand Grains.		
Histic Epipedon (A2)       Stripped Matrix (S6)       Red Parent Material (TF2)         Black Histic (A3)       Loamy Mucky Mineral (F1) (except MLRA 1)       Very Shallow Dark Surface (TF12)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Other (Explain in Remarks)         Thick Dark Surface (A12)       Redox Dark Surface (F6) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, un disturbed or problematic.         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       Hydric soil present?       Yes □       No ⊠         Type:			able to a					ic Hydric Soils <sup>3</sup> :
Black Histic (A3)       □ Loamy Mucky Mineral (F1) (except MLRA 1)       □ Very Shallow Dark Surface (TF12)         Hydrogen Sulfide (A4)       □ Loamy Gleyed Matrix (F2)       □ Other (Explain in Remarks)         Depleted Below Dark Surface (A11)       □ Depleted Dark Surface (F6)       □ Indicators of hydrophytic vegetation and wetland hydrology must be present, un disturbed or problematic.         Sandy Mucky Mineral (S1)       □ Depleted Dark Surface (F7)       □ More (Explain in Remarks)         Strictive Layer (If present):       □ Popleted Dark Surface (F7)       □ More (Explain in Remarks)         Depth (inches):       □ Depth (inches):       □ Popleted Natrix (F3)       □ No 🛛         marks:       □       Beotococococococococococococococococococo	•				, , ,		, ,	(TE2)
Hydrogen Sulfide (A4)       □ Larmy Gleyed Matrix (F2)       □ Other (Explain in Remarks)         Depleted Below Dark Surface (A11)       □ Depleted Dark Surface (F6)       □ Indicators of hydrophytic vegetation and wetland hydrology must be present, un disturbed or problematic.         Sandy Gleyed Matrix (S4)       □ Redox Dark Surface (F7)       □ Indicators of hydrophytic vegetation and wetland hydrology must be present, un disturbed or problematic.         strictive Layer (if present):       □ Type:       □       Pepth (inches):         Type:       □       Pepth (inches):       Present?         mary Indicators (minimum of one required: check all that apply)       Secondary Indicators (2 or more required)         Surface water (A1)       □       Water-Steined Leaves (except MLRA 1, 2, 4A       □         High Water Table (A2)       □       8 4B) (B9)       □       Drainage Patterns (B10)         Startace Nater (A1)       □       Water-Steined Leaves (except MLRA 1, 2, 4A       2, 4A & 4B)         Startace water (A1)       □       Aquatic Invertebrates (B13)       □       Drainage Patterns (B10)         Startacton (A3)       □       Satt Crust (B11)       □       Draisage Patterns (B10)       □         Water Abrick (B1)       □       Aquatic Invertebrates (B13)       □       Dry-Season Water Table (C2)       Sattration visible on Aerial Imagery		· · ·				except MLRA 1)		
Thick Dark Surface (A12)       □ Redox Dark Surface (F6) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be pressent, un disturbed or problematic.         Sandy Glegyed Matrix (S4)       □ Redox Depressions (F8)       Hydric soil present;         Type:		· ·			oamy Gleyed Matrix (F2)	. ,		
Sandy Mucky Mineral (S1)       □ Depleted Dark Surface (F7)       wetland hydrology must be present, un disturbed or problematic.         structive Layer (if present):			ace (A11)				<sup>3</sup> Indiactors of hydrophytic	vegetation and
Sandy Gleyéd Matrix (\$4)       Redox Depressions (F8)       disturbed or problematic.         strictive Layer (if present):       Type:       Hydric soil       Present?         Depth (inches):       Present?       Yes       No       Image: Source Surface Source Surface S		, ,			. ,			
Type:       Hydric soil present?       Yes       No       No         Depth (inches):	•	• • • •						
Type.       present?       Yes       No       No       Xi         Depth (inches):	strictive Lay	yer (if present):						
Depth (inches):         mmarks:	Type:						Yes 🛛	No 🛛
Imarks:       Imarks:         DROLOGY         Setiand Hydrology Indicators:         Imary Indicators (minimum of one required: check all that apply)       Secondary Indicators (2 or more required)         Surface water (A1)       Water-Stained Leaves (except MLRA 1, 2, 4A       Water-Stained Leaves (B9) (MLRA 2, 4A 84B)         Saturation (A3)       Galt Crust (B11)       Drainage Patterns (B10)         Water Marks (B1)       Aquatic Invertebrates (B13)       Dry-Season Water Table (C2)         Sediment Deposits (B2)       Hydrogen Sulfide Odor (C1)       Saturation Visible on Aerial Imagery         Drift Deposits (B3)       Oxidized Rhizospheres along Living Roots (C3)       Geomorphic Position (D2)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Shallow Aquitard (D3)         Iron Deposits (B5)       Recent Iron Reduction in Tilled Soils (C6)       FAC-Neutral Test (D5)         Surface Soil Cracks (B6)       Stunted or Stressed Plants (D1) (LRR A)       Raised Ant Mounds (D6) (LRR A)         Inundation Visible on Aerial Imagery (B7)       Other (explain in remarks)       Frost-Heave Hummocks         Sparsely Vegetated Concave Surface (B8)       Depth (in):	Depth (inc	hes):				present?		
DROLOGY         etland Hydrology Indicators: mary Indicators (minimum of one required: check all that apply)       Secondary Indicators (2 or more required)         Surface water (A1) High Water Table (A2)       Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9)       Water-Stained Leaves (B9) (MLRA 2, 4A & 4B)         Saturation (A3)       Salt Crust (B11)       Drainage Patterns (B10)         Water Marks (B1)       Aquatic Invertebrates (B13)       Dry-Season Water Table (C2)         Sediment Deposits (B3)       Oxidized Rhizospheres along Living Roots (C3)       Geomorphic Position (D2)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Shallow Aquitard (D3)         Iron Deposits (B5)       Recent Iron Reduction in Tilled Soils (C6)       FAC-Neutral Test (D5)         Sufface Soil Cracks (B6)       Stunted or Stressed Plants (D1) (LRR A)       Raised Ant Mounds (D6) (LRR A)         Inundation Visible on Aerial Imagery (B7)       Other (explain in remarks)       Frost-Heave Hummocks         Sparsely Vegetated Concave Sufface (B8)       Depth (in):						·		
eetand Hydrology Indicators:       imary Indicators (minimum of one required: check all that apply)       Secondary Indicators (2 or more required)         Surface water (A1)       Water-Stained Leaves (except MLRA 1, 2, 4A       Water-Stained Leaves (B9) (MLRA 2, 4A & 4B)         High Water Table (A2)       Salt Crust (B11)       Drainage Patterns (B10)         Saturation (A3)       Aquatic Invertebrates (B13)       Dry-Season Water Table (C2)         Sediment Deposits (B2)       Hydrogen Sulfide Odor (C1)       Saturation Visible on Aerial Imagery         Drift Deposits (B3)       Oxidized Rhizospheres along Living Roots (C3)       Geomorphic Position (D2)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Shallow Aquitard (D3)         Inon Deposits (B5)       Recent Iron Reduction in Tilled Soils (C6)       FAC-Neutral Test (D5)         Surface Soil Cracks (B6)       Stunted or Stressed Plants (D1) (LRR A)       Raised Ant Mounds (D6) (LRR A)         Inundation Visible on Aerial Imagery (B7)       Other (explain in remarks)       Frost-Heave Hummocks         Sparsely Vegetated Concave Surface (B8)       Depth (in):								
imary Indicators (minimum of one required: check all that apply)       Secondary Indicators (2 or more required)         Surface water (A1)       Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9)       Water-Stained Leaves (B9) (MLRA & 4B) (B9)         Saturation (A3)       Salt Crust (B11)       Drainage Patterns (B10)         Water Marks (B1)       Aquatic Invertebrates (B13)       Dry-Season Water Table (C2)         Sediment Deposits (B2)       Hydrogen Sulfide Odor (C1)       Saturation Visible on Aerial Imagery         Drift Deposits (B3)       Oxidized Rhizospheres along Living Roots (C3)       Geomorphic Position (D2)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Shallow Aquitard (D3)         Inon Deposits (B5)       Recent Iron Reduction in Tilled Soils (C6)       FAC-Neutral Test (D5)         Surface Soil Cracks (B6)       Stunted or Stressed Plants (D1) (LRR A)       Raised Ant Mounds (D6) (LRR A)         Inundation Visible on Aerial Imagery (B7)       Other (explain in remarks)       Frost-Heave Hummocks         Sparsely Vegetated Concave Surface (B8)       Depth (in):	DROLOG	Y						
High Water Table (A2) <b>&amp;</b> 4B) (B9) <b>2</b> , 4A & 4B)          Saturation (A3)              Salt Crust (B11)               Drainage Patterns (B10)          Water Marks (B1)              Aquatic Invertebrates (B13)               Dry-Season Water Table (C2)          Sediment Deposits (B2)              Hydrogen Sulfide Odor (C1)               Saturation Visible on Aerial Imagery          Drift Deposits (B3)              Oxidized Rhizospheres along Living Roots (C3)               Geomorphic Position (D2)          Algal Mat or Crust (B4)              Presence of Reduced Iron (C4)               Shallow Aquitard (D3)          Iron Deposits (B5)              Recent Iron Reduction in Tilled Soils (C6)               FAC-Neutral Test (D5)          Surface Soil Cracks (B6)              Stunted or Stressed Plants (D1) (LRR A)               Raised Ant Mounds (D6) (LRR A)          Inundation Visible on Aerial Imagery (B7)              Other (explain in remarks)               Frost-Heave Hummocks          Sparsely Vegetated Concave Surface (B8)                Present?               Yes               No          etar Table Present?       Yes              No               Depth (					all that apply)		Secondary Indicators (2 c	
Saturation (A3)       Salt Crust (B11)       Drainage Patterns (B10)         Water Marks (B1)       Aquatic Invertebrates (B13)       Dry-Season Water Table (C2)         Sediment Deposits (B2)       Hydrogen Sulfide Odor (C1)       Saturation Visible on Aerial Imagery         Drift Deposits (B3)       Oxidized Rhizospheres along Living Roots (C3)       Geomorphic Position (D2)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Shallow Aquitard (D3)         Iron Deposits (B5)       Recent Iron Reduction in Tilled Soils (C6)       FAC-Neutral Test (D5)         Surface Soil Cracks (B6)       Stunted or Stressed Plants (D1) (LRR A)       Raised Ant Mounds (D6) (LRR A)         Inundation Visible on Aerial Imagery (B7)       Other (explain in remarks)       Frost-Heave Hummocks         Sparsely Vegetated Concave Surface (B8)       Depth (in):       -       Present?         Present?       Yes       No       Depth (in):       -         rface Water Present?       Yes       No       Depth (in):       -         utration Present?       Yes	rimary Indicat		one requi	red: check a				• •
Water Marks (B1)       Aquatic Invertebrates (B13)       Dry-Season Water Table (C2)         Sediment Deposits (B2)       Hydrogen Sulfide Odor (C1)       Saturation Visible on Aerial Imagery         Drift Deposits (B3)       Oxidized Rhizospheres along Living Roots (C3)       Geomorphic Position (D2)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Shallow Aquitard (D3)         Iron Deposits (B5)       Recent Iron Reduction in Tilled Soils (C6)       FAC-Neutral Test (D5)         Surface Soil Cracks (B6)       Stunted or Stressed Plants (D1) (LRR A)       Raised Ant Mounds (D6) (LRR A)         Inundation Visible on Aerial Imagery (B7)       Other (explain in remarks)       Frost-Heave Hummocks         Sparsely Vegetated Concave Surface (B8)       Depth (in):       -         eld Observations:       -       Wetland Hydrology Present?       Yes         inturation Present?       Yes       No       Depth (in):       -         etar Table Present?       Yes       No       Depth (in):       -         etar Table Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:       Yes       No	imary Indicat	ater (A1)				<del>ept MLRA 1, 2, 4A</del>		• •
Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Geomorphic Position (D2)   Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Shallow Aquitard (D3)   Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5)   Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A)   Inundation Visible on Aerial Imagery (B7) Other (explain in remarks) Frost-Heave Hummocks   Sparsely Vegetated Concave Surface (B8) Other (explain in remarks) Frost-Heave Hummocks   eld Observations: Present? Yes No   Inturation Present? Yes No Depth (in): -   eter Table Present? Yes No Depth (in): -   eturation Present? Yes No Depth (in): -   Ituration Present? Yes No Depth (in): -   eturation Present? Yes No <td>imary Indicat Surface wa High Wate</td> <td>ater (A1) er Table (A2)</td> <td></td> <td></td> <td><b>&amp; 4B</b>) (B9)</td> <td><del>ept MLRA 1, 2, 4A</del></td> <td><b>2, 4A &amp; 4B</b>)</td> <td>aves (B9) (MLRA</td>	imary Indicat Surface wa High Wate	ater (A1) er Table (A2)			<b>&amp; 4B</b> ) (B9)	<del>ept MLRA 1, 2, 4A</del>	<b>2, 4A &amp; 4B</b> )	aves (B9) (MLRA
Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Shallow Aquitard (D3)   Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5)   Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A)   Inundation Visible on Aerial Imagery (B7) Other (explain in remarks) Frost-Heave Hummocks   Sparsely Vegetated Concave Surface (B8) Pepth (in): -   eld Observations: Ves No Depth (in):   intrace Water Present? Yes No Depth (in):   inturation Present? Yes No Depth (in):   eturation Present? Yes No Depth (in):   inturation Present? Yes No Depth (in):   eturation Present? Yes No   eturation Presen	imary Indicat Surface wa High Wate Saturation	ater (A1) er Table (A2) (A3)	one requi		<b>&amp; 4B</b> ) (B9) Salt Crust (B11)	•	<ul> <li>□ 2, 4A &amp; 4B)</li> <li>□ Drainage Patterns</li> </ul>	wes (B9) ( <b>MLRA</b> (B10)
Iron Deposits (B5)       □       Recent Iron Reduction in Tilled Soils (C6)       □       FAC-Neutral Test (D5)         Surface Soil Cracks (B6)       □       Stunted or Stressed Plants (D1) (LRR A)       □       Raised Ant Mounds (D6) (LRR A)         Inundation Visible on Aerial Imagery (B7)       □       Other (explain in remarks)       □       Frost-Heave Hummocks         Sparsely Vegetated Concave Surface (B8)       □       Depth (in):       -	imary Indicat Surface wa High Wate Saturation Water Mar Sediment	ater (A1) er Table (A2) (A3) ks (B1) Deposits (B2)			<b>&amp; 4B</b> ) (B9) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1	)	<ul> <li>2, 4A &amp; 4B)</li> <li>Drainage Patterns</li> <li>Dry-Season Water</li> <li>Saturation Visible of</li> </ul>	(B10) Table (C2) on Aerial Imagery
Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A)   Inundation Visible on Aerial Imagery (B7) Other (explain in remarks)   Sparsely Vegetated Concave Surface (B8)   eld Observations: arter Table Present? Yes No No Depth (in): - Aturation Present? Yes No Depth (in): - Cludes capillary fringe) Sescribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	imary Indicat Surface wa High Wate Saturation Water Mar Sediment Drift Depo	ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3)			<b>&amp; 4B</b> ) (B9) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor	) ) ig Living Roots (C3)	<ul> <li>2, 4A &amp; 4B)</li> <li>Drainage Patterns</li> <li>Dry-Season Water</li> <li>Saturation Visible c</li> <li>Geomorphic Positi</li> </ul>	(B10) Table (C2) on Aerial Imagery on (D2)
Sparsely Vegetated Concave Surface (B8)         eld Observations:         urface Water Present?       Yes         No       Depth (in):         ater Table Present?       Yes         No       Depth (in):         ituration Present?       Yes         No       Depth (in):         cludes capillary fringe)       Present?         escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	imary Indicat Surface wa High Wate Saturation Water Mar Sediment Drift Depos Algal Mat o	ater (A1) Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)			<b>&amp; 4B</b> ) (B9) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron	) ) ig Living Roots (C3) (C4)	<ul> <li>2, 4A &amp; 4B)</li> <li>Drainage Patterns</li> <li>Dry-Season Water</li> <li>Saturation Visible c</li> <li>Geomorphic Positi</li> <li>Shallow Aquitard (1)</li> </ul>	(B10) Table (C2) on Aerial Imagery on (D2) D3)
eld Observations:         urface Water Present?       Yes       No       Depth (in):       -       Wetland Hydrology Present?       Yes       No	imary Indicat Surface wa High Wate Saturation Water Mar Sediment Drift Depos Algal Mato Iron Depos	ater (A1) er Table (A2) (A3) eks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)			<b>&amp; 4B</b> ) (B9) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron Recent Iron Reduction in T	) ) ng Living Roots (C3) (C4) illed Soils (C6)	<ul> <li>2, 4A &amp; 4B)</li> <li>Drainage Patterns</li> <li>Dry-Season Water</li> <li>Saturation Visible c</li> <li>Geomorphic Positi</li> <li>Shallow Aquitard (</li> <li>FAC-Neutral Test (</li> </ul>	(B10) Table (C2) on Aerial Imagery on (D2) D3) (D5)
Atter Table Present?       Yes       No       Depth (in):       -       Wetland Hydrology Present?       Yes       No       No       Mo       Mo         atturation Present?       Yes       No       Depth (in):       -       -       Present?       Yes       No       Mo       Mo         cludes capillary fringe)       escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:       Image: Stream gauge and the stream gauge are stream gauge are stream gauge and the stream gauge are stream gau	imary Indicat Surface wa High Wate Saturation Water Mar Sediment Drift Depos Algal Mat Iron Depos Surface So Inundation	ater (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) pil Cracks (B6) visible on Aeria	I Imagery	(B7)	<b>&amp; 4B</b> ) (B9) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron Recent Iron Reduction in T Stunted or Stressed Plants	) ) ng Living Roots (C3) (C4) illed Soils (C6)	<ul> <li>2, 4A &amp; 4B)</li> <li>Drainage Patterns</li> <li>Dry-Season Water</li> <li>Saturation Visible of</li> <li>Geomorphic Positi</li> <li>Shallow Aquitard (i)</li> <li>FAC-Neutral Test (i)</li> <li>Raised Ant Mound</li> </ul>	(B10) Table (C2) on Aerial Imagery ( on (D2) D3) (D5) s (D6) (LRR A)
ater Table Present?       Yes       No       Depth (in):        Present?       Yes       No       No <t< td=""><td>imary Indicate Surface wa High Wate Saturation Water Mar Sediment Drift Depos Algal Mato Iron Depos Surface So Inundation Sparsely V</td><td>ater (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) o Visible on Aeria /egetated Conca</td><td>I Imagery</td><td>(B7)</td><td><b>&amp; 4B</b>) (B9) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron Recent Iron Reduction in T Stunted or Stressed Plants</td><td>) ) ng Living Roots (C3) (C4) illed Soils (C6)</td><td><ul> <li>2, 4A &amp; 4B)</li> <li>Drainage Patterns</li> <li>Dry-Season Water</li> <li>Saturation Visible of</li> <li>Geomorphic Positi</li> <li>Shallow Aquitard (i)</li> <li>FAC-Neutral Test (i)</li> <li>Raised Ant Mound</li> </ul></td><td>(B10) Table (C2) on Aerial Imagery ( on (D2) D3) (D5) s (D6) (LRR A)</td></t<>	imary Indicate Surface wa High Wate Saturation Water Mar Sediment Drift Depos Algal Mato Iron Depos Surface So Inundation Sparsely V	ater (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) o Visible on Aeria /egetated Conca	I Imagery	(B7)	<b>&amp; 4B</b> ) (B9) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron Recent Iron Reduction in T Stunted or Stressed Plants	) ) ng Living Roots (C3) (C4) illed Soils (C6)	<ul> <li>2, 4A &amp; 4B)</li> <li>Drainage Patterns</li> <li>Dry-Season Water</li> <li>Saturation Visible of</li> <li>Geomorphic Positi</li> <li>Shallow Aquitard (i)</li> <li>FAC-Neutral Test (i)</li> <li>Raised Ant Mound</li> </ul>	(B10) Table (C2) on Aerial Imagery ( on (D2) D3) (D5) s (D6) (LRR A)
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Wetland Hydrology Present?

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

#### DP - 7

Project/Site: Everett Smelter Plume		City/County: City of Everett Sampling date: 09/15/2022				
Applicant/Owner: Department of Ecology		State: WA Sampling Point: DP-7				
Investigator(s): Nell Lund, Sage Yuasa		Section, Township, Range: S8. T29N, R05E				
Landform (hillslope, terrace, etc): Hillslope		Local relief (concave, convex, none): <u>Concave</u> Slope (%): <u>&lt;5%</u>				
Subregion (LRR): A Lat: -	Lon	ng: Datum:				
Soil Map Unit Name: Urban Land		NWI classification: None				
Are climatic / hydrologic conditions on the site typical for this time o	f year	r? 🗆 Yes 🛛 No (If no, explain in remarks.)				
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$ significantly disturbed?		Are "Normal Circumstances" present on the site? $\square$ Yes $\square$ No				
Are Vegetation $\Box$ , Soil $\Box$ , or Hydrology $\Box$ 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 Soils Present? Yes 🛛 No		Is the Sampled Area Yes □ No ⊠				

Remarks: Drier than normal per WETS methodology. Location of 2005 study of Wetland A. Not a natural wetland. Excavated storm pond, quarry spall lined ditch drains to and from it.

No

Yes

 $\boxtimes$ 

**VEGETATION** – Use scientific names of plants.

Tree Stratum         (Plot size: 5-m diameter)           1.			Indicator Status	Dominance Test workshee Number of Dominant Species that are OBL, FACW, or FAC Total Number of Dominant Species Across all Strata:	S	3	(A) (B)
4.		= Total Cov	√er	Percent of Dominant Species that are OBL, FACW, or FAC		100%	(A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter)         1.         2.         3.         4.         5.         Herb Stratum (Plot size: 1-m diameter)			ver	FACW species FAC species FACU species	<u>Multipl</u> x 1 = x 2 = x 3 = x 4 =	ly by: 	_
1. Juncus effusus 2. Juncus tenuis	<u> </u>	Y Y	FACW FACW	Prevalence Index = B/A =			
3.       Poa sp.         4.		Y = Total Cov	FAC*	Hydrophytic Vegetatio         □       1 – Rapid Test for Hydro         □       2 – Dominance Test is >         □       3 – Prevalence Index is         □       4 – Morphological Adaptidata in Remarks or data in Remarks or	pphytic Ve 50% ≤ 3.0 <sup>1</sup> tations <sup>1</sup> (Fon a sepa lar Plants c Vegetati wetland h	egetation Provide supp arate sheet) <sup>1</sup> ion <sup>1</sup> (Explain nydrology mi	n)
Remarks: * Presumed FAC.							

SOIL

ches)	Color (moist)	%	Color (n	noist) <u>Redox F</u>	<u>-eatures</u> Type <sup>1</sup>	Loc <sup>2</sup>		Texture		Remarks
,	· /		,					Sandy gravelly		Remarks
0-8	10YR 4/2	95	7.5YR	4/6 5	С	M		loam		-
•	•	- · · · ·			vered or Coated Sar			PL=Pore Lining, N		
	I Indicators: (App	licable to						tors for Problem	atic Hy	dric Soils <sup>3</sup> :
Histic Black Hydro Deple Thick Sandy	sol (A1) Epipedon (A2) Histic (A3) gen Sulfide (A4) ted Below Dark Su Dark Surface (A12 Mucky Mineral (S4 Gleyed Matrix (S4	<u>2)</u> 51)	1) ⊠	Sandy Redox (S Stripped Matrix ( Loamy Mucky Mi Loamy Gleyed M Depleted Matrix Redox Dark Surf Depleted Dark S Redox Depressio	Ś6) ineral (F1) (except N latrix (F2) (F3) iace (F6) urface (F7)	,	□ R □ V □ O <sup>3</sup> Indica	cm Muck (A10) ed Parent Materia ery Shallow Dark ther (Explain in R ators of hydrophyti tland hydrology m sturbed or problem	Surface emarks tic vege nust be	e (TF12) s) tation and
	E Layer (if present	,		Redux Depressio						
Type:	Layer (ii present	·)·				Hydric soil		Yes 🛛	1 🔊	lo 🗆
										0 []
	(inches):					present?				
Depth emarks:						present?				
emarks: DROL( etland H			quired: check	c all that apply)		present?	Secon	ndary Indicators (2	2 or mo	re required)
emarks: DROL( etland H imary Inc Surfac	DGY ydrology Indicato dicators (minimum ce water (A1)		•	Water-Stained	Leaves (except ML			ndary Indicators (2 Water-Stained Le		1 /
emarks: DROLO etland H imary Inc Surfac High V Satura Water Sedim Drift D Algal Iron D Surfac Inunda	DGY ydrology Indicato dicators (minimum ce water (A1) Water Table (A2) ation (A3) Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4) eposits (B5) ce Soil Cracks (B6) ation Visible on Ae	of one rec		Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulfi Oxidized Rhizo Presence of Recent Iron Re Stunted or Stre	1) bbrates (B13) ide Odor (C1) ospheres along Living educed Iron (C4) eduction in Tilled So essed Plants (D1) ( <b>L</b>	<b>.RA 1, 2, 4A</b> g Roots (C3) ills (C6)	Secon	ndary Indicators (2	eaves ( ns (B10 ter Tabl e on Ae sition (D d (D3) st (D5) nds (D6	(B9) ( <b>MLRA</b> ) e (C2) rial Imagery ( 02) ( <b>LRR A</b> )
emarks: DROLO etland H imary Inco Surfac High V Satura Water Sedim Drift D Algal I Iron D Surfac Inunda Spars	DGY ydrology Indicato dicators (minimum ce water (A1) Vater Table (A2) ation (A3) Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4) eposits (B5) ce Soil Cracks (B6)	of one rec		Water-Stained & 4B) (B9) Salt Crust (B17 Aquatic Inverte Hydrogen Sulfi Oxidized Rhizo Presence of Recent Iron Re Stunted or Stree	1) bbrates (B13) ide Odor (C1) ospheres along Living educed Iron (C4) eduction in Tilled So essed Plants (D1) ( <b>L</b>	<b>.RA 1, 2, 4A</b> g Roots (C3) ills (C6)		ndary Indicators (2 Water-Stained Le <b>2, 4A &amp; 4B</b> ) Drainage Patterr Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour	eaves ( ns (B10 ter Tabl e on Ae sition (D d (D3) st (D5) nds (D6	(B9) ( <b>MLRA</b> ) e (C2) rial Imagery ( 02) ( <b>LRR A</b> )
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Appendix C

# WETLAND RATING FORMS AND FIGURES

### **RATING SUMMARY – Western Washington**

Name of wetland (or ID #): Wetland B

Date of site visit: September 12, 2022

Rated by: <u>Nell Lund, Sage Presster</u> Trained by Ecology?  $\boxtimes$ Y  $\Box$ N Date of training: <u>March 2021</u>

HGM Class used for rating: <u>Depressional</u>

Wetland has multiple HGM classes?  $\Box$  Y  $~\boxtimes$  N

**NOTE**: Form is not complete without the figures requested (*figures can be combined*). Source of base aerial photo/map: Google Earth, DOE Water Quality Atlas, Snohomish PDS Map Portal

**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
- **Category IV** Total score = 9 15

FUNCTION	Improving Water Quality		Hy	ydrolo	ogic		Habita	ət		
					Circle	the ap	propr	iate ra	tings	
Site Potential	Н	M	L	Н	M	L	Н	M	L	
Landscape Potential	H	Μ	L	H	Μ	L	Н	Μ	L	
Value	H	Μ	L	H	Μ	L	Н	Μ	L	TOTAL
Score Based on Ratings		8			8			4		20

Score for each function based on three ratings (order of ratings is not important) 9 = H,H,H



4 = M,L,L 3 = L,L,L

#### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CAT	EGORY
Estuarine	Ι	II
Wetland of High Conservation Value	I	
Bog		Ι
Mature Forest	I	
Old Growth Forest		Ι
Coastal Lagoon	Ι	II
Interdunal	I II	III IV
None of the above		$\boxtimes$

# 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	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	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	7
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	8
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	9

### **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?

 $\boxtimes$  NO – go to 2

 $\Box$  **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)** *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.

 $\boxtimes$  NO – go to 3  $\square$  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).

 $\square$  NO – go to 4  $\square$  YES – The wetland class is Lake Fringe (Lacustrine Fringe)

- 4. Does the entire wetland unit **meet all** of the following criteria?
  - $\Box$  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**.

⊠N0 – 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.* 

 $\Box$ 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.

 $\Box$ 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	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	ESTUARINE

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

DEPRESSIONAL AND FLATS WETLANDS					
Water Quality Functions - Indicators that the site functions to improve water	quality				
D 1.0. Does the site have the potential to improve water quality?					
D 1.1. Characteristics of surface water outflows from the wetland:					
$\square$ Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no					
🛛 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing o	points = 3 outlet. points = 2	2			
	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). $\Box$ 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 > 1/2 of area	points = 3	5			
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:					
This is the area that is ponded for at least 2 months. See description in manual.					
	points = 4	4			
	points = 2				
□ Area seasonally ponded is < ¼ total area of wetland	points = 0				
Total for D 1Add the points in the boxes	s above	11			
Rating of Site PotentialIf score is: $\Box$ 12-16 = H $\boxtimes$ 6-11 = M $\Box$ 0-5 = LRecord the ratio	ating on the fi	rst 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?	□ No = 0	1			
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	□ No = 0	1			
D 2.3. Are there septic systems within 250 ft of the wetland? $\Box$ 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: Industrial Section	□ No = 0	1			
Total for D 2Add the points in the boxes	s above	3			
<b>Rating of Landscape Potential</b> If score is: $\square$ <b>3 or 4 = H</b> $\square$ <b>1 or 2 = M</b> $\square$ <b>0 = L</b> <i>Record the rating on the first page</i>					
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?	⊠ No = 0	0			

**Rating of Value** If score is:  $\square 2-4 = H \square 1 = M \square 0 = L$ 

Total for D 3

D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?

(answer YES if there is a TMDL for the basin in which the unit is found)?

D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality

 $\boxtimes$  Yes = 1  $\square$  No = 0

 $\boxtimes$  Yes = 2  $\square$  No = 0

Record the rating on the first page

Add the points in the boxes above

1

2

3

Wetland name or number: Wetland B

DEPRESSIONAL AND FLATS WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream d	egradation
D 4.0. Does the site have the potential to reduce flooding and erosion?	
<ul> <li>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.</li> <li>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.</li> </ul>	ints = 4 ints = 2 ints = 1 ints = 0
<ul> <li>□ Marks of ponding between 2 ft to &lt; 3 ft from surface or bottom of outlet.</li> <li>□ Marks are at least 0.5 ft to &lt; 2 ft from surface or bottom of outlet.</li> <li>□ The wetland is a "headwater" wetland.</li> <li>□ Wetland is flat but has small depressions on the surface that trap water.</li> </ul>	etlands ints = 7 ints = 5 ints = 3 ints = 1 ints = 0
<ul><li>The area of the basin is 10 to 100 times the area of the unit.</li><li>The area of the basin is more than 100 times the area of the unit.</li><li>poi</li></ul>	ints = 5 ints = 3 ints = 0 ints = 5
Total for D 4Add the points in the boxes about	ove 8
Rating of Site Potential If score is: $\Box$ 12-16 = H $\boxtimes$ 6-11 = M $\Box$ 0-5 = LRecord the rational second	ing 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?	] No = 0 1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	] No = 0 1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (resider >1 residence/ac, urban, commercial, agriculture, etc.)?	
Total for D 5Add the points in the boxes about	ove 3
Rating of Landscape PotentialIf score is: $\square 3 = H$ $\square 1 \text{ or } 2 = M$ $\square 0 = L$ Record the rational second sec	ing on the first page
D 6.0. Are the hydrologic functions provided by the site valuable to society?	
<ul> <li>D 6.1. <u>The unit is in a landscape that has flooding problems</u>. Choose the description that best matches conditions the wetland unit being rated. Do not add points. <u>Choose the highest score if more than one condition is me</u> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding had damaged human or natural resources (e.g., houses or salmon redds): <ul> <li>■ Flooding occurs in a sub-basin that is immediately down-gradient of unit.</li> <li>■ Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>■ Flooding from groundwater is an issue in the sub-basin.</li> <li>■ 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.</li> </ul> </li> </ul>	e <u>t</u> . as s = 2 s = 1 s = 1 2 at
Explain why: points	
There are no problems with flooding downstream of the wetland.	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control p	
Total for D 6     Add the points in the boxes about	
<b>Rating of Value</b> If score is: $\square 2-4 = H \square 1 = M \square 0 = L$ Record the rational second the rational second	ing on the first page

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.         □       Aquatic bed       4 structures or more: points = 4         ⊠       Emergent       3 structures: points = 2         ⊠       Scrub-shrub (areas where shrubs have > 30% cover)       2 structures: points = 1         ⊠       Forested (areas where trees have > 30% cover)       1 structure: points = 0         If the unit has a Forested class, check if:       ⊠       The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover)         that each cover 20% within the Forested polygon       Strub	4
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods).         Permanently flooded or inundated       4 or more types present: points = 3         Seasonally flooded or inundated       3 types present: points = 2         Occasionally flooded or inundated       2 types present: points = 1         Saturated only       1 type present: points = 0         Permanently flowing stream or river in, or adjacent to, the wetland       2 points         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 <sup>2</sup> .         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         □       5 - 19 species         □       < 5 species	2
<ul> <li>H 1.4. Interspersion of habitats <ul> <li>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. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i></li> <li>Image: Comparison of the diagrams in this row are</li> <li>Image: HIGH = 3points</li> </ul></li></ul>	3

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).	
$\Box$ 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).	1
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).	
Total for H 1Add the points in the boxes above	11
Rating of Site Potential If score is: $\Box$ 15-18 = H $\boxtimes$ 7-14 = M $\Box$ 0-6 = LRecord the rating on	the first page
H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 0% + [0%/2) = 0%	
If total accessible habitat is:	
□ > 1/3 (33.3%) of 1 km Polygon points = 3	0
□ 20-33% of 1 km Polygon points = 2	
10-19% of 1 km Polygon points = 1	

	points – 1	
🖂 < 10% of 1 km Polygon	points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.		
Calculate: % undisturbed habitat + [(%moderate and low intensity land	uses)/2 = 0% + (22%/2) = 11%	
Undisturbed habitat > 50% of Polygon	points = 3	1
$\Box\;$ Undisturbed habitat 10-50% and in 1-3 patches	points = 2	T
Undisturbed habitat 10-50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3. Land use intensity in 1 km Polygon: If		
> 50% of 1 km Polygon is high intensity land use	points = (- 2)	-2
$\Box \leq$ 50% of 1 km Polygon is high intensity	points = 0	
Total for H 2	Add the points in the boxes above	-1

**Rating of Landscape Potential** If score is:  $\Box$ 4-6 = H  $\Box$ 1-3 = M  $\boxtimes$  < 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	
$\Box$ It has 3 or more priority habitats within 100 m (see next page)		
$\square$ It provides habitat for Threatened or Endangered species (any plant or animal on the stat	te or federal lists)	
It is mapped as a location for an individual WDFW priority species		0
$\square\;$ It is a Wetland of High Conservation Value as determined by the Department of Natural F	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		
$\square$ 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	
<b>Rating of Value</b> If score is: $\Box 2 = H \Box 1 = M \boxtimes 0 = L$ Rec	ord the rating on	the first page

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

Record the rating on the first page

### **WDFW Priority Habitats**

<u>Priority habitats listed by WDFW</u> (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. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

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:** <u>Old-growth west of Cascade crest</u> – 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. <u>Mature forests</u> – 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.

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

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

#### **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.         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 1.0. 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
Does the wetland meet the following criteria for Estuarine wetlands? <ul> <li>The dominant water regime is tidal,</li> <li>Vegetated, and</li> <li>With a salinity greater than 0.5 ppt</li> </ul>
<ul> <li>The dominant water regime is tidal,</li> <li>Vegetated, and</li> <li>With a salinity greater than 0.5 ppt</li> <li>Yes –Go to SC 1.1 ⊠No= Not an estuarine wetland</li> </ul>
□ With a salinity greater than 0.5 ppt □ Yes –Go to SC 1.1 ⊠ No= Not an estuarine wetland
SC 4.4. Letter en et la cittére et l'Attilitée Defense Netternet Deck. Netternet Fetrerne Deserve Netternet Asse
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? Cat. I
$\Box$ Yes = <b>Category I</b> $\Box$ No - Go to <b>SC 1.2</b>
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 Cat. I
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.
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? $\square$ Yes – Go to SC 2.2 $\square$ No – Go to SC 2.3
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?
http://www.dnr.wa.gov/NHPwetlandviewer $\Box$ Yes = Category $\Box$ $\Box$ No = Not a WHCV
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?
http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf
□Yes – Contact WNHP/WDNR and go to SC 2.4
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? $\Box$ Yes = Category I $\boxtimes$ No = Not a 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? $\Box$ Yes – Go to SC 3.3 $\boxtimes$ 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? $\Box$ Yes – Go to SC 3.3 $\boxtimes$ 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% Cat. I
cover of plant species listed in Table 4? $\Box$ Yes = Is a Category I bog $\Box$ 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?
$\Box Yes = Is a Category I bog \qquad \Box No = Is not a$

SC 4.0. Forested Wetlands	
<ul> <li>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></li> <li>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.</li> <li>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).</li> </ul>	Cat. I
□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 <sup>1</sup> / <sub>10</sub> ac (4350 ft <sup>2</sup> )	Cat. I Cat. 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	Cat I
<ul> <li>□ Grayland-Westport: Lands west of SR 105</li> <li>□ Ocean Shores-Copalis: Lands west of SR 115 and SR 109</li> <li>□ Yes - Go to SC 6.1</li> <li>□ No = not an interdunal wetland for rating</li> </ul>	Cat. II
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. 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	Cat. IV
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number: Wetland B

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### **RATING SUMMARY – Western Washington**

Name of wetland (or ID #): Wetland C

Date of site visit: September 12, 2022

Rated by: <u>Nell Lund, Sage Presster</u> Trained by Ecology?  $\boxtimes$ Y  $\Box$ N Date of training: <u>March 2021</u>

HGM Class used for rating: <u>Depressional</u>

Wetland has multiple HGM classes?  $\Box$  Y  $~\boxtimes$  N

**NOTE**: Form is not complete without the figures requested (*figures can be combined*). Source of base aerial photo/map: Google Earth, DOE Water Quality Atlas, Snohomish PDS Map Portal

**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
- **Category IV** Total score = 9 15

FUNCTION		mprov Iter Q	/ing uality	Hy	ydrolo	ogic		Habita	ət	
					Circle	the ap	oropri	iate ra	tings	
Site Potential	H	Μ	L	Н	M	L	Н	M	L	
Landscape Potential	H	Μ	L	H	Μ	L	Н	Μ	L	
Value	H	Μ	L	H	Μ	L	Н	Μ	L	TOTAL
Score Based on Ratings		9			8			4		21

Score for each function based on three ratings (order of ratings is not important) 9 = H,H,H

8 = H,H,M 7 = H,H,L 7 = H,M,M 6 = H,M,L 6 = M,M,M 5 = H,L,L 5 = M,M,L

4 = M,L,L 3 = L,L,L

#### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY	
Estuarine	Ι	II
Wetland of High Conservation Value	I	
Bog		Ι
Mature Forest	I	
Old Growth Forest	I	
Coastal Lagoon	Ι	II
Interdunal	I II	III IV
None of the above		$\boxtimes$

# 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	5
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	5
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	5
Map of the contributing basin	D 4.3, D 5.3	6
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	7
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	8
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	9

### **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?

 $\boxtimes$  NO – go to 2

 $\Box$  **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)** *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.

 $\boxtimes$  NO – go to 3  $\square$  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).

 $\square$  NO – go to 4  $\square$  YES – The wetland class is Lake Fringe (Lacustrine Fringe)

- 4. Does the entire wetland unit **meet all** of the following criteria?
  - $\Box$  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.* 

 $\Box$ 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.

 $\Box$ 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	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	ESTUARINE

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

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve wate	er 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:		
<ul> <li>Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (</li> <li>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing</li> <li>Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing.</li> <li>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.</li> </ul>	points = 3 ng outlet. points = 2	3
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic <i>(use NRCS definitions)</i> . Ye	$s = 4 \boxtimes No = 0$	0
D 1.3. <u>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Coward</u>		
✓ Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
$\square$ Wetland has persistent, ungrazed, plants > 1/2 of area	points = 3	5
Wetland has persistent, ungrazed plants > 1/10 of area	points = 1	5
$\Box$ Wetland has persistent, ungrazed plants < 1/10 of area	points = 0	
<ul> <li>D 1.4. <u>Characteristics of seasonal ponding or inundation</u>: <i>This is the area that is ponded for at least 2 months. See description in manual.</i></li></ul>	points = 4 points = 2 points = 0	4
Total for D 1 Add the points in the bo	xes above	12
Rating of Site Potential If score is: $\square$ 12-16 = H $\square$ 6-11 = M $\square$ 0-5 = LRecord the	rating on the fi	irst 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?	1 🗌 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	1 🗌 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? $\Box$ 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: Industrial, human feces Section 2.1-D 2.3?	1 🗌 No = 0	1
Total for D 2Add the points in the bo	xes above	3
Rating of Landscape PotentialIf score is: $\square 3 \text{ or } 4 = H$ $\square 1 \text{ or } 2 = M$ $\square 0 = L$ Record the r	rating on the firs	st 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?	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? $\square$ 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	2 □ No = 0	2

**Rating of Value** If score is:  $\square 2-4 = H$   $\square 1 = M$   $\square 0 = L$ 

Total for D 3

(answer YES if there is a TMDL for the basin in which the unit is found)?

Record the rating on the first page

3

 $\boxtimes$  Yes = 2  $\square$  No = 0

Add the points in the boxes above

Wetland name or number: Wetland C

DEPRESSIONAL AND FLATS WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream de	gradation
D 4.0. Does the site have the potential to reduce flooding and erosion?	
<ul> <li>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.</li> <li>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.</li> </ul>	ts = 4 ts = 2 ts = 1 ts = 0
<ul> <li>□ Marks of ponding between 2 ft to &lt; 3 ft from surface or bottom of outlet.</li> <li>○ Marks are at least 0.5 ft to &lt; 2 ft from surface or bottom of outlet.</li> <li>○ The wetland is a "headwater" wetland.</li> <li>○ Wetland is flat but has small depressions on the surface that trap water.</li> </ul>	lands ts = 7 ts = 5 ts = 3 ts = 3 ts = 1 ts = 0
<ul> <li>☑ The area of the basin is 10 to 100 times the area of the unit.</li> <li>□ The area of the basin is more than 100 times the area of the unit.</li> </ul>	ts = 5 ts = 3 ts = 0 ts = 5
Total for D 4 Add the points in the boxes above	/e 10
Rating of Site Potential If score is: $\Box$ 12-16 = H $\boxtimes$ 6-11 = M $\Box$ 0-5 = LRecord the rating	g 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? $\Box$ Yes = 1 $\Box$ N	No = 0 1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? $\Box$ Yes = 1 $\Box$ N	No = 0 1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (resident >1 residence/ac, urban, commercial, agriculture, etc.)?       ⊠Yes = 1       N	
Total for D 5Add the points in the boxes above	/e 3
Rating of Landscape Potential If score is: $\square 3 = H$ $\square 1 \text{ or } 2 = M$ $\square 0 = L$ Record the rating	g on the first page
D 6.0. Are the hydrologic functions provided by the site valuable to society?	
<ul> <li>D 6.1. <u>The unit is in a landscape that has flooding problems</u>. <i>Choose the description that best matches conditions at the wetland unit being rated.</i> Do not add points. <u>Choose the highest score if more than one condition is met.</u> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): <ul> <li>■ Flooding occurs in a sub-basin that is immediately down-gradient of unit.</li> <li>■ Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>■ Flooding from groundwater is an issue in the sub-basin.</li> <li>■ 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.</li> </ul> </li> <li><i>Explain why:</i></li></ul>	= 2 = 1 = 1 = 2 = 2 = 2
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control pla □ Yes = 2 □ X	
Total for D 6 Add the points in the boxes above	

**Rating of Value** If score is:  $\square 2-4 = H \square 1 = M \square 0 = L$ 

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.         □ Aquatic bed       4 structures or more: points = 4         ⊠ Emergent       3 structures: points = 2         ⊠ Scrub-shrub (areas where shrubs have > 30% cover)       2 structures: points = 1         ⊠ Forested (areas where trees have > 30% cover)       1 structure: points = 0         If the unit has a Forested class, check if:       □         □ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover)       that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods).         Permanently flooded or inundated       4 or more types present: points = 3         Seasonally flooded or inundated       3 types present: points = 2         Occasionally flooded or inundated       2 types present: points = 1         Saturated only       1 type present: points = 0         Permanently flowing stream or river in, or adjacent to, the wetland       2 points         Seasonally flowing stream in, or adjacent to, the 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 <sup>2</sup> .         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         ∅       5 - 19 species         ∅       < 5 species	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. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points  Low = 1 point  All three diagrams in this row are HIGH = 3points	2

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).	
$\Box$ 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).	
$\Box$ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree	1
slope) <b>OR</b> signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed).	
$\Box$ 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).	
Total for H 1Add the points in the boxes above	7
Rating of Site Potential If score is: $\Box$ 15-18 = H $\boxtimes$ 7-14 = M $\Box$ 0-6 = LRecord the rating on the second the sec	the first page
H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 0% + [0%/2) = 0%	
If total accessible habitat is:	
□ > 1/3 (33.3%) of 1 km Polygon points = 3	0
20-33% of 1 km Polygon points = 2	
□ 10-19% of 1 km Polygon points = 1	

🖂 < 10% of 1 km Polygon	points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.		
Calculate: % undisturbed habitat + [(%moderate and low intensity land u	ses)/2 = 0% + (22%/2) = 11%	
Undisturbed habitat > 50% of Polygon	points = 3	1
$\Box\;$ Undisturbed habitat 10-50% and in 1-3 patches	points = 2	T
Undisturbed habitat 10-50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3. Land use intensity in 1 km Polygon: If		
> 50% of 1 km Polygon is high intensity land use	points = (- 2)	-2
$\Box \leq$ 50% of 1 km Polygon is high intensity	points = 0	
Total for H 2	Add the points in the boxes above	-1

Rating of Landscape Potential If score is: 24-6 = 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	2	
$\Box$ It has 3 or more priority habitats within 100 m (see next page)		
$\square$ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lis	sts)	
It is mapped as a location for an individual WDFW priority species	0	
$\square$ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources		
$\Box$ 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	L	
Site does not meet any of the criteria above points = 0	)	
Rating of Value If score is: $\Box 2 = H \Box 1 = M \Box 0 = L$ Record the rating	Record the rating on the first page	

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015 for a the rating on the j

### **WDFW Priority Habitats**

<u>Priority habitats listed by WDFW</u> (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. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

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.

 $\Box$  **Old-growth/Mature forests:** <u>Old-growth west of Cascade crest</u> – 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. <u>Mature forests</u> – 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.

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

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

#### **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
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 <b>SC 1.1</b> ⊠No= <b>Not an estuarine wetland</b>	
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?	Cat. I
□Yes = Category I	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
$\Box$ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. I
less than 10% cover of non-native plant species. (If non-native species are Spartina, see page 25)	
$\Box$ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or	Cat II
un- mowed grassland.	Cat. II
□ The wetland has at least two of the following features: tidal channels, depressions with open water,	
or contiguous freshwater wetlands.	
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? $ ext{ Ves}$ – Go to SC 2.2 $ ext{ No}$ – Go to SC 2.3	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
http://www.dnr.wa.gov/NHPwetlandviewer	<b>6</b> -1-1
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	Cat. I
http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf	
$\Box \text{Yes} - \text{Contact WNHP/WDNR and go to SC 2.4}  \boxtimes \text{No} = \text{Not a WHCV}$	
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?	
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? $\Box$ Yes – Go to <b>SC 3.3</b> $\boxtimes$ No – Go to <b>SC 3.2</b>	
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? $\Box$ Yes – Go to SC 3.3 $\Box$ 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%	Cat. I
cover of plant species listed in Table 4? $\Box$ Yes = Is a Category I bog $\Box$ No – Go to SC 3.4	
<b>NOTE:</b> 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	

SC 4.0. Forested Wetlands	
<ul> <li>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></li> <li>□ 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.</li> <li>□ 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).</li> <li>□ Yes = Category I ⊠No = Not a forested wetland for this section</li> </ul>	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) □ 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 <sup>1</sup> / <sub>10</sub> ac (4350 ft <sup>2</sup> )	Cat. I Cat. 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	Cat I
<ul> <li>Grayland-Westport: Lands west of SR 105</li> <li>Ocean Shores-Copalis: Lands west of SR 115 and SR 109</li> <li>Yes – Go to SC 6.1</li> <li>No = not an interdunal wetland for rating</li> <li>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</li> </ul>	Cat. II
for the three aspects of function)?       Image: Yes = Category I       Image: 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?       Image: Yes = Category II       Image: 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 Category of wetland based on Special Characteristics	Cat. IV
If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number: Wetland C

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## 2014 Ecology Wetland Rating Form Figures

### EVERETT SMELTER PLUME

Wetland B (Depressional)1
Figure 1. Cowardin plant classes – D1.3, H1.1, H1.41
Figure 2. Hydroperiods, outlet(s), and 150-ft area – D1.1, D1.4, H1.2, D2.2, D5.2
Figure 3. Map of the contributing basin – D4.3, D5.33
Wetland C (Depressional)4
Figure 4. Cowardin plant classes – D1.3, H1.1, H1.44
Figure 5. Hydroperiods, outlet(s), and 150-ft area – D1.1, D1.4, H1.2, D2.2, D5.2
Figure 6. Map of the contributing basin – D4.3, D5.36
Combined Figures (Depressional)
Figure 7. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3
Figure 8. Screen-capture of 303(d) listed waters in basin – D3.1, D3.2
Figure 9. Screen-capture of TMDL map for sub-basin in which unit is found – D3.3

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# WETLAND B (DEPRESSIONAL)

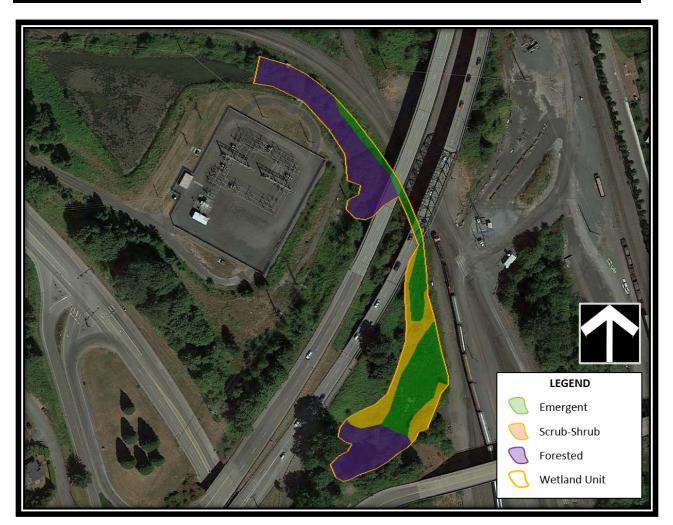


Figure 1. Cowardin plant classes – D1.3, H1.1, H1.4

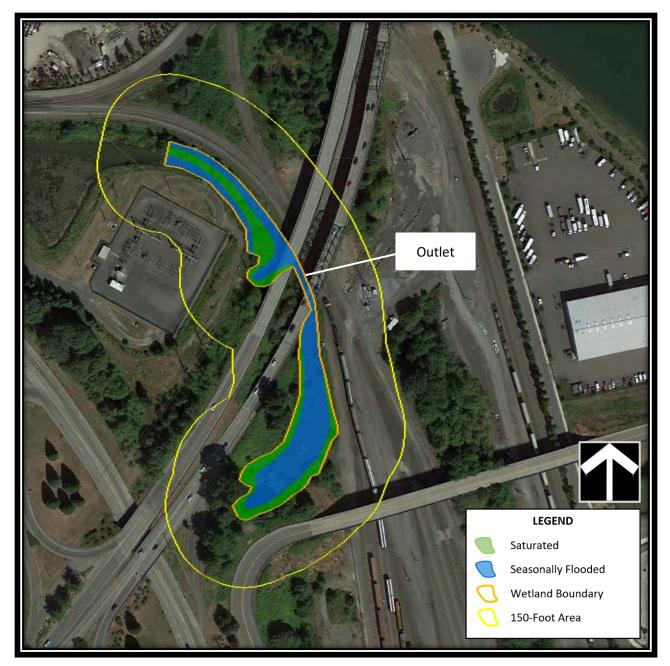


Figure 2. Hydroperiods, outlet(s), and 150-ft area – D1.1, D1.4, H1.2, D2.2, D5.2

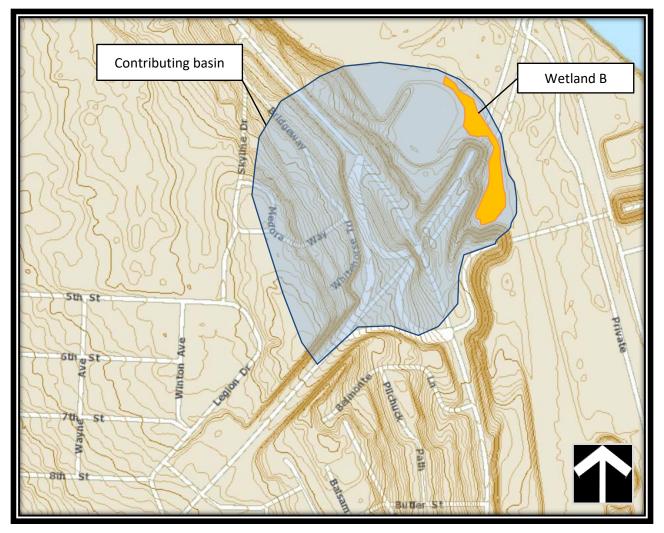


Figure 3. Map of the contributing basin – D4.3, D5.3

# WETLAND C (DEPRESSIONAL)

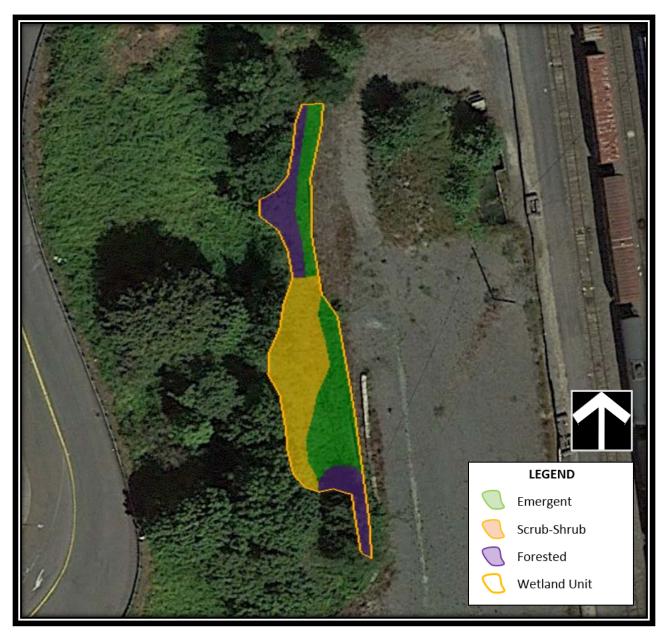


Figure 4. Cowardin plant classes – D1.3, H1.1, H1.4

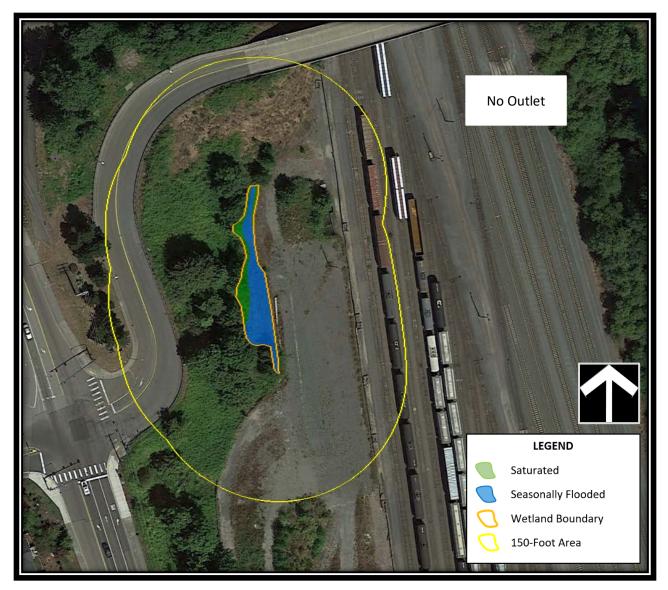


Figure 5. Hydroperiods, outlet(s), and 150-ft area – D1.1, D1.4, H1.2, D2.2, D5.2

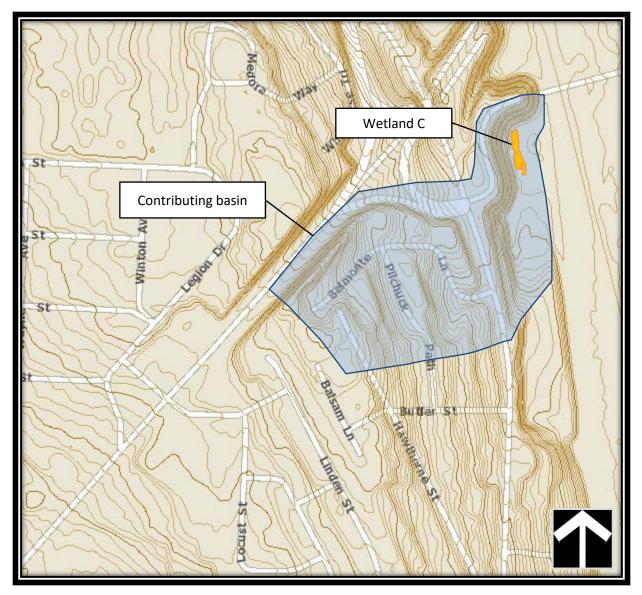


Figure 6. Map of the contributing basin – D4.3, D5.3

# COMBINED FIGURES (DEPRESSIONAL)

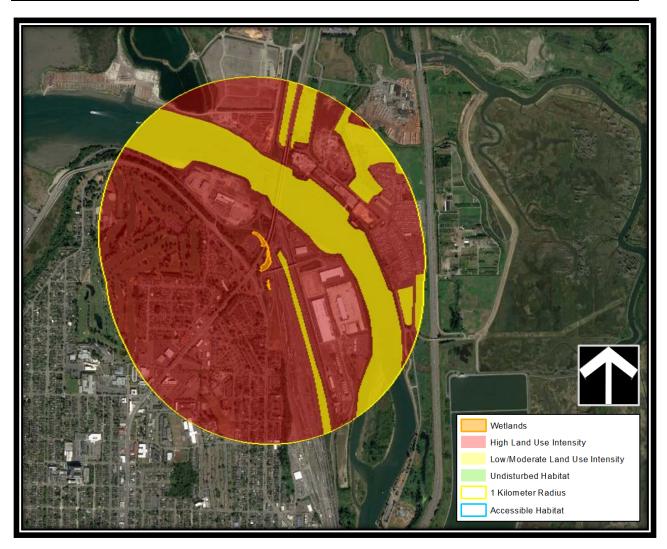


Figure 7. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3

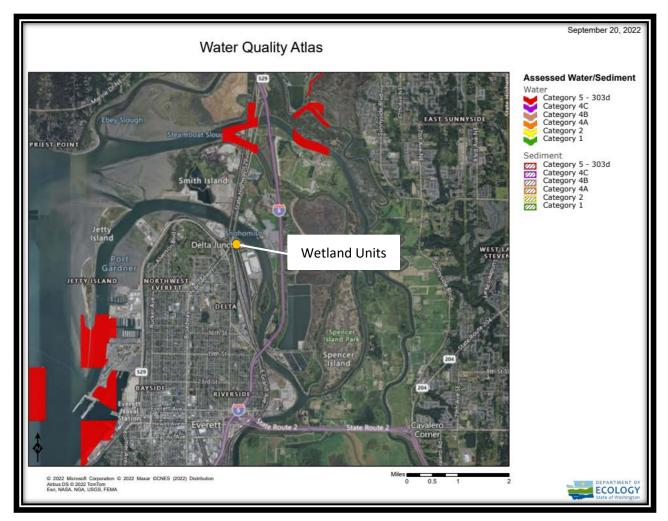


Figure 8. Screen-capture of 303(d) listed waters in basin – D3.1, D3.2



Figure 9. Screen-capture of TMDL map for sub-basin in which unit is found – D3.3