

June 22, 2017

Molly Reed PSE Energize Eastside 355 110th Avenue NE Bellevue, WA 98004

Re: Richards Creek Substation property, Wetland and Stream Delineation Report

The Watershed Company Reference Number: 111103.6

Dear Molly:

On March 15th and 27th, a wetland and stream delineation study was completed at the Richards Creek Substation parcel located at SE 30th Street in the city of Bellevue (parcel number 1024059130). The purpose of the study was to delineate wetland and stream boundaries on the parcel that could potentially encumber the planned Richards Creek Substation to be developed. This delineation study will update the findings of previous delineation studies conducted on the parcel. This report presents the findings of the 2017 re-delineation effort and details applicable local, state and federal regulations. The following attachments are included:

- Survey-based Wetland Delineation Map
- Wetland Determination Data Forms
- 2004 and 2014 Ecology Wetland Rating Forms and Figures

Methods

Public-domain information on the subject properties was reviewed for this delineation study and include the following:

- USDA Natural Resources Conservation Service, Web Soil Survey (WSS) application
- U.S. Fish and Wildlife Service National Wetland Inventory (NWI) maps
- Washington Department of Fish and Wildlife interactive mapping programs (PHS on the Web, SalmonScape)
- Washington Department of Natural Resources, Forest Practices Application Mapping Tool (FPARS)
- King County's GIS mapping website (iMAP)

Climatic conditions for precipitation were determined to be normal using the WETS table methodology from the USDA NRCS document Part 650 Engineering Field Handbook, National Engineering Handbook, Hydrology Tools for Wetland Identification and Analysis, Chapter 19 (September 2015). The Seattle-Tacoma International AP station as recorded by NOAA (http://agacis.rcc-acis.org/) was used as a source for precipitation data. The WETS table methodology uses climate data from the three months prior to the site visit month to determine if normal conditions are present.

Wetlands

The study area was evaluated for wetlands using methodology from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Regional Supplement) (US Army Corps of Engineers [Corps] May 2010). Wetland boundaries were determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Regional Supplement were determined to be wetland. Soil, vegetation, and hydrologic parameters were sampled at several locations along the wetland boundaries to make the determination. Data points were marked with yellow- and black-striped flagging. Wetland boundaries were marked with pink- and black-striped flagging.

Delineated wetlands were classified using both 2014 *Update to the Western Washington Wetland Rating System* (Publication #14-06-029) (hereafter 2014 Rating System) and the *Washington State Wetland Rating System for Western Washington, Version 2* (Publication #04-06-025) (hereafter 2004 Rating System).

Streams

The study area was also evaluated for streams based on the presence or absence of an ordinary high water mark (OHWM) as defined by the Revised Code of Washington (RCW) 90.58.030 and the Washington Administrative Code (WAC) 220-660-030. The OHWM edge was located by examining the bed and bank physical characteristics and vegetation to ascertain the water elevation for mean annual floods. Stream boundaries were marked with blue- and white-striped flagging.

Streams were classified according to City of Bellevue regulations.

Mapping

Delineation and data point flags were survey-located in May 2017. The attached Wetland Delineation Figure was created using the AutoCAD file of the survey-located flags.

Findings

The subject parcel is approximately 8.5 acres in size and located in the Kelsey Creek/Mercer Slough drainage basin in the Cedar-Sammamish Water Resource Inventory Area (WRIA 8); Section 10 of Township 24N, Range 05E of the Public Land Survey System. The property contains an existing gravel maintenance yard and forested vegetation; it is encumbered by wetland and stream critical areas.

Previous delineation studies conducted by The Watershed Company have occurred on and adjacent to the property. The first of these delineation studies occurred in 2012 followed by supplemental delineation in 2014 associated with work detailed in the Lakeside Substation Rebuild Critical Areas Report. Then, in October 2016 and February 2017, delineation work occurred near the southwest corner of the parcel as part of the Richards Creek culvert replacement and stream restoration studies on the property.

A total of five wetlands and two streams are located on or adjacent to the Richards Creek Substation property that may encumber proposed activities on the parcel. A summary of these features, including delineation date and previously-used names, is provided in Table 1 below. The information contained in this report is meant to supersede any discrepancies that may exist between new information and old reports.

Critical Area	Recent Delineation Date	Other Names and Delineation Dates
Wetland A	March 2017	formerly Wetland BDC (2012) and Wetland BC (2014)
Wetland B	March 2017	formerly Wetland E (2012, 2014)
Wetland C	March 2017	formerly Wetland A (2012)
Wetland D	October 2016	formerly Wetland FG (2012)
Wetland H	February 2017	also known as JB01 in Energize Eastside study (July 2015), previously delineated in 2012
Stream A	March 2017	<i>no other names,</i> previously delineated in 2012
Stream C	October 2016 and February 2017	<i>no other names,</i> previously delineated in 2012

Table 1. Summary of potentially encumbering critical areas located on the Richards Creek parcelincluding most recent delineation date and formerly-reported critical area name.

Wetland A

Wetland A is a slope wetland located in the northwest portion of the parcel. Although parts of the wetland are contiguous with adjacent stream segments, the primary source of hydrology to the wetland is from groundwater seeps. Wetland A generally slopes in one direction draining to streams without impounding water.

Wetland A includes forested, shrub, and emergent Cowardin vegetation communities. Common vegetation observed throughout the wetland includes red alder, western red cedar, black cottonwood, willow species, salmonberry, red-osier dogwood, skunk cabbage, lady fern, reed canarygrass, and giant horsetail among others. The diagnostic soil layers (at DP-1) are a moderately dark brown (10YR 3/2) and a depleted greyishbrown (10YR 4/2) gravelly sandy loam and sandy loam. Both layers contain redoximorphic features (RMFs) of 7.5YR 3/4 which become more prevalent in the lower layer (8-16 inches). Soils were saturated to the surface and a water table was present at eight inches below the ground surface during the site visit.

Wetland A rates as a Category III wetland under both the 2004 and 2014 Rating Systems. Rating forms are attached.



Figure 1. View of forested portion of Wetland A (in background), facing northwest from nonwetland area (February 2012).

Wetland B

Wetland B is a small slope wetland located in the northeast portion of the property. The wetland contains palustrine forested and palustrine scrub-shrub Cowardin vegetation communities dominated by Pacific willow, red alder, salmonberry, Himalayan blackberry, giant horsetail, and lady fern. The diagnostic soil is a dark brown (2.5Y 3/1) sandy loam containing 7.5YR 3/4 RMFs (DP-3). Soils were saturated to the surface and a water table was present at four inches below the ground surface during the site visit. Shallow surface water ponding was also observed near the test pit.

Wetland B rates as a Category III wetland under both the 2004 and 2014 Rating Systems.



Figure 2. Wetland B, facing southeast (March 2017).

Wetland C

Wetland C is a small forested slope wetland located on the eastern parcel boundary at the north end adjacent to Stream A. Stream A flows within the boundaries of Wetland C but does not provide hydrology to the wetland unit; hydrology is provided by groundwater seeps. It is dominated by a palustrine forested Cowardin vegetation community including red alder, black cottonwood, salmonberry, and skunk cabbage. The diagnostic soil layer is a grey-blue (10EG 5/1) gravelly sandy clay loam with 10YR 4/6 RMFs present in the matrix and pore linings (DP-5). Soils were saturated to the surface and a high water table was present at eight inches below the ground surface.

Wetland C rates as a Category III wetland under both the 2004 and 2014 Rating Systems.



Figure 3. Wetland C, facing north (March 2017).

Wetland D

Wetland D is riverine wetland located in the southwest corner of the property. It is contiguous with Stream C. A constructed stormwater detention pond is located immediately north of this wetland and not included within its boundaries. Overbank flooding of Stream C is the primary source of hydrology to the wetland. Twin culverts beneath the access road function as the wetland outlet (Figure 4).



Figure 4. Wetland D, facing southwest adjacent to Richard's Creek substation access drive (October 2016).

Wetland D contains a forested Cowardin vegetation community dominated by Pacific willow, red alder, lady fern, small-fruited bulrush, reed canarygrass and giant horsetail with some Himalayan blackberry rooted along the fringes. The diagnostic soil layer is a very dark gray (10YR 3/1) loamy sand with 10 percent prominent RMFs (DP-9). Soils were saturated to the surface with a water table present at twelve inches below the soil surface.

Wetland D rates as a Category II wetland under both the 2004 and 2014 Rating Systems.

Wetland H

Wetland H is a slope wetland located on the south end of the property and extending offsite to the south. Despite being bordered on the west side by Stream C, its primary source of hydrology is groundwater seeps. Wetland H contains emergent, scrub-shrub, and forested Cowardin vegetation communities. Vegetation is dominated by reed canarygrass, birdsfoot trefoil, giant horsetail, Himalayan blackberry, willow species, and red alder. Sampled soils were a dark brown (10YR 2/1) sandy clay loam and very dark gray (2.5Y 3/1) loamy sand (DP-35); and smelled of hydrogen sulfide. Soils were saturated to the surface and a high water table was present at eight inches below the soil surface.

Richards Creek Substation Delineation Report Molly Reed, PSE June 2017 Page 9



Wetland H rates as a Category III wetland under both the 2004 and 2014 Rating Systems.

Figure 7. Wetland H, facing south from northern boundary (February 2017).

Stream A

Stream A is a seasonal stream that flows through Wetland C and into Wetland A. In the powerline corridor, channel loses definition and appears to go below the ground through old drainage structures. The stream substrate is composed of sand and gravel, meanders moderately, and averages five feet wide at bankfull width. The left and right banks are well vegetated with trees, shrubs, and herbaceous plants. King County iMap depicts the origins of Stream A approximately 600 feet east of the PSE parcel. Fish cannot access the portion of Stream A located on the east side of the parcel, upstream of the point where the channel transitions to sheetflow and loses definition.

Stream C

The King County iMap database depicts Stream C as originating in two tributaries southeast of the PSE property and running through Wetlands H, D and A. This delineation picks up the stream in Wetland D where it flows northwest to the southwest corner of the property. Here the stream flows through a culvert beneath the PSE property access drive and flows north along the west property boundary, largely on the adjacent property. It collects water from Stream A at the northwest corner of the property and then flows west, where the iMap database shows it to continue roughly

west in a mix of natural channels and pipes or culverts. The stream substrate is composed of sand, gravel, and cobbles. The stream meanders slightly and averages six feet wide at bankfull width.

Stream C flows year-round. Downstream of the culvert, the right bank was delineated and flagged; the left bank in this area is bounded by fill from the adjacent development. The right bank is bordered by vegetated buffer and Wetland A, which drains to the stream. Upstream of the culvert, both the right and left bank were flagged. Here the stream flows through Wetland D. The City of Bellevue stream inventory map depicts Stream C as Type F, or fish bearing, and WDFW Priority Habitats and Species maps indicate the presence of resident cutthroat trout in the stream.

Local Regulations

Critical Areas within the City of Bellevue are regulated under Part 20.25H of the City of Bellevue Land Use Code (LUC).

Wetlands

According to LUC 20.25H.095, wetlands are classified based on the 2004 Rating System. Bellevue is in the process of updating the city code to require Ecology's 2014 Rating System update. Furthermore, both state and federal agencies use the 2014 version of the rating system to evaluate direct impacts to wetlands. As this project may directly impact wetland area, both rating systems published by Ecology were used to rate wetlands. For the purposes of discussing Bellevue's regulations, only the 2004 wetland ratings will be presented here.

As stated previously, Wetlands A, B, C, and H classify as Category III slope wetlands; Wetland D is considered to be a Category II riverine wetland. Buffer widths are determined based upon the "developed" or "undeveloped" condition of the site, the water quality and habitat scores generated using the 2004 Rating System, and the wetland category. The Richards Creek parcel is considered undeveloped. Required buffer widths are presented in Table 2.

The proposed Richards Creek Substation is not considered a building or structure that would require an additional 15-foot building setback from critical area buffers. Building setbacks are not included this report or associated delineation map.

Watland	HGM Class	200	4 Ecology We		Standard		
Name		Water Quality	Hydrologic Function	Habitat	Total	Category	Width (feet)
А	Slope	6	10	21	37	III	110
В	Slope	6	12	16	34	III	60
С	Slope	6	12	20	38		110
D	Riverine	20	22	21	63	II	110
Н	Slope	6	16	21	43	III	110

Table 2. Summary of 2004 wetland ratings, classifications, and required standard buffer widths.

Streams

Streams in Bellevue are rated as one of four types based on inventory status as Shorelines of the State, fish use, and connectivity to other streams. As with wetlands, stream buffer widths are determined based on a combination of the stream type and whether the site is "developed" or "undeveloped."

None of the onsite streams is a Shoreline of the State due to low flow volumes. The upstream (and onsite) portion of Stream A is a Type N water, as it does not contain fish or fish habitat and is not connected by an above-ground channel to fish-bearing waters. Type N waters on undeveloped sites in Bellevue require regulatory buffers of 50 feet. Stream C is rated as Type F, and requires a 100-foot buffer.

State and Federal Regulations

Wetlands are also regulated by the Army Corps of Engineers under Section 404 of the Clean Water Act. Any filling of Waters of the U.S., including wetlands (except isolated wetlands), would require notification and permits from the Corps. Wetland B may be considered isolated. A formal isolated status inquiry can be requested from the Corps through the Jurisdictional Determination process.

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. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology.

In general, neither the Corps nor Ecology regulates wetland buffers, unless direct wetland impacts are proposed. When direct impacts are proposed, mitigated wetlands

may be required to employ buffers based on Corps and Ecology joint regulatory guidance.

Disclaimer

The information contained in this letter 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.

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

Sincerely,

KatzGrandall

Katy Crandall, WPIT Ecologist / Arborist

Enclosures



STREAM AND WETLAND DELINEATION FIGURE

PSE RICHARDS CREEK 230kV SUBSTATION

WETLAND BOUNDARY (APPROXIMATE)

S	750 K) Six irkla p 4 w.w en c	kth S and V 25.8 ater ce	Stre WA 322 she &	eet 98 .52 edc	Sc 303 242 20.0 ○ ∈	out 33	h m ig	n
RICHARDS CREEK SUBSTATION			PREPARED FOR: PUGET SOUND ENERGY			13/10 COLITHEACT 20TH STREET		RELLEVITE WA GRADE	
>2 X	LJM	LJM							_
SUBMITTALS & REVISIONS	1 05-10-2017 DELINEATION FIGURE	2 05-15-2017 FIRST ROUND DRAFT EDITS							
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THE WATERSHED COMPANY



Wetland Hydrology Present?

WETLAND DETERMINATION DATA FORM

Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

DP-1

Project Site:	RICHARDS CRE		BSTA	TION					Sampling Date:	3/15/201	17		
Applicant/Owner.	PUGET SOUND	ENERG	11						Sampling Point.				
Investigator:	KC, LM								City/County:	BELLE	VUE/KING		
Sect., Township, Range:	S 10 T	24	R	05					State:	WA			
Landform (hillslope, terrace,	etc): HILLSLOPE					Slope (%): 3		Local relief (concave	, convex, no	one): NONE		
Subregion (LRR): A						Lat: 47	.5838		Lo	ong: -122	.1585	Datum:	
Soil Map Unit Name: EvD	VERY GRAVELLY	SAND	Y LO/	AM, 15	5-30 P	ERCEN	r slo	PES	NWI classification:	I/A			
Are climatic/hydrologic condi	itions on the site typic	al for this	s time o	of year?	? [Yes		No	(If no, explain in rem	arks.)			
Are "Normal Circumstances"	present on the site?					🛛 Yes		No					
Are Vegetation □. Soil □. or	Hvdroloav 🗆 signific	antly dist	urbed	?									
Are Vegetation \Box , Soil \Box , or	Hydrology natural	y problei	matic	-					(If needed, explain a	ny answers	in Remarks.)		
SUMMARY OF FINDING	SS – Attach site m	ap sho	wing	sampl	ling po	oint loca	tions	, trans	sects, important fea	atures, etc	.		
Hydrophytic Vegetation Pres	sent?	Yes	\boxtimes	No									
Hydria Saila Bragont?		Vee		No									, !
Hydric Solis Flesent?		res		INU		Is the S	Sampli	ng Poi	nt within a Wetland?	Yes	X	No 🔄	

No 🗌

Remarks:	WETLAND A IN PIT, SOUTHEAST CORNER OF WETLAND

Yes 🖂

VEGETATION -	Use	scientific	names	of	plants.
				•••	

1. Salix sp. 10 Y FAC Number of Dominant Species		
that are OPL FACIN or FACI	3	
	<u> </u>	(A)
3. Total Number of Dominant Species Across All Strata:	3	(D)
4. 10 = Total Cover Percent of Dominant Species		(B)
that are OBL, FACW, or FAC:	100	(^ / D)
Sapling/Shrub Stratum (Plot size: 3m diam.)		(A/D)
1. Rubus armeniacus 100 Y FAC Prevalence Index Worksheet		
2. Rubus spectabilis 3 N FAC Total % Cover of	Multiply b	ργ
3. OBL species	x 1 =	
4. FACW species	x 2 =	
5. FAC species	x 3 =	
= Total Cover FACU species	x 4 =	
UPL species	x 5 =	
Herb Stratum (Plot size: 1m diam.) Column totals (A)	(B)	
1. Equisetum telmateia 30 Y FACW		
2. Prevalence Index = B / A =		
3.		
4. Hydrophytic Vegetation Indicato	ors	_
4. Hydrophytic Vegetation Indicato 5. ⊠ Dominance test is > 50%	ors	
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Profile Descr	iption: (Describe	to the de	pth need	led to document the in	ndicator or con	irm the absen	ce of indicator	s.)	
Depth	N	Aatrix			Redox Fea	itures			
(inches)	Color (mois	st)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8	10 YR 3/2	ę	95	7.5 YR 3/4	5	С	м	GRAVELLY SANDY	
8-16	10 YR 4/2	٤	85	7.5 YR 3/4	15	С	м	SANDY LOAM	
¹ Type: C=Cor	centration, D=Dep	pletion, RM	I=Reduc	ed Matrix, CS=Coverec	or Coated Sand	I Grains ² Lo	c: PL=Pore Linir	g, M=Matrix	
Hydric Soil Ir	ndicators: (Applic A1)	cable to al	I LRRs,	unless otherwise note Sandy Redox (S5)	ed.)	Indi □	icators for Prob 2cm Muck (A10	lematic Hydric Soils ³	
Histic Epi	pedon (A2)			Stripped Matrix (S6)			Red Parent Ma	terial (TF2)	
Black Hist	tic (A3)			Loamy Mucky Mineral ((F1) (except ML	RA 1) 🗌	Other (explain i	n remarks)	
Hydrogen	Sulfide (A4)			Loamy Gleyed Matrix (F2)				
Depleted	Below Dark Surface	ce (A11)	\boxtimes	Depleted Matrix (F3)					
Thick Dar	k Surface (A12)		\boxtimes	Redox Dark Surface (F	6)	³ Inc	dicators of hydro	phytic vegetation and wetland	hydrology must
🗌 Sandy Mu	ucky Mineral (S1)			Depleted Dark Surface	(F7)	be p	present, unless c	listurbed or problematic	
□ Sandy Gle	eyed Matrix (S4)			Redox Depressions (F8	3)				
Restrictive La	yer (if present):					Undein			
Death (in share	\ -					Hydric	soli present?	Yes 📉	NO
Depth (inches	5):								
HYDROLOG	GY								
Wetland Hyd	rology Indicators	s: of one requ	ired: che	ck all that apply):			Secondary	Indicators (2 or more require	d).
□ Surface v	water (A1)	n ono roqu		Sparsely Vegetated Co	ncave Surface (B	38)	□ Wa	ter-Stained Leaves (B9) (MLR	A 1, 2, 4A & 4B)
🛛 High Wat	ter Table (A2)			Water-Stained Leaves	except MLRA 1	, 2, 4A & 4B) (B9) 🗌 Dra	inage Patterns (B10)	,
Saturatio	n (A3)			Salt Crust (B11)	•		, Dry	-Season Water Table (C2)	
Water Ma	arks (B1)			Aquatic Invertebrates (E	313)		□ Sat	uration Visible on Aerial Image	ery (C9)
Sediment	t Deposits (B2)			Hydrogen Sulfide Odor	(C1)		🗌 Geo	morphic Position (D2)	
Drift Dep	osits (B3)			Oxidized Rhizospheres	along Living Ro	ots (C3)	🗌 Sha	llow Aquitard (D3)	
Algal Mat	t or Crust (B4)			Presence of Reduced I	ron (C4)	. ,	🗆 FAG	C-Neutral Test (D5)	
□ Iron Depo	osits (B5)			Recent Iron Reduction	in Tilled Soils (C	6)	🗌 Rai	sed Ant Mounds (D6) (LRR A)
□ Surface S	Soil Cracks (B6)			Stunted or Stressed Pla	ants (D1) (LRR A	.)	Fro:	st-Heave Hummocks	
Inundatio (B7)	n Visible on Aeria	I Imagery		Other (explain in remar	ks)	-			
Field Observ	ations								
Surface Wate	r Present? Ye	es 🗆	No [Depth (in):					
Water Table F	Present? Ye	es 🗵	No [Depth (in):	8	Wetland H	lydrology Prese	ent? Yes	No 🗌
Saturation Pre (includes capi	esent? Yo llary fringe)	es 🛛	No [Depth (in):	0-16	Trettand	., a. ology i 1636		
Describe Rec	orded Data (strear	m gauge, n	nonitorin	g well, aerial photos, pr	evious inspectio	ns), if available	:		

Remarks:



Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

DP-2

Project Site:	RICHARDS C	REEK SU	BSTA	TION					Sampling Date:	3/15/2	2017		
Applicant/Owner:	PUGET SOU	ND ENER(GY						Sampling Point:	DP-	2		
Investigator:	KC, LM								City/County:	BEL	LEVUE/KING		
Sect., Township, Range:	S 10	T 24	R	05					State:	WA			
Landform (hillslope, terrace,	etc): HILLSLO	PE				Slope (%): <	5	Local relief (concave	, convex	, none): NONE		
Subregion (LRR): A						Lat: 47	.5838		Lo	ong: -1	22.1585	Datum:	
Soil Map Unit Name: EvD	VERY GRAVE		OY LO	AM, 15	5-30 P	ERCENT	r slo	PES	NWI classification:	I/A			
Are climatic/hydrologic cond	itions on the site t	ypical for thi	is time (of year	? 🛛	Yes		No	(If no, explain in rema	arks.)			
Are "Normal Circumstances"	' present on the si	ite?				🛛 Yes		No					
Are Vegetation□, Soil □, or	r Hydrology 🗆 sig	nificantly dis	sturbed	?									
Are Vegetation \Box , Soil \Box , or	r Hydrology 🗆 nat	turally proble	ematic						(If needed, explain a	ny answe	ers in Remarks.)		
SUMMARY OF FINDING	S – Attach site	e map shc	owing	samp	ling po	oint loca	tions	, trans	sects, important fea	atures,	etc.		_
Hydrophytic Vegetation Pres	sent?	Yes	\boxtimes	No									
Hydric Soils Present?		Yes	\boxtimes	No		Is the S	Samoli	na Poir	nt within a Wetland?	Ye		No 🗔	
Wetland Hydrology Present?	?	Yes	\boxtimes	No		13 110 0	ampi	ing i on		10			1

Remarks: WETLAND A IN PIT, NORTH OF DP-1

VEGETATION – Use scientific names	of plants.			
Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet

	00101	0000001	Olalao				
1. 2.				Number of Domin that are OBL, FA	ant Species CW, or FAC:	2	(A)
3.				Total Number of I	Dominant	2	
4.				Species Across A	All Strata:	2	(B)
		= Total Cover		Percent of Domin that are OBL, FA	ant Species CW, or FAC:	100	(A/B)
Sapling/Shrub Stratum (Plot size: 3m diam.)							、 ,
1. Rubus armeniacus	20	Y	FAC	Prevalence Inc	dex Worksheet		
2.				Total %	<u>6 Cover of</u>	Mult	tiply by
3.				OBL species		x 1 =	
4.				FACW species		x 2 =	
5.				FAC species		x 3 =	
	20	= Total Cover		FACU species		x 4 =	
		_		UPL species		x 5 =	
Herb Stratum (Plot size: 1m diam.)				Column totals	(A)	(B)	
1. Phalaris arundinacea	100	Y	FACW				
2.				Prevalence	Index = B / A =		
3.							
4.				Hydrophytic V	egetation Indic	cators	
5.				Dominance	e test is > 50%		
6.				Prevalence	e test is ≤ 3.0 *		
7.				Morpholog	ical Adaptations *	(provide suppor	rting
8.				□ data in rem	narks or on a sepa	arate sheet)	-
9				□ □ Wetland N	on-Vascular Plant	s *	
10				- □ Problemati	ic Hydrophytic Vec	petation * (expla	un)
11							,
	100	= Total Cover		* Indicators of hyd present, unless d	dric soil and wetlar isturbed or proble	nd hydrology mi matic	ust be
Woody Vine Stratum (Plot size:)							
1.							
2.				Hydrophytic \	/egetation		
		= Total Cover		Preser	nt?		
% Bare Ground in Herb Stratum:							
Remarks:							

Profile Desc	cription: (Describe to the	depth need	ed to document the indica	tor or confi	rm the absence o	of indicator	s.)	
Depth	Matrix			Redox Feat	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10 YR 2/2	100					SANDY LOAM	CLAY
6-13	2.5 Y 3/1	80	7.5 YR 3/1	20	С	PL/M	SANDY LOAM	
¹ Type: C=Cc	oncentration, D=Depletion,	RM=Reduce	d Matrix, CS=Covered or C	oated Sand	Grains ² Loc: Pl	L=Pore Linir	ng, M=Matrix	
Hvdric Soil	Indicators: (Applicable to	o all LRRs. u	nless otherwise noted.)		Indicato	ors for Prob	ematic Hydric Soils ³	
Histosol	(A1)		Sandy Redox (S5)		□ 2cn	n Muck (A10))	
Histic Ec	pipedon (A2)		Stripped Matrix (S6)		□ Red	d Parent Ma	terial (TF2)	
. Black Hi	stic (A3)		.oamy Mucky Mineral (F1)	except MLR	A 1) 🗌 Oth	er (explain	in remarks)	
Hydroge	n Sulfide (A4)		.oamy Gleyed Matrix (F2)	-		、 1	,	
Depleted	Below Dark Surface (A11) 🛛 🖾	Depleted Matrix (F3)					
Thick Da	ark Surface (A12)		Redox Dark Surface (F6)		³ Indicat	ors of hydro	phytic vegetation and wetle	and hydrology must
Sandy N	lucky Mineral (S1)		Depleted Dark Surface (F7)		be prese	ent, unless o	disturbed or problematic	
□ Sandy G	leyed Matrix (S4)	🗆 F	Redox Depressions (F8)					
	(1)		,					
Restrictive L	aver (if present):							_
Type.					Hydric soil	present?	Yes 🔀	No
Depth (inche	es):							
Remarks:								
HYDROLO	GY							
Wetland Hy	drology Indicators:							
Primary Inc	licators (minimum of one re	equired: chec	k all that apply):			Secondary	/ Indicators (2 or more regi	uired):
□ Surface	water (A1)	′ □ s	parsely Vegetated Concave	e Surface (B	3)	🗆 Wa	ter-Stained Leaves (B9) (N	ILRÁ 1, 2, 4A & 4B)
🖂 High Wa	ater Table (A2)	□ V	/ater-Stained Leaves (exce	pt MLRA 1,	2, 4A & 4B) (B9)	🗌 Dra	inage Patterns (B10)	
Saturati	on (A3)	🗆 S	alt Crust (B11)			🗌 Dry	-Season Water Table (C2)	
Water M	/arks (B1)	□ A	quatic Invertebrates (B13)			□ Sat	uration Visible on Aerial Im	nagery (C9)
Sedime	nt Deposits (B2)	ПН	lydrogen Sulfide Odor (C1)			🗌 Geo	omorphic Position (D2)	
Drift De	posits (B3)		xidized Rhizospheres alon	g Living Roo	ts (C3)	🗌 Sha	allow Aquitard (D3)	
Algal Ma	at or Crust (B4)		resence of Reduced Iron (C	.4)			C-Neutral Test (D5)	
				/ –/				
Iron Dep	posits (B5)		ecent Iron Reduction in Till	ed Soils (C6)	□ Rai	sed Ant Mounds (D6) (LRI	R A)
□ Iron Dep □ Surface	posits (B5) Soil Cracks (B6)	□ R □ S	ecent Iron Reduction in Till tunted or Stressed Plants (ed Soils (C6 D1) (LRR A))	□ Rai □ Rai	sed Ant Mounds (D6) (LRF st-Heave Hummocks	R A)

	Stunted or Stressed Plants (D1) (LRR
al Imagery	Other (explain in remarks)

(87)								
Field Observations								
Surface Water Present?	Yes 🗆	No 🛛	Depth (in):					
Water Table Present?	Yes 🛛	No 🗆	Depth (in):	5	Wetland Hydrology Present?	Yes	\mathbf{X}	No 🗌
Saturation Present? (includes capillary fringe)	Yes 🛛	No 🗆	Depth (in):	0-13				
Describe Recorded Data (s	stream gauge, r	monitoring well	l, aerial photos, p	revious inspe	ctions), if available:			
Remarks: PONDING	NEARBY ~5	' AWAY						
1								



Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

DP-3

Project Site:	RICHARDS CRE	EK SU	BSTA	TION			Sampling Date:	3/27/2017		
Applicant/Owner:	PUGET SOUND	ENER	GY				Sampling Point:	DP- 3		
Investigator:	KC, LM						City/County:	BELLEV	ue/king	
Sect., Township, Range:	S 10 T	24	R	05			State:	WA		
Landform (hillslope, terrace,	Local relief (concave, convex, none): CONCAVE			AVE						
Subregion (LRR): A		Lo	ong: -122.1	585	Datum:					
Soil Map Unit Name: EvD	VERY GRAVELLY	SAND	Y LO/	AM, 15	-30 P	ERCENT SLOPES	NWI classification:	I/A		
Are climatic/hydrologic cond	itions on the site typica	al for th	is time o	of year?) [🛛 Yes 🗌 No	(If no, explain in rema	arks.)		
Are "Normal Circumstances"	' present on the site?				[🛛 Yes 🗌 No				
Are Vegetation□, Soil □, or	⁻ Hydrology □ significa	antly dis	sturbed	?						
Are Vegetation□, Soil □, or	Hydrology 🗆 naturall	y proble	ematic				(If needed, explain any answers in Remarks.)			
SUMMARY OF FINDING	S – Attach site m	ap sho	wing	sampl	ing p	oint locations, trans	sects, important fea	atures, etc.		
Hydrophytic Vegetation Pres	sent?	Yes	\boxtimes	No						
Hydric Soils Present?		Yes	\boxtimes	No		Is the Sampling Poi	nt within a Wetland?	Yes	\square	No 🗌
Wetland Hydrology Present?	?	Yes	\boxtimes	No			• • • • • • • • • • • • • • • • • • • •	100		
Remarks: WETLAN	D B IN PIT									

VEGETATION – Use scientific names of pl	ants.					
Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet		
Salix lucida 2.	10	Y	FACW	Number of Dominant Species that are OBL, FACW, or FAC:	3	(A)
3. 4.				Total Number of Dominant Species Across All Strata: 3		(B)
	10	= Total Cover		Percent of Dominant Species that are OBL, FACW, or FAC: 100		(A/B)
Sapling/Shrub Stratum (Plot size: 3m diam.)				_		(7,0)
1. Rubus armeniacus	95	Y	FAC	Prevalence Index Worksheet		
2. Rubus spectabilis	8	Ν	FAC	Total % Cover of	Multiply b	ργ
3. Lonicera involucrata	2	Ν	FAC	OBL species	x 1 =	
4.				FACW species	x 2 =	
5.				FAC species	x 3 =	
	105	= Total Cover		FACU species	x 4 =	
		-		UPL species	x 5 =	
Herb Stratum (Plot size: 1m diam.)				Column totals (A)	(B)	
1. Equisetum telmateia	70	Y	FACW			
2.				Prevalence Index = B / A =		
3.						
4.				Hydrophytic Vegetation Indic	ators	
5.				Dominance test is > 50%		
6.				□ Prevalence test is ≤ 3.0 *		
7.				Morphological Adaptations * (provide supporting	
8.				□ data in remarks or on a separ	ate sheet)	
9				□ Wetland Non-Vascular Plants	*	
10				Problematic Hydrophytic Vege	etation * (explain)	
11						
	70	= Total Cover		* Indicators of hydric soil and wetlan	d hydrology must b	e
Woody Vine Stratum (Plot size:)						
1.						
2.				Hydrophytic Vegetation		
		= Total Cover		Present?	es 🔀 No	
		-				
% Bare Ground in Herb Stratum:						
Remarks:				•		

Profile Descri	ption: (Describe to th	e depth neede	ed to document the indica	tor or confi	rm the absence o	f indicators	s.)	
Depth	Matrix			Redox Feat	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-15	2.5 Y 3/1	90	7.5 YR 3/4	10	С	M, PL	SANDY LOAM	
15-18	2.5 Y 3/1	75	7.5 YR 3/4	15	С	м	SANDY LOAM	MIXED MATRIX
			2.5 Y 4/1	10	D	м		
¹ Type: C=Cond	centration, D=Depletio	n, RM=Reduce	d Matrix, CS=Covered or C	oated Sand	Grains ² Loc: PL	.=Pore Linin	g, M=Matrix	
Hydric Soil In Histosol (A Histic Epip Black Histi Hydrogen Depleted E Thick Dark Sandy Gle Restrictive Lay Type: Depth (inches) Remarks:	dicators: (Applicable 1) edon (A2) c (A3) Sulfide (A4) Below Dark Surface (A Surface (A12) cky Mineral (S1) yed Matrix (S4) er (if present): :	to all LRRs, u () S () L () L	nless otherwise noted.) andy Redox (S5) bitripped Matrix (S6) oamy Mucky Mineral (F1) (oamy Gleyed Matrix (F2) bepleted Matrix (F3) Redox Dark Surface (F6) bepleted Dark Surface (F7) Redox Depressions (F8)	except MLR	Indicato	rs for Probl Muck (A10, Parent Mat er (explain ir ors of hydrop int, unless d	lematic Hydric Soils ³) erial (TF2) n remarks) obytic vegetation and w isturbed or problematic Yes X	etland hydrology must
Wetland Hydr Primary Indic Surface w High Wate Saturatior Water Ma Sediment Drift Depc Algal Mat Iron Depo Surface S Inundatior (B7)	ology Indicators: ators (minimum of one ater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) isits (B3) or Crust (B4) sits (B5) oil Cracks (B6) n Visible on Aerial Imag ttions	required: chec S W S A A H C C P R S gery C	ek all that apply): parsely Vegetated Concave /ater-Stained Leaves (exce alt Crust (B11) quatic Invertebrates (B13) lydrogen Sulfide Odor (C1) exidized Rhizospheres along resence of Reduced Iron (C ecent Iron Reduction in Tille tunted or Stressed Plants (I ther (explain in remarks)	Surface (Ba pt MLRA 1, g Living Root (4) ed Soils (C6) (LRR A)	3) 2, 4A & 4B) (B9) is (C3)	Secondary Wat Drai Dry- Satu Geo Shai FAC Rais	Indicators (2 or more re er-Stained Leaves (B9) nage Patterns (B10) Season Water Table (C uration Visible on Aerial morphic Position (D2) llow Aquitard (D3) S-Neutral Test (D5) sed Ant Mounds (D6) (L st-Heave Hummocks	equired): (MLRA 1, 2, 4A & 4B :2) Imagery (C9) RR A)
Surface Water Water Table P Saturation Pre (includes capil	Present? Yes present?	Image: No Image: No <t< td=""><td>Depth (in): 1-2 Depth (in): 4 Depth (in): 0-1</td><td>8</td><td>Wetland Hydro</td><td>ology Prese</td><td>nt? Yes 🔀</td><td>No</td></t<>	Depth (in): 1-2 Depth (in): 4 Depth (in): 0-1	8	Wetland Hydro	ology Prese	nt? Yes 🔀	No
Remarks:	PONDING NEXT T	o DP	weii, aerial photos, previou	is inspection:	s), it available:			



WETLAND DETERMINATION DATA FORM Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

DP-4

Project Site: RICHARDS CRE Applicant/Owner: PUGET SOUND Investigator: KC, LM Sect., Township, Range: S 10 T	EK SUBSTAT ENERGY 24 R	Sampling Date: Sampling Point: City/County: State:	3/27/2017 DP- 4 BELLEVUE/KING WA				
Landform (hillslope, terrace, etc): HILLSLOPE			Slope (%): <5	Local relief (concave, convex, none): NONE			
Subregion (LRR): A		Lat: 47.5838	Long: -122.1585 Datum:				
Soil Map Unit Name: EvD VERY GRAVELLY	NWI classification: N/A						
Are climatic/hydrologic conditions on the site typic	al for this time o	f year?	🛛 Yes 🗌 No	(If no, explain in rema	rks.)		
Are "Normal Circumstances" present on the site?			🛛 Yes 🗌 No				
Are Vegetation , Soil , or Hydrology signification	antly disturbed?			(If peeded, explain an	v answers in Romarks)		
Are Vegetation \Box , Soil \Box , or Hydrology \Box natural	y problematic			(ii needed, explain an	y answers in Remarks.)		
SUMMARY OF FINDINGS – Attach site m	ap showing s	ampling	point locations, trans	sects, important fea	tures, etc.		
Hydrophytic Vegetation Present? Hydric Soils Present? Wetland Hydrology Present?	Yes Yes Yes Yes	No 🖾 No 🖾 No 🖾	Is the Sampling Poi	nt within a Wetland?	Yes	No 🔀	
Remarks: OUT PIT BETWEEN WETL	NDS A & B C	IN FORE	STED SLOPE				
Remarks: OUT PIT BETWEEN WETLA	NDS A & B C		STED SLOPE				

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet			
1. Acer macrophyllum	40	Y	FACU	Number of Domin	ant Species	1	
2.				that are OBL, FA	UVV, OF FAC:	•	(A)
3.				Total Number of I	Dominant	3	
4.		- Total Cover		Descret of D		-	(B)
	40			that are OBL, FA	CW, or FAC:	33.3	(A/B)
Sapling/Shrub Stratum (Plot size: 3m diam.)							_ (' ' /
1. Corylus cornuta	10	Ν	FACU	Prevalence Inc	dex Worksheet		
2. Rubus armeniacus	100	Y	FAC	Total %	6 Cover of	Multiply	by
3.				OBL species		x 1 =	
4.				FACW species		x 2 =	
5.				FAC species		x 3 =	
	83	= Total Cover		FACU species		x 4 =	
				UPL species		x 5 =	
Herb Stratum (Plot size: 1m diam.)				Column totals	(A)	(B)	
1. Pteridium aquilinum	10	Y	FACU	4			
2.				Prevalence	Index = B / A =		
3.							
4.				Hydrophytic V	egetation Indicat	ors	
5.					e test is > 50%		
6.					e test is ≤ 3.0 *		
7				Morpholog	ical Adaptations * (pr	ovide supporting	
1.				data in rom	arks or on a separat	e sheet)	
8.						,	
7. 8. 9.				Wetland Netland Netland Netland Netland	on-Vascular Plants *	,	
7. 8. 9. 10.				Wetland No	on-Vascular Plants * c Hydrophytic Vegeta	ation * (explain)	
7. 8. 9. 10. 11.				Wetland N	on-Vascular Plants * c Hydrophytic Veget	ation * (explain)	
7. 8. 9. 10. 11.	9	= Total Cover		Wetland N Wetland N Problemati * Indicators of hyg present, unless d	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema	ation * (explain) hydrology must b tic	e
7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:)	9	= Total Cover		Vetland N Vetland N Problemati * Indicators of hyg present, unless d	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema	ation * (explain) hydrology must b tic	e
7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1.	9	= Total Cover		Vetland N Vetland N Problemati * Indicators of hyd present, unless d	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema	ation * (explain) hydrology must b tic	e
 <i>i</i>. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2. 	9	= Total Cover		Wetland N Problemati Indicators of hyd present, unless d	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema /egetation	ation * (explain) hydrology must b tic	ie
7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2.	9	= Total Cover		Wetland N Problemati Indicators of hyd present, unless d Hydrophytic V Preser	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema /egetation Yes	ation * (explain) hydrology must b tic	e X
7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2.	9	= Total Cover		Wetland N Wetland N Problemati Indicators of hyd present, unless d Hydrophytic N Preser	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema /egetation Yes	ation * (explain) hydrology must b tic	e X
7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2. % Bare Ground in Herb Stratum:	9	= Total Cover = Total Cover		Wetland N Problemati Indicators of hyd present, unless d Hydrophytic N Preser	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema /egetation Ye:	ation * (explain) hydrology must b tic s No	e X
7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2. % Bare Ground in Herb Stratum: Remarks:	9	= Total Cover 		Wetland N Problemati Indicators of hyd present, unless d Hydrophytic N Preser	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema /egetation Ye:	ation * (explain) hydrology must b tic s No	e X
7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2. % Bare Ground in Herb Stratum: <i>Remarks</i> :	9	= Total Cover		Wetland N Problemati Indicators of hyd present, unless d Hydrophytic N Preser	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema /egetation Ye:	ation * (explain) hydrology must b tic s No	e X
7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2. % Bare Ground in Herb Stratum: <i>Remarks</i> :	9	= Total Cover		Wetland N Problemati Indicators of hyu present, unless d Hydrophytic N Preser	on-Vascular Plants * c Hydrophytic Veget dric soil and wetland isturbed or problema /egetation Ye:	ation * (explain) hydrology must b tic	e X

Depth	Matrix	K	Redox Features				
(inches)	Color (moist)	%	Color (moist) %	Type ¹	Loc ²	Texture	Remarks
0-5	10 YR 2/2	100				SANDY LOAM	
5-12	10 YR 4/6	100				GRAVELLY SANDY LOAM	
¹ Type: C=C	concentration, D=Depletic	on, RM=Reduce	d Matrix, CS=Covered or Coated Sand Grains	² Loc: P	L=Pore Lir	ning, M=Matrix	
Hydric Soil	I Indicators: (Applicable	e to all LRRs, u	nless otherwise noted.)	Indicate	ors for Pro	oblematic Hydric Soils ³	
Histoso	ol (A1)	□ S	andy Redox (S5)	□ 2cr	n Muck (A	10)	
Histic E	pipedon (A2)	🗆 S	tripped Matrix (S6)	🗌 Ree	d Parent N	laterial (TF2)	
Black H	listic (A3)	🗆 L	pamy Mucky Mineral (F1) (except MLRA 1)	Oth	er (explair	n in remarks)	
□ Hydrog	en Sulfide (A4)	🗆 L	pamy Gleyed Matrix (F2)				
Deplete	ed Below Dark Surface (A	(11) 🗆 D	epleted Matrix (F3)				
☐ Thick D	Dark Surface (A12)		edox Dark Surface (F6)	³ Indicat	ors of hyd	rophytic vegetation and wetland	hydrology must
Sandy I	Mucky Mineral (S1)		epleted Dark Surface (F7)	be prese	ent, unless	disturbed or problematic	
□ Sandy (Gleyed Matrix (S4)	□ R	edox Depressions (F8)				
Restrictive I	Layer (if present):						
Type:				Hydric soi	present?	Yes	No 🔀
Depth (inch	ies):				•		
Remarks:			·				
HYDROLO	OGY						
Wetland Hy	ydrology Indicators:						
Primary In	dicators (minimum of one	e required: chec	k all that apply):		Seconda	ry Indicators (2 or more required	d):
Surface	e water (A1)		parsely Vegetated Concave Surface (B8)		🗆 W	ater-Stained Leaves (B9) (MLR	A 1, 2, 4A & 4B)
🗌 High W	/ater Table (A2)	🗆 W	ater-Stained Leaves (except MLRA 1, 2, 4A	& 4B) (B9)	🗌 D	rainage Patterns (B10)	
Saturat	tion (A3)	🗆 Sa	alt Crust (B11)		🗌 D	ry-Season Water Table (C2)	
Water I	Marks (B1)		quatic Invertebrates (B13)		🗆 Sa	aturation Visible on Aerial Image	ery (C9)
Sedime	ent Deposits (B2)	🗆 H	ydrogen Sulfide Odor (C1)		G	eomorphic Position (D2)	
🗌 Drift De	eposits (B3)	□ O	xidized Rhizospheres along Living Roots (C3)		🗆 SI	hallow Aquitard (D3)	

Presence of Reduced Iron (C4)

Other (explain in remarks)

No 🛛

No 🖂

No 🛛

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

□ Recent Iron Reduction in Tilled Soils (C6)

Stunted or Stressed Plants (D1) (LRR A)

Depth (in):

Depth (in):

Depth (in):

Remarks:

(B7) Field Observations Surface Water Present?

□ Algal Mat or Crust (B4)

□ Surface Soil Cracks (B6)

Inundation Visible on Aerial Imagery

Yes 🗆

Yes 🗆

Yes 🗌

□ Iron Deposits (B5)

Water Table Present?

(includes capillary fringe)

Saturation Present?

□ FAC-Neutral Test (D5)

Wetland Hydrology Present?

□ Frost-Heave Hummocks

Raised Ant Mounds (D6) (LRR A)

Yes

 \times

No



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DP-5

Project Site: Applicant/Owner:	RICHARDS C PUGET SOU	CREEK SU ND ENER	JBSTA GY	TION					Sampling Date: Sampling Point: City/County:	3/27/20 ² DP- 5	17 VUE/KING		
Sect., Township, Range:	S 10	T 24	R	05					State:	WA			_
Landform (hillslope, terrace, etc): HILLSLOPE Slope (%							%): <	5	Local relief (concave	, convex, no	one): CONC	AVE	
Subregion (LRR): A						Lat: 47	.5838		Lo	ong: -122	.1585	Datum:	
Soil Map Unit Name: EvD	VERY GRAVE	LLY SANI	DY LO	AM, 1	5-30 PI	ERCEN	r slo	PES	NWI classification:	I/A			
Are climatic/hydrologic cond	itions on the site t	typical for th	is time	of year	? 🛛	⊠ Yes		No	(If no, explain in rema	arks.)			
Are "Normal Circumstances"	" present on the s	ite?			Σ	🛛 Yes		No					
Are Vegetation \Box , Soil \Box , or	r Hydrology 🗆 sig	nificantly di	sturbed	?									
Are Vegetation \Box , Soil \Box , or	r Hydrology 🗆 nat	turally probl	ematic						(If needed, explain a	ny answers	in Remarks.)		
SUMMARY OF FINDING	3S – Attach sit	e map sh	owing	samp	ling po	oint loca	tions	, trans	sects, important fea	atures, etc	.		
Hydrophytic Vegetation Pres	sent?	Yes	\boxtimes	No									
Hydric Soils Present?		Yes	\boxtimes	No		Is the S	Sampli	na Poir	nt within a Wetland?	Yes	\mathbf{X}	No	1
Wetland Hydrology Present?	?	Yes	\boxtimes	No						100			1

Remarks: WETLAND C IN PIT, NORTHEAST CORNER OF WETLAND B, NEXT TO STREAM

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet		
1. Alnus rubra	70	Y	FAC	Number of Dominant Species	2	
2. Populus balsamifera	30	Y	FAC	that are OBL, FACW, or FAC:	3 (A)	
3.				Total Number of Dominant	2	
4.				Species Across All Strata:	3 (B)	
Sanling/Shruh Stratum (Plot size: 3m diam)	100	= Total Cover		Percent of Dominant Species that are OBL, FACW, or FAC:	100 (A/B	
1 Public sportabilis	80	v	EAC	Broyalonco Indox Worksho	~4	
	2	T		Total % Cover of Multiply		
	<u> </u>	<u> </u>	FAU	OBL species		
3.				CDL Species	x 1 =	
5				FAC species	x 2 =	
5.	83	= Total Cover		FACU species	× 4 –	
	00	-			×5=	
Herb Stratum (Plot size: 1m diam)				Column totals (A)	(B)	
1 Tolmiea menziesii	4	N	FAC			
2 I vsichiton americanus	5	N	OBI	Prevalence Index = B / A =	_	
2. Lysiomon americanus	v		VDL		-	
4.				Hydrophytic Vegetation Ind	licators	
5				\boxtimes Dominance test is > 50%		
6				Prevalence test is $\leq 3.0^{\circ}$		
0.					* (provide supporting	
<i>.</i>				data in remarks or on a ser	(provide supporting	
8.						
9.					nts "	
10.				Problematic Hydropnytic V	egetation * (explain)	
	9	= Total Cover		* Indicators of hydric soil and weth present, unless disturbed or probl	and hydrology must be lematic	
Woody Vine Stratum (Plot size:)				4		
1.				4		
2.				Hydrophytic Vegetation	Yes No	
	<u>.</u>	= Total Cover		Present?		
% Bare Ground in Herb Stratum:						
Remarks:						

Profile Descri	ption: (Descril	be to the de	epth neede	ed to document the	indicator or c	onfirm	the absence o	f indicators	s.)		
Depth		Matrix			Redox I	eatures	s		_		
(inches)	Color (m	oist)	%	Color (moist	:) %		Type ¹	Loc ²	Textu		Remarks
0-7	10 YR 2/1		100							SANDY	
7-13	10 EG 5/1		93	10 YR 4/6	7	С	;	PL/M	GRAVELLY CLAY LOAN	SANDY /	COBBLES
¹ Type: C=Con	centration, D=D	epletion, R	M=Reduce	d Matrix, CS=Covere	ed or Coated Sa	and Gra	ins ² Loc: PL	-=Pore Linin	g, M=Matrix		
Hydric Soil In	dicators: (App	licable to a	all LRRs, u	nless otherwise no	ted.)		Indicato	rs for Prob	lematic Hydric S	Soils ³	
Histosol (A	A1)		□ S	Sandy Redox (S5)			□ 2cm	Muck (A10)		
Histic Epip	edon (A2)		🗆 S	Stripped Matrix (S6)			🗌 Red	Parent Mat	erial (TF2)		
Black Histi	ic (A3)			oamy Mucky Mineral	I (F1) (except I	MLRA 1) 🗌 Othe	er (explain i	n remarks)		
Hydrogen	Sulfide (A4)		XL	oamy Gleyed Matrix	(F2)						
Depleted E	Below Dark Sur	face (A11)		Depleted Matrix (F3)	. ,						
Thick Dark	(Surface (A12)	. ,		Redox Dark Surface (F6)		³ Indicato	ors of hydror	phytic vegetation	and wetland	hydrology mus
□ Sandv Mu	ckv Mineral (S1)		epleted Dark Surfac	e (F7)		be prese	ent, unless d	isturbed or proble	ematic	, ,,
□ Sandy Gle	ved Matrix (S4)	,		Redox Depressions (F	=8)						
,	,				- /						
Restrictive Lay	/er (if present):										
Туре:							Hydric soil	present?	Yes >	ব	No 🗌
Depth (inches)):									_	
Remarks [.]											
·											
HYDROLOG	iΥ										
Wetland Hydr	ology Indicato	rs:									
Primary Indic	ators (minimum	of one req	uired: chec	k all that apply):				Secondary	Indicators (2 or i	more required	d):
Surface w	ater (A1)		🗆 S	parsely Vegetated C	oncave Surface	e (B8)		□ Wat	er-Stained Leave	es (B9) (MLR	Á 1, 2, 4A & 4E
High Wate	er Table (A2)		🗆 W	ater-Stained Leaves	(except MLR)	A 1, 2, 4	1A & 4B) (B9)	🗌 Drai	nage Patterns (B	310)	
Saturation	n (A3)		🗆 s	alt Crust (B11)				Dry-	Season Water T	able (C2)	
Water Ma	rks (B1)			quatic Invertebrates	(B13)			∏ Satu	ration Visible on	Aerial Image	erv (C9)
Sediment	Deposits (B2)		Пн	vdrogen Sulfide Odo	(C1)			Geo	morphic Position	(D2)	, ()
	sits (B3)			ixidized Rhizosphere	s along Living I	Roots ((.3)	□ Sha	llow Aquitard (D3	3)	
	or Crust (B4)			resence of Reduced	Iron (C4)	10013 (1	55)		-Neutral Test (D	5)	
	oi Clust (D4)			agent Iron Reduction		(CG)			ad Ant Moundar		
	ioil Crocke (BC)										
	oui Cracks (B6)	ial Imagan		tunited or Stressed P	iants (D1) (LRI urks)	x A)			a-neave Hummo	UCKS	
(B7)		iai iiiagery		uner (explain in rema	115)						
(2.)											
Field Observa	ations										
Surface Water	Present?	Yes 🗆	No 🗵	Depth (in):							
Water Table P	resent?	Yes 🖂	No 🗆] Depth (in):	8		Wetland Hydro		nt? Vac	\square	No 🗖
Saturation Pre	sent?	Yes 🕅	No [Depth (in):	0-13				165		
(includes capil	lary fringe)			/							
Describe Reco	orded Data (stre	am gauge,	monitoring	well, aerial photos, p	previous inspec	tions), i	t available:				
Remarks:											



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DP-6

Project Site: Applicant/Owner:	Project Site: RICHARDS CREEK SUBSTATION Applicant/Owner: PUGET SOUND ENERGY Nvestigator: KC. LM						3/27/2017 DP- 6	
Investigator:	KC, LM						BELLEVUE/KIN	G
Sect., Township, Range:	State:	WA						
Landform (hillslope, terrace,	etc): HILLSLOPE	Slope (%): >15	Local relief (concave,	, convex, none): NO	NE			
Subregion (LRR): A		Lo	ong: -122.1585	Datum:				
Soil Map Unit Name: EvD	VERY GRAVELLY SAN	NWI classification: N	I/A					
Are climatic/hydrologic cond	itions on the site typical for th	nis time o	f year?		🛛 Yes 🗌 No	(If no, explain in rema	arks.)	
Are "Normal Circumstances"	present on the site?				🛛 Yes 🗌 No			
Are Vegetation□, Soil □, or	Hydrology	sturbed?						
Are Vegetation \Box , Soil \Box , or	Hydrology naturally problem	ematic				(If needed, explain ar	ny answers in Remark	(S.)
SUMMARY OF FINDING	S – Attach site map sh	owing s	samplin	g po	oint locations, trans	sects, important fea	atures, etc.	
Hydrophytic Vegetation Pres	ent? Yes		No	\boxtimes				
Hydric Soils Present?	Yes		No 🛛	\boxtimes	ls the Sampling Poi	nt within a Wetland?		
Wetland Hydrology Present	Yes		No [\boxtimes	is the bamping i of			
Remarks: WETLAN	D C OUT PIT, NORTHE							

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

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test V	Vorksheet		
1. Alnus rubra	60	Y	FAC	Number of Dominant S	Species	2	
2. Acer macrophyllum	40	Y	FACU	that are OBL, FACW,	or FAC:	2	(A)
3.				Total Number of Domi	inant		- · ·
4.				Species Across All Str	rata:	4	(B)
Sapling/Shrub Stratum (Plot size: 3m diam.)	100	= Total Cover		Percent of Dominant S that are OBL, FACW,	Species or FAC:	50	(A/B)
1 Rubus armeniacus	10	Y	FAC	Prevalence Index	Worksheet		
2			1.44	Total % Co	ver of	Multiply	hv
2. 3				OBL species	101 0.	x 1 =	<u></u>
з. Л				FACW species		x 2 =	
5				FAC species		×3=	
	10	= Total Cover		FACU species		× 4 =	
	10	_				× 5 =	
Herb Stratum (Plot size: 1m diam)				Column totals (A	١	(R)	
1 Polystichum munitum	25	Y	FACU)	(D)	
2 llex aquifolium	3	 N	FACU	Prevalence Inde	$\mathbf{x} = \mathbf{B} / \mathbf{\Delta} =$		1
2. IIEX aquitonum			I AUC		x = D / A -		1
0.							
4				Hvdrophytic Vege	tation Indicator	S	
4.				Hydrophytic Vege	tation Indicator t is > 50%	ſS	
4. 5.				Hydrophytic Vege Dominance test Prevalence test	t ation Indicator t is > 50% t is < 3.0 *	ſS	
4. 5. 6. 7				Hydrophytic Vege	tation Indicator t is > 50% t is ≤ 3.0 *		
4. 5. 6. 7.				Hydrophytic Vege Dominance test Prevalence test Morphological A	tation Indicator t is > 50% t is \leq 3.0 * Adaptations * (prov	r s vide supporting	
4. 5. 6. 7. 8.				Hydrophytic Vege Dominance test Prevalence test Morphological A data in remarks	tation Indicator t is > 50% t is $\leq 3.0 *$ Adaptations * (prov s or on a separate s	r s ride supporting sheet)	
4. 5. 6. 7. 8. 9.				Hydrophytic Vege Dominance test Prevalence test Morphological A data in remarks Wetland Non-V	tation Indicator t is > 50% t is ≤ 3.0 * Adaptations * (prov s or on a separate s ascular Plants *	rs vide supporting sheet)	
4. 5. 6. 7. 8. 9. 10.				Hydrophytic Vege Dominance test Prevalence test Morphological A data in remarks Wetland Non-V. Problematic Hy	tation Indicator t is > 50% t is ≤ 3.0 * Adaptations * (prov s or on a separate s ascular Plants * drophytic Vegetatio	ride supporting sheet) on * (explain)	
4. 5. 6. 7. 8. 9. 10. 11.	28	= Total Cover		Hydrophytic Vege Dominance test Prevalence test Morphological A data in remarks Wetland Non-V. Problematic Hy * Indicators of hydrics spresent, unless disturb	tation Indicator t is > 50% t is \leq 3.0 * Adaptations * (prov s or on a separate s ascular Plants * drophytic Vegetation soil and wetland hy bed or problematic	<pre>vide supporting sheet) on * (explain) vidrology must b</pre>	De
4. 5. 6. 7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:)	28	= Total Cover		Hydrophytic Vege Dominance test Prevalence test Morphological A data in remarks Wetland Non-V. Problematic Hy * Indicators of hydric s present, unless disturt	tation Indicator t is > 50% t is \leq 3.0 * Adaptations * (prov or on a separate s ascular Plants * drophytic Vegetation soil and wetland hy bed or problematic	ride supporting sheet) on * (explain) rdrology must b	e
4. 5. 6. 7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1.	28	= Total Cover		Hydrophytic Vege Dominance test Prevalence test Morphological A data in remarks Wetland Non-V. Problematic Hy * Indicators of hydric s present, unless disturt	tation Indicator t is > 50% t is ≤ 3.0 * Adaptations * (prov s or on a separate s ascular Plants * drophytic Vegetation soil and wetland hy bed or problematic	ride supporting sheet) on * (explain) rdrology must b	ie
4. 5. 6. 7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2.	28	= Total Cover		Hydrophytic Vege Dominance test Prevalence test Morphological A data in remarks Wetland Non-V Problematic Hy * Indicators of hydric s present, unless disturt Hydrophytic Vege	tation Indicator t is > 50% t is ≤ 3.0 * Adaptations * (prov or on a separate s ascular Plants * drophytic Vegetation soil and wetland hy bed or problematic	ride supporting sheet) on * (explain) rdrology must b	ne Ne
4. 5. 6. 7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2.	28	= Total Cover		Hydrophytic Vege Dominance test Prevalence test Morphological A data in remarks Wetland Non-V. Problematic Hy * Indicators of hydric s present, unless disturt Hydrophytic Veger Present?	tation Indicator t is > 50% t is ≤ 3.0 * Adaptations * (prov s or on a separate s ascular Plants * drophytic Vegetation soil and wetland hy bed or problematic tation Yes	ride supporting sheet) on * (explain) rdrology must b	ie X
4. 5. 6. 7. 8. 9. 10. 11. Woody Vine Stratum (Plot size:) 1. 2. % Bare Ground in Herb Stratum:	28	= Total Cover - = Total Cover		Hydrophytic Vege Dominance test Prevalence test Morphological A data in remarks Wetland Non-V Problematic Hy * Indicators of hydric s present, unless disturt Hydrophytic Veger Present?	tation Indicator t is > 50% t is ≤ 3.0 * Adaptations * (prov s or on a separate s ascular Plants * drophytic Vegetation soil and wetland hy bed or problematic tation Yes	ride supporting sheet) on * (explain) rdrology must b	ie X

Profile Descri	ption: (Describe to the o	depth neede	ed to document the indicat	or or confir	m the absence o	f indicators	i.)			
Depth	Matrix			Redox Featu	ires					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Te	xture	Rer	marks
0-9	10 YR 2/2	98	7.5 YR 4/6	2	C	м	GR SA LO	DAM		
9-15	10 YR 2/1	50					GR SA LO	MAC	MIX N	IATRIX
	10 YR 3/4	50								
¹ Type: C=Cond	centration, D=Depletion, I	RM=Reduce	d Matrix, CS=Covered or Co	bated Sand C	Grains ² Loc: PL	_=Pore Linin	g, M=Matrix			
Hydric Soil In	dicators: (Applicable to	all LRRs, u	nless otherwise noted.)		Indicato	ors for Prob	lematic Hydri	c Soils ³		
Histosol (A)	(1)	□ S	Sandy Redox (S5)		□ 2cm	n Muck (A10)			
Histic Epip	edon (A2)	🗆 S	Stripped Matrix (S6)		🗌 Rec	Parent Mat	erial (TF2)			
Black Histi	c (A3)		oamy Mucky Mineral (F1) (e	except MLR/	🗛 1) 🗌 Oth	er (explain i	n remarks)			
Hydrogen	Sulfide (A4)		oamy Gleyed Matrix (F2)							
Depleted E	Below Dark Surface (A11)		Depleted Matrix (F3)							
☐ Thick Dark	Surface (A12)	D F	Redox Dark Surface (F6)		³ Indicate	ors of hydror	ohytic vegetat	ion and wetland	hydrolog	gy must
Sandy Mu	cky Mineral (S1)		Depleted Dark Surface (F7)		be prese	ent, unless d	isturbed or pro	oblematic		
□ Sandy Gle	yed Matrix (S4)	🗆 F	Redox Depressions (F8)							
Postrictivo Lov	or (if propert):									
Turne:	er (il present).							_		
Type:					Hydric soil	present?	Yes		No	\boxtimes
Depth (inches)	:									
Remarks:	DAMP, NOT SATUR	ATED								
HYDROLOG	Y									
Wetland Hydr	ology Indicators:					o /			0	
Primary Indic	ators (minimum of one re	quirea: cnec	K all that apply):	Surface (PO	N	Secondary	Indicators (2)	or more require	a): ••••••••••••••••••••••••••••••••••••	A 2 4B)
	aler (AT)		later Steined Leaves (ever						(A 1, 2, 4	A & 4D)
	er Table (AZ)		vater-Stained Leaves (excer	DT MLRA 1, A	2, 4A & 4B) (B9)		nage Patterns	(B10)		
	i (A3)		alt Crust (B11)			□ Dry-	Season Wate	r Table (C2)	(00)	
U Water Ma	rks (B1)		quatic Invertebrates (B13)				uration Visible	on Aerial Imag	ery (C9)	
□ Sediment	Deposits (B2)		ydrogen Sulfide Odor (C1)			∐ Geo	morphic Posit	ion (D2)		
Drift Depo	sits (B3)		ixidized Rhizospheres along	Living Roots	s (C3)	∐ Sha	llow Aquitard	(D3)		
Algal Mat	or Crust (B4)	P	resence of Reduced Iron (C	4)		□ FAC	C-Neutral Test	(D5)		
Iron Depo	sits (B5)	🗆 R	ecent Iron Reduction in Tille	ed Soils (C6)		Rais	sed Ant Mound	ds (D6) (LRR A	.)	
Surface S	oil Cracks (B6)	□ S	tunted or Stressed Plants (D	01) (LRR A)		Fros	st-Heave Hum	mocks		
Inundation	n Visible on Aerial Imager	у 🗌 С	ther (explain in remarks)							
(B7)										
Field Observa	tions									
Surface Water	Present? Yes	No 🗵	Depth (in):							
Water Table P	resent? Yes	No 🗵	Depth (in):		Wetland Hydro		nt? Vo	• 🗆	No	\square
Saturation Pre (includes capil	sent? Yes Dary fringe)	No 🗵	Depth (in):		Wettand Hydro	Jogy Treac		з <u> </u>	110	
Describe Reco	rded Data (stream gauge	, monitoring	well, aerial photos, previous	s inspections), if available:					
		5								
Remarks:										



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DP-7

Project Site:	RICHARDS CRE	EK SU	BSTA				Sampling Date:	3/27/2017	
Applicant/Owner:	PUGET SOUND	ENER	GY				Sampling Point:	DP- 7	
Investigator:	KC, LM						City/County:	BELLEVUE/KING	
Sect., Township, Range:	S 10 T	24	R	05			State:	WA	
Landform (hillslope, terrace,	etc): HILLSLOPE					Slope (%): >15	Local relief (concave	, convex, none): NONE	
Subregion (LRR): A						Lat: 47.5838	Lo	ong: -122.1585	Datum:
Soil Map Unit Name: EvD	VERY GRAVELLY	SAND	Y LO/	AM, 15	5-30 P	ERCENT SLOPES	NWI classification:	N/A	
Are climatic/hydrologic cond	itions on the site typic	al for thi	s time o	of year?	?	🛛 Yes 🗌 No	(If no, explain in rem	arks.)	
Are "Normal Circumstances"	' present on the site?				I	🛛 Yes 🗌 No			
Are Vegetation \Box , Soil \Box , or	^r Hydrology Signific:	antly dis	turbed	?					
Are Vegetation□, Soil □, or	Hydrology 🗆 naturall	y proble	ematic				(If needed, explain a	ny answers in Remarks.)	
SUMMARY OF FINDING	S – Attach site m	ap shc	owing	sampl	ling p	oint locations, trans	sects, important fea	atures, etc.	
Hydrophytic Vegetation Pres	sent?	Yes		No	\boxtimes				
Hydric Soils Present?		Yes		No	\boxtimes	Is the Sampling Poi	nt within a Wetland?	Yes	No 🔽
Wetland Hydrology Present?	?	Yes	\boxtimes	No			• • • • • • • • • • • • • • • • • • •		
Remarks: WETLAN	D A OUT PIT IN N	W COF	NER ·	OF PF	OPE	RTY			

VEGETATION – Use scientific names of plants.

Tree	Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Te	est Worksheet		
1.	Alnus rubra	100	Y	FACU	Number of Domir	nant Species	2	
2.	Acer macrophyllum	5	N	FACU	that are OBL, FA	CW, or FAC:	۷	(A)
3. 4.					Total Number of I Species Across A	Dominant All Strata:	5	(B)
		105	= Total Cover		Percent of Domin that are OBL, FA	ant Species CW, or FAC:	40	(A/B)
Sapli	ing/Shrub Stratum (Plot size: 3m diam.)							(A(D)
1.	Acer circinatum	20	Y	FAC	Prevalence In	dex Worksheet		
2.	Rubus armeniacus	70	Y	FAC	Total %	<u>6 Cover of</u>	Multiply	y by
3.					OBL species		x 1 =	
4.					FACW species		x 2 =	
5.					FAC species		x 3 =	
		90	= Total Cover		FACU species		x 4 =	
1			-		UPL species		x 5 =	
Herb	Stratum (Plot size: 1m diam.)				Column totals	(A)	(B)	
1.	Dicentra formosa	50	Y	FACU	1	1		
2.	Polvstichum munitum	20	Y	FACU	Prevalence	Index = B / A =		
3.					1			
4.					Hydrophytic V	egetation Indicat	ors	
5.					Dominance	e test is > 50%		
6.						e test is ≤ 3.0 *		
7					Morpholog	ical Adaptations * (pr	ovide supportin	a
7. 9					□ data in rem	arks or on a senarat	e sheet)	9
o.						an Vaccular Plante *	e shooty	
9.						ON-Vascular Flams		I
10.					Problemati	ic Hydrophytic Vegeta	ation * (explain)	
11.								l
		70	= Total Cover		* Indicators of hyperesent, unless d	dric soil and wetland l isturbed or problemat	hydrology must tic	be
Woo	dy Vine Stratum (Plot size:)							
1.					1			
2.					Hydrophytic \	/egetation	—	
		·	= Total Cover		Preser	nt? Yes	3 📋 N	• 🛛
% Ba	are Ground in Herb Stratum:							
Rem	arks:							

Depth (inches) Matrix Redox Features Color (moist) % Color (moist) % Type ¹ Loc ² Texture Remark 0-12 10 YR 2/1 100 LOAM SOME S/ 12-14 10 YR 3/6 80 LOAM MIXED MATRIX 10 YR 2/2 20 LOAM MIXED MATRIX 10 YR 2/2 20 Image: Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ² Loc: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) 3 Depleted Below Dark Surface (A11) Depleted Matrix (F3) 3 Thick Dark Surface (A12) Redox Dark Surface (F7) 3 Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) be present, unless disturbed or problematic	ks AND
Color (moist) % Color (moist) % Type1 Loc2 Texture Remark 0-12 10 YR 2/1 100 LOAM SOME S/ 12-14 10 YR 3/6 80 LOAM MIXED MATRIX 10 YR 2/2 20 LOAM MIXED MATRIX 'Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains 2Loc: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) 3 3 Depleted Below Dark Surface (A11) Depleted Matrix (F3) 3 3 Indicators of hydrophytic vegetation and wetland hydrology m Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Beresent, unless disturbed or problematic	AND
0-12 10 YR 2/1 100 LOAM SOME S/ 12-14 10 YR 3/6 80 LOAM MIXED MATRIX 10 YR 2/2 20 LOAM MIXED MATRIX 'Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ² Loc: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histosol (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) 3 Depleted Below Dark Surface (A11) Depleted Matrix (F3) 3 Thick Dark Surface (A12) Redox Dark Surface (F6) 3 Indicators of hydrophytic vegetation and wetland hydrology m be present, unless disturbed or problematic Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) be present, unless disturbed or problematic	AND
12-14 10 YR 3/6 80 ILOAM MIXED MATRIX 10 YR 2/2 20 Image: constraint of the state of	
10 YR 2/2 20 Indicators 'Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ² Loc: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) 3 Thick Dark Surface (A12) Redox Dark Surface (F6) 3 Indicators of hydrophytic vegetation and wetland hydrology m be present, unless disturbed or problematic Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) be present, unless disturbed or problematic	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ² Loc: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Indicators of hydrophytic vegetation and wetland hydrology m Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) ³ Indicators of hydrophytic vegetation and wetland hydrology m Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sector of the present, unless disturbed or problematic	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Implementation Depleted Below Dark Surface (A11) Depleted Matrix (F3) Indicators of hydrophytic vegetation and wetland hydrology metal (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Implementation	
Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Image: Comparison of the parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Image: Comparison of the parent Material (TF2) Thick Dark Surface (A12) Redox Dark Surface (F6) Image: Comparison of the parent Material (TF2) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) be present, unless disturbed or problematic	
Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Image: Comparison of the parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Image: Comparison of the parent Material (TF2) Thick Dark Surface (A12) Redox Dark Surface (F6) Image: Comparison of the parent Material (TF2) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) be present, unless disturbed or problematic	
Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Image: Completed Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) ³ Indicators of hydrophytic vegetation and wetland hydrology m be present, unless disturbed or problematic Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Depleted Matrix (F3)	
□ Hydrogen Surfide (A4) □ Loamy Gleyed Matrix (F2) □ □ Depleted Below Dark Surface (A1) □ Depleted Matrix (F3) □ □ Thick Dark Surface (A12) □ Redox Dark Surface (F6) ³ Indicators of hydrophytic vegetation and wetland hydrology m □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) be present, unless disturbed or problematic	
Depleted Below Dark Surface (ATT) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Olympia Matrix (S4) Depleted Dark Surface (F7)	
Indicators of hydrophytic vegetation and wetland hydrology in Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Olymod Metrix (S4) Depleted Dark Surface (F7)	01104
	lust
Restrictive Layer (if present):	
Type: Hydric soil present? Yes No	
Depth (inches):	
Remarks: DAMP, NOT SATURATED	
HYDROLOGY	
Wettand Hydrology Indicators: Primary Indicators (minimum of one required: check all that apply): Secondary Indicators (2 or more required):	
Surface water (A1) Sparsely Vegetated Concave Surface (B8) Water-Stained Leaves (B9) (MLRA 1. 2. 4A &	4B)
☑ High Water Table (A2) ☑ Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9) □ Drainage Patterns (B10)	-,
Saturation (A3) Salt Crust (B11) Drv-Season Water Table (C2)	
□ Water Marks (B1) □ Aquatic Invertebrates (B13) □ Saturation Visible on Aerial Imagerv (C9)	
□ Sediment Deposits (B2) □ Hydrogen Sulfide Odor (C1) □ Geomorphic Position (D2)	
□ Drift Deposits (B3) □ Oxidized Rhizospheres along Living Roots (C3) □ Shallow Aquitard (D3)	
□ Algal Mat or Crust (B4) □ Presence of Reduced Iron (C4) □ FAC-Neutral Test (D5)	
□ Iron Deposits (B5) □ Recent Iron Reduction in Tilled Soils (C6) □ Raised Ant Mounds (D6) (LRR A)	
□ Surface Soil Cracks (B6) □ Stunted or Stressed Plants (D1) (LRR A) □ Frost-Heave Hummocks	
Inundation Visible on Aerial Imagery Other (explain in remarks)	
(B7)	
Field Observations	
Surface Water Present? Yes 🗌 No 🛛 Depth (in):	
Water Table Present? Yes No Depth (in): 14 Wetland Hydrology Present? Yes No Depth (in):	
Saturation Present? Yes \square No \square Depth (in):	
(includes capillary fringe)	

Remarks: DAMP, WET MARCH AND FEBRUARY



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DP-8

Project Site:	RICHARDS CREE	EK SU	BSTA	TION			Sampling Date:	3/27/2017	
Applicant/Owner:	PUGET SOUND E	INERC	GΥ				Sampling Point:	DP- 8	
Investigator:	KC, LM						City/County:	BELLEVUE	/KING
Sect., Township, Range:	S 10 T	24	R	05		-	State:	WA	
Landform (hillslope, terrace,	etc): SWALE	Local relief (concave	, convex, none):	CONCAVE					
Subregion (LRR): A		Lc	ong: -122.1585	Datum:					
Soil Map Unit Name: EvD	VERY GRAVELLY	SAND	ERCENT SLOPES	NWI classification:	I/A				
Are climatic/hydrologic cond	itions on the site typica	l for this	🛛 Yes 🗌 No	(If no, explain in rema	arks.)				
Are "Normal Circumstances"	' present on the site?				[🛛 Yes 🗌 No			
Are Vegetation□, Soil □, or	· Hydrology 🗆 significa	ntly dis	turbed?	?					
Are Vegetation □, Soil □, or	Hydrology naturally	v proble	matic				(If needed, explain any answers in Remarks.)		
SUMMARY OF FINDING	SS – Attach site ma	ip sho	wing	sampl	ing po	pint locations, trans	sects, important fea	atures, etc.	
Hydrophytic Vegetation Pres	sent?	Yes	\boxtimes	No					
Hydric Soils Present?		Yes	\boxtimes	No		Is the Compling Dei		Vaa N	
Wetland Hydrology Present?	>	Vec		No		is the Sampling Pol	nt within a wetiand?	res 🛛	
Welldhu Hydrology i resents		163		NU					
Remarks: WETLAN	D A IN PIT NEAR N	w co	RNEF		ROPE	ERTY			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Te	est Worksheet			
1. Acer macrophyllum	60	Y	FACU	Number of Domin	ant Species	1		
2. (partially rooted in)				that are OBL, FA	CW, or FAC:	I	(A	٩)
3.				Total Number of [Dominant	2		
4.				Species Across A	II Strata:	2	(B	3)
Sanling/Chrub Stratum (Distaire: 2m diam)	60	= Total Cover -		Percent of Domin that are OBL, FA	ant Species CW, or FAC:	50	(A	√B)
	400	X	540	Durantana la				
1. Rubus armeniacus	100	Y	FAC	Prevalence Inc		M	بطبامتها	
2.						<u>IMU</u>	iitipiy dy	
3.				CBL species		x 1 =		
4. F				FACW species	100	x 2 =	200	
5.	100	= Total Cover		FACIL species	60	× 4 –	240	
	100	-			00	×4 =	240	
Herb Stratum (Plot size: 1m diam)				Column totals	(A) 160	(B) 540		
				Column totals	(/) 100	(D) 340	,	
3.				Prevalence	Index = B / A =	540/16	0 = 3.38	
4.				Hydrophytic V	egetation Indicato	rs		
5.				Dominance	e test is > 50%			
6.					e test is ≤ 3.0 *			
7.				Morpholog	ical Adaptations * (pro	vide suppo	orting	
8.				data in rem	arks or on a separate	sheet)		
9.				Wetland No	on-Vascular Plants *			
10.				Problemati	c Hydrophytic Vegetat	ion * (expl	ain)	
11.				-				
		= Total Cover		* Indicators of hyd present, unless di	dric soil and wetland h isturbed or problemation	ydrology n c	nust be	
Woody Vine Stratum (Plot size:)				_				
1.				_				
2.				Hydrophytic V	egetation Yes	\square	No [
		= Total Cover		Preser	nt?		L	
% Bare Ground in Herb Stratum:								
Remarks: Plants currently dominated by i	nvasive black	berry in under	story. Biglea	af maple present	in canopy is only	partially	rooted	in.
Soils and hydrology indicators	are strong. F	Presumed that	later in the	growing season	other wetland-in	dicative	plants li	ike
giant borsetail or willowberb ma	av he dominar	nt in herh strati	ım					
giant norsetan or winownerb ind	y be dominal	it in nero su all						

Profile Descri	iption: (Descri	be to the	depth nee	ded to document the	indicator or cor	nfirm the al	bsence of indic	ators.)			
Depth		Matrix	1		Redox Fe	atures					
(inches)	Color (m	oist)	%	Color (mois	t) %	Ту	rpe ¹ Lo	oc ²	Texture		Remarks
0-8	10 YR 2/2		100					LC	DAM		SOME SAND
8-14	10 YR 5/1		75	10 YR 3/6	20	С	м	GF	RAVELLY SAN DAM	IDY	DIFFUSE REDOX
				5 YR 3/4	5	С	м	GF	RAVELLY SAN DAM	IDY	
¹ Type: C=Con	centration, D=[Depletion,	RM=Reduc	ed Matrix, CS=Cover	ed or Coated San	nd Grains	² Loc: PL=Pore	Lining, M=	=Matrix		
Hydric Soil In	dicators: (App	blicable to	o all LRRs,	unless otherwise no	oted.)		Indicators for	Problema	tic Hydric Soils ³		
	1)			Saliuy Redux (SS)				(ATU)			
				Supped Musley Minera	(E1) (avecat MI				(1F2)		
	IC (A3) Sulfide (A4)			Loamy Mucky Minera				biain in rem	iarks)		
	Suilide (A4)	4 (A 4 4		Loamy Gleyed Matrix	(FZ)						
	Below Dark Sul	Tace (ATT	I) 🖂	Depleted Matrix (F3)	(50)		31				h
	C Surface (A12)			Redox Dark Surface	(F6)		be present up	nyaropnytic less disturb	c vegetation and v	vetiana c	nyarology must
Sandy Mu	CKY Mineral (S	I) 、		Depleted Dark Surfac	Ce (F7)		be present, un			0	
□ Sandy Gle	eyed Matrix (S4)		Redox Depressions (F8)						
Restrictive Lay	/er (if present):								_		_
Туре:						Ну	/dric soil prese	nt?	Yes 🔀		No
Depth (inches)):										
HYDROLOG	βY										
Wetland Hydr Primary Indic	ology Indicate ators (minimur	ors: n of one r	equired: ch	eck all that apply):			Seco	ndary Indic	ators (2 or more	required	<i>l):</i>
Surface w	vater (A1)			Sparsely Vegetated C	Concave Surface ((B8)		Water-Sta	ained Leaves (B9	9) (MLR	A 1, 2, 4A & 4B)
High Wate	er Table (A2)			Water-Stained Leave	s (except MLRA	1, 2, 4A & 4	4B) (B9)	Drainage	Patterns (B10)		
Saturation	n (A3)			Salt Crust (B11)				Dry-Seas	son Water Table ((C2)	
Water Ma	ırks (B1)			Aquatic Invertebrates	(B13)			Saturatio	n Visible on Aeria	al Image	ry (C9)
Sediment	Deposits (B2)			Hydrogen Sulfide Odd	or (C1)			Geomorp	phic Position (D2)		
Drift Depo	osits (B3)			Oxidized Rhizosphere	es along Living Ro	oots (C3)		Shallow A	Aquitard (D3)		
Algal Mat	or Crust (B4)			Presence of Reduced	l Iron (C4)			FAC-Neu	ıtral Test (D5)		
Iron Depo	osits (B5)			Recent Iron Reduction	n in Tilled Soils (C	C6)		Raised A	nt Mounds (D6) (LRR A)	
Surface S	oil Cracks (B6)			Stunted or Stressed F	Plants (D1) (LRR	A)		Frost-Hea	ave Hummocks		
Inundation (B7)	n Visible on Ae	rial Image	ery 🗌	Other (explain in rema	arks)						
Field Observa	ations										
Surface Water	Present?	Yes 🗆	No	Depth (in):							
Water Table P	resent?	Yes 🖂	No	Depth (in):	4	Wetla	nd Hydroloav	Present?	Yes 🔀	1	No 🗌
Saturation Pre (includes capil	esent? lary fringe)	Yes 🛛	No	Depth (in):	0-14					1	·- 🔟
Describe Reco	orded Data (stre	eam gaug	e, monitorir	ng well, aerial photos,	previous inspection	ons), if avai	lable:				

Remarks:



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DP- 9

1										
Project Site:	RICHARDS CREE		TION			Sampling Date:	10/19/201	6		
Applicant/Owner:	PUGET SOUND E	ENERGY				Sampling Point:	DP- 9			
Investigator:	MIKE FOSTER					City/County:	BELLEV	JE/KING		
Sect., Township, Range:	S 10 T	24 R	05			State:	WA			
Landform (hillslope, terrace, e	etc):				Slope (%):	Local relief (concave,	convex, none	e):		
Subregion (LRR): A					Lat: 47.5838	Long: -122.1585		Datum	1:	
Soil Map Unit Name: EvD \	ERY GRAVELLY	SANDY LO	AM, 15-3	0 PE	RCENT SLOPES	NWI classification: N	/A	_		
Are climatic/hydrologic condit	ions on the site typica	al for this time	of year?	X	Yes 🗌 No	(If no, explain in rema	arks.)			
Are "Normal Circumstances"	present on the site?			\boxtimes	Yes 🗌 No					
Are Vegetation \Box , Soil \Box , or	Hydrology 🗆 significa	antly disturbed	?							
Are Vegetation \Box , Soil \Box , or	Hydrology naturally	y problematic				(If needed, explain ar	ny answers in	Remarks.)		
	0					i lana antarat far				
SUMMARY OF FINDING	S – Attach site ma	ip showing	sampling	g po	int locations, trans	ects, important rea	tures, etc.			
Hydrophytic Vegetation Prese	ent?	Yes 🛛	No [
Hydric Soils Present?		Yes 🛛	No [Is the Sampling Poir	nt within a Wetland?	Yes	\square	No	
Wetland Hydrology Present?		Yes 🖂	No							
Remarks: VVEILANL										
VEGETATION – Use scie	entific names of p	lants.								
Tree Stratum (Plot size: 5m o	diam.)	Absolute	∍% Do	minar	nt Indicator	Dominance Test	Worksheet			
		Cover	Sp	ecies	? Status					
1. Salix lucida		75		<u> </u>	FACW	Number of Dominant	t Species	2		
2 Alnus rubra		10		- N	J FAC	that are ODL, I AGW	, OLLAG.			(A)

2.	Alnus rubra	10	N	FAC	that are OBL, FAC	CW, or FAC:	2	(A)
3. 4.					Total Number of I Species Across A	Dominant II Strata:	2	(B)
			= Total Cover		Percent of Domin that are OBL, FAC	ant Species CW, or FAC:	100	(B) (A/B)
Sapl	ing/Shrub Stratum (Plot size: 3m diam.)							
1.					Prevalence Inc	lex Worksheet		
2.					Total %	Cover of	Multi	<u>ply by</u>
3.					OBL species		x 1 =	
4.					FACW species		x 2 =	
5.					FAC species		x 3 =	
			= Total Cover		FACU species		x 4 =	
					UPL species		x 5 =	
Herb	Stratum (Plot size: 1m diam.)				Column totals	(A)	(B)	
1.	Athyrium cyclosorum	10	<u>N</u>	FAC				
2.	Scirpus microcarpus	60	<u>Y</u>	OBL	Prevalence	Index = B / A =		
3.	Phalaris arundinacea	15	N	FACW				
4.	Equisetum telmateia	10	N	FACW	Hydrophytic V	egetation Indicate	ors	
5.					☑ Dominance	e test is > 50%		
6.					Prevalence	e test is ≤ 3.0 *		
7.					Morphologi	cal Adaptations * (pro	ovide support	ting
8.					data in rem	arks or on a separate	e sheet)	
9.					Wetland No	on-Vascular Plants *		
10.						c Hydrophytic Vegeta	tion * (explai	n)
11.								
			= Total Cover		* Indicators of hyd present, unless di	dric soil and wetland h sturbed or problemat	ydrology mu	st be
Woo	dy Vine Stratum (Plot size:)							
1.	Rubus armeniacus	2	Ν	FAC				
2.					Hydrophytic V	egetation		
			= Total Cover		Presen	nt?		
% Ba	are Ground in Herb Stratum:							
Rem	arks:							

SOIL	

Sampling Point – DP-9

Depth (inches) Matrix Redox Features (inches) Color (moist) % Type1 Loc2 Texture F 0-4 10YR 3/2 100			.)	t indicators	ne absence of	confirm t	ator o	aed to document the indicat	depth need	iption: (Describe to the	Profile Descri
Color (moist) % Color (moist) % Type' Loc' Texture F 0-4 10YR 3/2 100 Ioo Ioo Ioom with high org. cont. Ioom with high org. cont. 4-14 10YR 3/1 90 7.5YR 3/3 10 C M, PL Loamy sand Ioom with high org. cont. 'Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains *Loc: PL=Pore Lining, M=Matrix 'Type: C=Concentration, D=Depletion all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Solls ³ Indicators for Problematic Hydric Solls ³ Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Red Parent Material (TF2) Red Parent Material (TF2) Black Histic (A3) Loamy Gleyed Matrix (F3) Redox Dark Surface (A11) Depleted Matrix (F2) Sandy Mucky Mineral (S1) Depleted Matrix (F3) 'Thick Dark Surface (A12) Redox Dark Surface (F7) 3 Indicators of hydrophytic vegetation and wetland hydrol be present, unless disturbed or problematic Sandy Gleyed Matrix (S4) Redox Depressions (F8) Hydric soil present? Yes No Remarks: Remarks: Hydric soil present? Yes No		_			- 1	Features	Redo			Matrix	Depth
0-4 10YR 3/2 100 Loarn with high org. cont. 4-14 10YR 3/1 90 7.5YR 3/3 10 C M, PL Loarny sand Indicators (ont. 4-14 10YR 3/1 90 7.5YR 3/3 10 C M, PL Loarny sand Indicators (ont. 1'Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains 2Loarny Sandy Redox (S5) 2loarny Muck (A10) Indicators for Problematic Hydric Soils ³ Histic Spipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Indicators of Hydrophytic Soils ³ 2cm Muck (A10) Black Histic (A3) Loarny Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) 3 indicators of hydrophytic vegetation and wetland hydroid be present, unless disturbed or problematic Popleted Below Dark Surface (A11) Depleted Dark Surface (F6) 3 indicators of hydrophytic vegetation and wetland hydroid be present, unless disturbed or problematic Restrictive Layer (if present): Ype: Hydric soil present? Yes No Popth (inches): Remarks: Hydric soil present? Yes No	emarks	Rer	Texture	Loc ²	Туре	6		Color (moist)	%	Color (moist)	(inches)
4-14 10YR 3/1 90 7.5YR 3/3 10 C M, PL Loamy sand Indicators ''Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coefficients Indicators ?Loc: PL=Pore Lining, M=Matrix Indicators ?Loc: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to and y Redox (S5)		org.	cont.						100	10YR 3/2	0-4
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ² Loc: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) Icoamy Mucky S6) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Restrictive Layer (if present): Type: Type: Permarks:			Loamy sand	M, PL		С	1	7.5YR 3/3	90	10YR 3/1	4-14
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ² Loc: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histo Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Other (explain in remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) 3 Depleted Below Dark Surface (A11) Depleted Matrix (F3) 3 Thick Dark Surface (A12) Redox Dark Surface (F6) 3 Indicators of hydrophytic vegetation and wetland hydrol be present, unless disturbed or problematic Sandy Gleyed Matrix (S4) Redox Depressions (F8) Hydric soil present? Yes No Restrictive Layer (if present): Type: Performation Yes No Depth (inches): Remarks: Yes No											
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Restrictive Layer (if present): Type: Depth (inches): Remarks:			g, M=Matrix	.=Pore Lining	ns ² Loc: PL	and Grai	Coated	ced Matrix, CS=Covered or Co	RM=Reduce	centration, D=Depletion,	¹ Type: C=Con
Restrictive Layer (if present): Hydric soil present? Yes No Type: Depth (inches): No Remarks: Remarks: No	ogy must	retland hydrolog	ematic Hydric Soils ³ erial (TF2) remarks) hytic vegetation and wetland sturbed or problematic	rs for Probl Muck (A10) Parent Mate er (explain ir ors of hydrop nt, unless di	Indicator 2 cm Red 0 Othe ³ Indicator be presen	MLRA 1)	(exce	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (e Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8)	all LRRs, u S S C S C C C C C C C C C C C C C	dicators: (Applicable to A1) bedon (A2) ic (A3) Sulfide (A4) Below Dark Surface (A11) k Surface (A12) cky Mineral (S1) eyed Matrix (S4)	Hydric Soil In Histosol (A Histic Epip Black Histi Hydrogen Depleted B Thick Dark Sandy Mu Sandy Gle
Remarks:		No	Yes 🔀	present?	Hydric soil					ver (if present):	Restrictive Lay Type: Depth (inches)
										,-	Remarks:
HYDROLOGY										,	HYDROLOGY

Wetland Hydrology Indicators:	irod: a	back all that apply):			Soci	andany Indicators (2 or more required):
Surface water (A1)						Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)
High Water Table (A2)		Water-Stained Leaves	(except MLRA 1.3	2. 4A & 4B) (B9)		Drainage Patterns (B10)
\boxtimes Saturation (A3)		Salt Crust (B11)	(except	, u . <u></u>) (20)		Drv-Season Water Table (C2)
Water Marks (B1)		Aquatic Invertebrates	(B13)			Saturation Visible on Aerial Imagery (C9)
\square Sediment Deposits (B2)		Hydrogen Sulfide Odo	(C1)			Geomorphic Position (D2)
$\square \text{ Drift Deposits (B3)}$		Oxidized Rhizosphere	s along Living Root	s (C3)		Shallow Aquitard (D3)
Algal Mat or Crust (B4)		Presence of Reduced	Iron (C4)	3 (00)		EAC-Neutral Test (D5)
\square Iron Deposits (B5)		Recent Iron Reduction	in Tilled Soils (C6)			Raised Ant Mounds (D6) (I RR A)
Surface Soil Cracks (B6)		Stunted or Stressed P	lante (D1) (I PP A)			Frost-Heave Hummocks
Inundation Visible on Aerial Imagery		Other (explain in rema	irks)			1 Tost-fieave Hummocks
(B7)						
Field Observations						
Surface Water Present? Yes	No	Depth (in):				
Water Table Present? Yes	No	Depth (in):	12	Wetland Hydro	ology	Present? Yes 🔀 No
Saturation Present? Yes 🖂	No	Depth (in):	0-14			
(includes capillary fringe)						
Describe Recorded Data (stream gauge, r	nonitor	ing well, aerial photos, p	previous inspections), if available:		
		5, p		,,		
Remarks [.]						
Nomaria.						



Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

DP- 35

Project Site: Applicant/Owner: Investigator:	Project Site: Segment J, parcel number 5453300320 Puget Sound Energy Puget Sound Energy							Sampling Date: Sampling Point:	7/1/2015 DP- 35 Bellevue			
Sect., Township, Range:	S 10 T 24	R	05					State:	WA			
Landform (hillslope, terrace,	etc): Hillslope				Slope (%): 8	6	Local relief (concave	, convex, none	Concave		
Subregion (LRR): A					Lat:			Long:		Datum:		
Soil Map Unit Name: EvD	Everett gravelly sandy	loam, '	15-30°	% slop	bes			NWI classification:	A			
Are climatic/hydrologic cond	itions on the site typical for th	nis time c	of year	? [🛛 Yes		No	(If no, explain in rem	arks.)			
Are "Normal Circumstances"	' present on the site?				🛛 Yes		No					
Are Vegetation□, Soil □, or	Hydrology Significantly d	sturbed?	?					(If pooded, explain a	ny angwarg in F	Comarke)		
Are Vegetation \Box , Soil \Box , or	r Hydrology ∐ naturally prob	lematic						(ii needed, explain a		(emarks.)		
SUMMARY OF FINDING	GS – Attach site map sh	owing	samp	ling po	oint loca	ations	s, trans	sects, important fea	atures, etc.			
Hydrophytic Vegetation Pres	sent? Yes	\boxtimes	No									
Hydric Soils Present?	Yes	\boxtimes	No		Is the	Sampl	ina Poi	nt within a Wetland?	Yes	\mathbf{X}	No	
Wetland Hydrology Present	? Yes	\boxtimes	No				.					
Domorikoj Mistiland	11 in nit											
Remarks: wetland	H in pit.											
VEGETATION – Use sc	ientific names of plants											
		-										
Remarks: Wetland	H in pit.											
	ientific names of plants											
	· · · ·											

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Te	st Worksheet		
1.				Number of Domin that are OBL, FA	ant Species CW, or FAC:	2	(4)
3.				Total Number of I Species Across A	Dominant	4	_ (A)
4.		= Total Cover		Percent of Domin	ant Species	50	_ (B)
Sapling/Shrub Stratum (Plot size: 3m diam.)				that are OBL, FAU			(A/B)
1.				Prevalence Inc	lex Worksheet		
2.				Total %	Cover of	Multiply	v bv
3.				OBL species		x 1 =	
4.				FACW species		x 2 =	
5.				FAC species		x 3 =	
		= Total Cover		FACU species		x 4 =	
		_		UPL species		x 5 =	
Herb Stratum (Plot size: 1m diam.)				Column totals	(A)	(B)	
1. Carex rostrata	80	Y	OBL			/	
2. Lotus corniculatus	60	Y	FAC	Prevalence	Index = B / A =		
3. Scirpus microcarpus	10	N	OBL				
4. Phalaris arundinacea	5	N	FACW	Hydrophytic V	egetation Indicate	ors	
5.				Dominance	e test is > 50%		
6.				Prevalence	e test is ≤ 3.0 *		
7.				Morphologi	cal Adaptations * (pro	vide supporting	9
8.				data in rem	arks or on a separate	e sheet)	
9.				Wetland No.	on-Vascular Plants *		
10				□ Problemati	c Hvdrophvtic Vegeta	tion * (explain)	
11						(
	155	= Total Cover		* Indicators of hyd	dric soil and wetland h	nydrology must	be
Woody Vine Stratum (Plot size:)							
1.				1			
2.				Hydronhytic V	egetation		_
		= Total Cover		Preser	t? Yes	X No	
% Bare Ground in Herb Stratum:							
Remarks:							

SOIL

Sampling Point – DP-35

30iL							Sampling Fond – D	1-55
Profile Descri	ption: (Describe to the	depth need	ed to document the in	dicator or confir	m the absence o	f indicators	.)	
Depth	Matrix			Redox Featu	ires			
(inches)	Color (moist)	%	Color (moist)	%		Loc ²	Texture	Remarks
0-4	10YR 2/1	100		70	.)po	200	Sandy clay loam	
4-12	2.5Y 3/1	100					Loamy sand	
¹ Type: C=Con	centration, D=Depletion, I	RM=Reduce	ed Matrix, CS=Covered	or Coated Sand C	Grains ² Loc: PL	_=Pore Lining	g, M=Matrix	
Hydric Soil In	dicators: (Applicable to	all LRRs, u	unless otherwise note	d.)	Indicato	ors for Probl	ematic Hydric Soils ³	
Histosol (A	A1)	🗆 ໌ ຢ	Sandy Redox (S5)	,	□ 2cm	n Muck (A10))	
Histic Epip	edon (A2)		Stripped Matrix (S6)		🗌 Red	Parent Mate	erial (TF2)	
Black Hist	ic (A3)	🗆 L	_oamy Mucky Mineral (F1) (except MLR/	🗛 1) 🗌 Oth	er (explain ir	n remarks)	
🛛 Hydrogen	Sulfide (A4)	🗆 L	_oamy Gleyed Matrix (F	-2)				
Depleted I	Below Dark Surface (A11)		Depleted Matrix (F3)					
Thick Dark	s Surface (A12)	🗆 F	Redox Dark Surface (Fe	6)	³ Indicate	ors of hydrop	phytic vegetation and wetlan	d hydrology must
Sandy Mu	cky Mineral (S1)		Depleted Dark Surface	(F7)	be prese	ent, unless di	sturbed or problematic	
Sandy Gle	yed Matrix (S4)	🗆 F	Redox Depressions (F8	3)				
Restrictive Lav	ver (if present):							
Type:					Undria asil			
Depth (inches)					Hydric soll	present?	Yes 📉	
Depth (Inches)	:							
Remarks:								
HYDROLOGY								
Wetland Hydr	ology Indicators:							
Primary Indic	ators (minimum of one re	quired: cheo	ck all that apply):			Secondary	Indicators (2 or more require	ed):
Surface w	vater (A1)		Sparsely Vegetated Cor	ncave Surface (B8)	Wate	er-Stained Leaves (B9) (ML	RA 1, 2, 4A & 4B)
High Wate	er Table (A2)	🗆 V	Vater-Stained Leaves (except MLRA 1, 2	2, 4A & 4B) (B9)	🗌 Drair	nage Patterns (B10)	
Saturation	n (A3)		Salt Crust (B11)			Dry-	Season Water Table (C2)	
Water Ma	rks (B1)		Aquatic Invertebrates (B	313)		Satu	ration Visible on Aerial Imag	gery (C9)
Sediment	Deposits (B2)	X F	Hydrogen Sulfide Odor	(C1)		🗌 Geor	morphic Position (D2)	
Drift Depo	osits (B3)		Dxidized Rhizospheres	along Living Roots	s (C3)	Shal	low Aquitard (D3)	
Algal Mat	or Crust (B4)	🗌 F	Presence of Reduced In	on (C4)		🛛 FAC	-Neutral Test (D5)	
Iron Depo	sits (B5)	🗌 F	Recent Iron Reduction in	n Tilled Soils (C6)		🗌 Rais	ed Ant Mounds (D6) (LRR A	A)
Surface S	oil Cracks (B6)	🗆 S	Stunted or Stressed Pla	nts (D1) (LRR A)		Fros	t-Heave Hummocks	
Inundation	n Visible on Aerial Imager	y 🗌 C	Other (explain in remark	(s)				
(B7)								
Field Observa	ations							
Surface Water	Present? Yes	No 🛛	Depth (in):					
Water Table P	resent? Yes 🖂	No 🗆	Depth (in):	4 BGS	Wetland Hydro	ology Prese	nt? Ves 🕅	No 🗌
Saturation Pre (includes capil	sent? Yes 🖂 lary fringe)	No [Depth (in):	Throughout	fronana riyar			
Describe Reco	orded Data (stream gauge	, monitorino	g well, aerial photos. pre	evious inspections), if available:			
	, 34434							
Remarks:	BGS = below ground	d surface						
	-							



Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

DP- 36

Project Site:	Segment J Parcel 5453	300320					Sampling Date:	6/15/201	5		
Investigator:	R Kablo A Hoenig						City/County:	Bellevu	a		
Sect., Township, Range:	S 10 T 24	R 05					State:	WA	•		
Landform (hillslope, terrace,	etc): Hillslope			Slope (%): 2	5	Local relief (concave	, convex, no	ne): Concav	/e	
Subregion (LRR): A				Lat:			Long:		Datum:		
Soil Map Unit Name: EvD,	Everett gravelly sandy	loam, 15-3	0% slop	bes			NWI classification:	IA			
Are climatic/hydrologic cond	itions on the site typical for th	is time of ye	ar?	🛛 Yes		No	(If no, explain in rema	arks.)			
Are "Normal Circumstances"	present on the site?		ſ	🛛 Yes		No					
Are Vegetation \Box , Soil \Box , or	Hydrology	sturbed?									
Are Vegetation□, Soil □, or	Hydrology naturally proble	ematic					(If needed, explain a	ny answers i	in Remarks.)		
	S – Attach site map sho	wing sam	pling p	oint loca	ations	, trans	sects, important fea	atures, etc	-		
Hydrophytic Vegetation Pres	ent? Yes		ъ 🗆								
Hydric Soils Present?	Yes		ა ⊠	Is the S	Sampli	na Poi	nt within a Wetland?	Yes		No	$\mathbf{\nabla}$
Wetland Hydrology Present?	Yes		o 🛛					100		110	
Remarks: Wetland	H out pit										

VEGETATION – Use scientific names of pla	ints.				
Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1.				Number of Dominant Species	
2.				that are OBL, FACW, of FAC. (A	٩)
3. 4.				Total Number of Dominant Species Across All Strata: 3 (B	3)
		= Total Cover		Percent of Dominant Species that are OBL, FACW, or FAC: 67	4/B)
Sapling/Shrub Stratum (Plot size: 3m diam.)				(*	
1. Salix spp. (hybrid)	15	Y	FACW*	Prevalence Index Worksheet	
2.		•		Total % Cover of Multiply by	
3.				OBL species x 1 =	
4.				FACW species x 2 =	
5.				FAC species x 3 =	
	15	= Total Cover		FACU species x 4 =	
		_		UPL species x 5 =	
Herb Stratum (Plot size: 1m diam.)				Column totals (A) (B)	
1. Equisetum telmateia	60	Y	FACW		
2.				Prevalence Index = B / A =	
3.					
4.				Hydrophytic Vegetation Indicators	
5.				Dominance test is > 50%	
6				□ Prevalence test is $\leq 3.0^{*}$	
7				Morphological Adaptations * (provide supporting	
8				data in remarks or on a separate sheet)	
0.				- Wotland Non Vascular Plants *	
9.				Wetland Non-Vascular Flams	
10.					
11.					
	60	= Total Cover		* Indicators of hydric soil and wetland hydrology must be	
Woody Vine Stratum (Plot size:					
1. Rubus armeniacus	90	Y	FACU	1	
2.				- Hydrophytic Vegetation	—
	90	= Total Cover		Present? Yes No	
		-			
% Bare Ground in Herb Stratum:					
Remarks: *Procumed				•	
Fresumea					

SOIL								Sampling Point – I	DP-36
Pro	file Descri	ption: (Describe to the	depth need	ed to document the indica	ator or confirm	the absence o	f indicator	rs.)	
Dep	oth	Matrix			Redox Feature	es			
(inc	hes)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-1	0	2.5Y 3/2	100	None				Sandy loam	
10-	-14	2.5Y 4/3	100	None				Loamy sand	
¹ Ty	pe: C=Cond	centration, D=Depletion,	RM=Reduce	ed Matrix, CS=Covered or C	Coated Sand Gr	ains ² Loc: PL	-=Pore Lini	ng, M=Matrix	
	dric Soil Ind Histosol (A Histic Epip Black Histi Hydrogen Depleted E Thick Dark Sandy Mud Sandy Gle	dicators: (Applicable to (1) edon (A2) c (A3) Sulfide (A4) Below Dark Surface (A11) : Surface (A12) cky Mineral (S1) yed Matrix (S4)	• all LRRs, (unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8)	(except MLRA	Indicato	ns for Prof Muck (A10 Parent Ma Parent Ma er (explain pors of hydro ent, unless of	blematic Hydric Soils ³ 0) aterial (TF2) in remarks) ophytic vegetation and wetla disturbed or problematic	nd hydrology must
Res Typ Dep	strictive Lay be: oth (inches) marks:	er (if present):				Hydric soil	present?	Yes	No 🔀
	tland Hydr imary Indic Surface w High Wate Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo Surface S	ology Indicators: ators (minimum of one re ater (A1) er Table (A2) h (A3) rks (B1) Deposits (B2) hsits (B3) or Crust (B4) sits (B5) hold Cracks (B6)	equired: chee S V S S C S C C C C C C C C C C C C C	ck all that apply): Sparsely Vegetated Concav Vater-Stained Leaves (exce Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dxidized Rhizospheres alon Presence of Reduced Iron (C Recent Iron Reduction in Till	e Surface (B8) pt MLRA 1, 2, g Living Roots C4) led Soils (C6)	4A & 4B) (B9) (C3)	Secondary Wa Dra Dry Sat Ge Sha FAA	y Indicators (2 or more requi ater-Stained Leaves (B9) (MI ainage Patterns (B10) /-Season Water Table (C2) turation Visible on Aerial Ima omorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR	red): LRA 1, 2, 4A & 4B) agery (C9) A)

(= -)							
Field Observations							
Surface Water Present?	Yes 🗆	No 🛛	Depth (in):				
Water Table Present?	Yes 🗆	No 🛛	Depth (in):	Wetland Hydrology Present?	Yes	No	\mathbf{X}
Saturation Present? (includes capillary fringe)	Yes 🗆	No 🖾	Depth (in):				
Describe Recorded Data (st	tream gauge, r	monitoring well	, aerial photos, previous i	nspections), if available:			
Remarks:							

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): <u>Richards Creek Substation – Wetland A</u>	Date of site visit:	03/27/2017
Rated by: <u>Katy Crandall</u> Trained by Ecology? Yes 🛛 No 🗌	Date of Training	09/2014
SEC: <u>1</u> TWNSHP: <u>24N</u> RNGE: <u>05E</u> Is S/T/R in App	endix D? Yes 🗌	No 🖂

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland $I \square II \square III \boxtimes IV \square$

Category I = Score \geq 70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30

Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions TOTAL score for functions

6
10
21
37

Category based on SPECIAL CHARACTERISTICS of wetland

 $\mathbf{I} \square \quad \mathbf{II} \square \quad \mathbf{Does not Apply} \boxtimes$

Final Category (choose the "highest" category from above)

III

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	
Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed</i> <i>Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the		X*
appropriate state or federal database.		
 SP2. Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species? For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form). 		X*
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		X*
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

* The study area was reviewed for the presence of endangered, threatened, and priority species using WDFW online Priority Habitat and Species Data, PHS on the Web

(http://wdfw.wa.gov/mapping/phs/). Resident coastal cutthroat are mapped as occurring in the stream adjacent to this wetland.

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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 wetland unit usually controlled by tides (i.e. except during floods)? \square **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe 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 rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is 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 both of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
- \Box At least 30% of the open water area is deeper than 6.6 ft (2 m)?

 \boxtimes 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?
 - 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**? NOTE: Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).

 \square NO – go to 5 \square YES – The wetland class is Slope

- 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 two years

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

 \square NO - go to 6 \square YES – The wetland class is **Riverine**

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.*

 \square NO – go to 7 \square YES – The wetland class is **Depressional**

- 7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
 NO go to 8
 YES The wetland class is Depressional
- 8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. 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 class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under
	wetlands with special
	characteristics

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

S	Slope Wetlands	Points	
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality			
S	S 1. Does the wetland have the <u>potential</u> to improve water quality?	(see p. 64)	
S	S 1.1 Characteristics of average slope of wetland:	_	
	Slope is1% or less (a 1% slope has a 1 foot vertical drop in		
	elevation horizontal distance) for every 100 ft points = 3	0	
	Slope is $1\% - 2\%$ points = 2	Ū	
	Slope is $2\% - 5\%$ points = 1		
	Slope is greater than 5%		
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>).	0	
~	$YES = 3 \text{ points} \qquad NO = 0 \text{ points}$	-	
s	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants:		
	Choose the points appropriate for the description that best fits the vegetation in the wetland.		
	Dense vegetation means you nave trouble seeing the soil surface. Dense vegetation means you have trouble seeing the soil surface (> 75% cover) and uncut means not argzed on means you		
	nuve trouble seeing the soil surface (>15% cover) and uncut means not grazed or mowed and		
	plants are higher than 0 incress. Dense, ungrazed herbaceous vegetation $> 90\%$ of the wetland area points = 6	3	
	Dense, ungrazed, herbaceous vegetation $> 1/2$ of area points = 3		
	Dense, woody vegetation $> \frac{1}{2}$ of area points = 2		
	Dense, ungrazed, herbaceous vegetation $> 1/4$ of area		
	Does not meet any of the criteria above for vegetation \dots points = 0		
S	Total for S 1 Add the points in the boxes above	3	
S	S 2. Does the wetland have the opportunity to improve water quality? (see p. 67)		
-	Answer YES if you know or believe there are pollutants in groundwater or surface water coming		
	into the wetland that would otherwise reduce water quality in streams, lakes or groundwater		
	downgradient from the wetland? Note which of the following conditions provide the sources of		
	pollutants. A unit may have pollutants coming from several sources, but any single source would		
	qualify as opportunity.		
	Grazing in the wetland or within 150 ft		
	Untreated stormwater discharges to wetland		
	Tilled fields, logging or orchards within 150 ft of wetland	multiplier	
	\bowtie A stream or culvert discharges into wetland that drains developed areas, residential		
	areas, farmed fields, roads, or clear-cut logging	_2_	
	Kesidential, urban areas, or golf courses are within 150 ft upslope of wetland \mathbb{N}		
	VIES multiplier is 2 NO multiplier is 1		
S	<u>TOTAL</u> - Water Quality Functions Multiply the score from S 1 by S 2	6	
	Add score to table on p. 1		

S	Slope Wetlands	Points			
HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosi					
	S 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p. 68)			
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms.				
	Choose the points appropriate for the description that best fit conditions in the wetland. (stems				
	of plants should be thick enough (usually $> 1/8$ in), or dense enough, to remain erect during				
	surface flows)	3			
	Dense, uncut, rigid vegetation covers $> 90\%$ of the area of the wetland points = 6				
	Dense, uncut, rigid vegetation $> 1/2$ area of wetland points = 3				
	Dense, uncut, rigid vegetation $> 1/4$ area points = 1				
	More than $1/4$ of area is grazed, mowed, tilled or vegetation is not rigid points = 0				
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows:				
	The slope wetland has small surface depressions that can retain water over at least 10% of				
	its area.	2			
	YES points = 2				
	NO points = 0				
S	Total for S 3Add the points in the boxes above	5			
S	S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? (see p. 70)				
	Is the wetland in a landscape position where the reduction in water velocity it provides helps protect				
	downstream property and aquatic resources from flooding or excessive and/or erosive flows? Note				
	which of the following conditions apply.				
	Wetland has surface runoff that drains to a river or stream that has flooding problems n				
	Other				
	(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is				
	tidal fringe along the sides of a dike)				
	YES multiplier is 2 NO multiplier is 1				
S	TOTAL - Hydrologic Functions Multiply the score from S 3 by S 4	10			
	Add score to table on p. 1	10			

Comments

These questions apply to wetlands of all HGM classes.		
HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat		
H 1. Does the welland have the <u>potential</u> to provide had	onat for many species?	
 H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined more than 10% of the area of the wetland if unit small ☐ Aquatic bed ☐ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% ☐ Forested (areas where trees have >30% cover ☐ Forested areas have 3 out of 5 strata (canopy, cover) that each cover 20% within the forested Add the number of vegetation types that qualify. If you here the structure of types that qualify. 	l by Cowardin) if the class is ¼ acre or covers ller than 2.5 acres. cover) r) , sub-canopy, shrubs, herbaceous, moss/ground- ed polygon have:	4
	4 structures or more points = 4	
	3 structures points = 2	
	2 structures points = 1	
	1 structure points = 0	
H 1.2. <u>Hydroperiods</u> (see p. 73) Check the types of water regimes (hydroperiods) present cover more than 10% of the wetland or ¼ acre to count. Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or ad Seasonally flowing stream in, or adjacent to, Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points	t within the wetland. The water regime has to (see text for descriptions of hydroperiods) 4 or more types present points = 3 3 types present points = 1 1 types present points = 0 djacent to, the wetland the wetland	1
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland the same species can be combined to meet the size threes You do not have to name the species. Do not include Eurasian milfoil, reed canarygra If you counted: List species below if you want to:	at cover at least 10 ft ² . (<i>different patches of the shold</i>) <i>uss, purple loosestrife, Canadian thistle</i> > 19 speciespoints = 2 5 - 19 speciespoints = 1 < 5 speciespoints = 0	2



H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 <u>Buffers</u> (see p. 80)	
Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that	
applies to the wetland is to be used in the rating. See text for definition of "undisturbed."	
100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of	
circumference. No developed areas within undisturbed part of buffer.	
(relatively undisturbed also means no-grazing)Points = 5	
100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water > 50% circumferencePoints = 4	
50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water >95% circumferencePoints = 4	
100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water > 25% circumferencePoints = 3	1
50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water for > 50% circumferencePoints = 3	
If buffer does not meet any of the criteria above	
No paved areas (except paved trails) or buildings within 25 m (80ft)	
of wetland > 95% circumference. Light to moderate grazing, or lawns are OKPoints = 2	
No paved areas or buildings within 50m of wetland for >50% circumference.	
Light to moderate grazing, or lawns are OKPoints = 2	
Heavy grazing in bufferPoints = 1	
Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference	
(e.g. tilled fields, paving, basalt bedrock extend to edge of wetlandPoints = 0	
Buffer does not meet any of the criteria abovePoints = 1	
H 2.2 Corridors and Connections (see p. 81)	
H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either	
riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native	
undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least	
250 acres in size? (dams in riparian corridors, heavily used gravel roads, paved roads, are	
considered breaks in the corridor).	
$YES = 4 \text{ points} (go to H 2.3) \qquad NO = go to H 2.2.2$	
H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian	
or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to	0
estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe	
wetland, if it does not have an undisturbed corridor as in the question above?	
YES = 2 points (go to $H 2.3$) NO = $H 2.2.3$	
H 2.2.3 Is the wetland:	
within 5 mi (8km) of a brackish or salt water estuary OR	
within 3 mi of a large field or pasture (>40 acres) OR	
within 1 mi of a lake greater than 20 acres?	
YES = 1 point NO = 0 points	

H 2.3	Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of	
	WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	<u>http://wdfw.wa.gov/hab/phslist.htm</u>)	
Wł	nich of the following priority habitats are within 330ft (100m) of the wetland?	
	OTE: the connections do not have to be relatively undisturbed)	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acres).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species	
_	of native fish and wildlife (full description in WDFW PHS report p. 152)	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species,	
	forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8	
	trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (<u>Mature forests.</u>) Stands with average	
	diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be	
	less that 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: Woodlands Stands of pure oak or oak/confirer associations where canopy	
	coverage of the oak component is important (<i>full descriptions in WDF W PHS report p. 158.</i>)	
A	Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both	
	aquatic and terrestrial ecosystems which mutually influence each other.	
	dry projrio or o wat projrio (full descriptions in WDEW DHS report p. 161)	
	Instream: The combination of physical biological and chamical processes and conditions that	4
	interest to provide functional life history requirements for instream fish and wildlife resources	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore. Onen	
	Coast Nearshore, and Puget Sound Nearshore, <i>(full descriptions of habitats and the definition of</i>	
	relatively undisturbed are in WDFW report: np. 167-169 and glossary in Appendix A)	
	Cayes: A naturally occurring cavity recess yoid 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 7.6 m (25 ft) high and occurring below 5000 ft	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft).	
	composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings.	
	May be associated with cliffs.	
\square	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 >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are $>$	
	30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.	
	If wetland has 3 or more priority habitats = 4 points	
	If wetland has 2 priority habitats = 3 points	
	If wetland has 1 priority habitat = 1 point	
	No habitats = 0 points	
N	ote: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby	
W	etlands are addressed in question H2.4.	

H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 84) There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development	3
There are no wetlands within $\frac{1}{2}$ mile	
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
TOTAL for H1 from page 14	13
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	21

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): <u>Richards Creek Substation</u> – Wetland B	Date of site visit: 03/27/2017
Rated by: <u>Katy Crandall</u> Trained by Ecology? Yes 🛛 No 🗌	Date of Training 09/2014
SEC: <u>1</u> TWNSHP: <u>24N</u> RNGE: <u>05E</u> Is S/T/R in Appen	ndix D? Yes 🗌 No 🖂

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland $I \square II \square III \boxtimes IV \square$

Category I = Score \geq 70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30

Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions **TOTAL score for functions**

2
16
16
34

Category based on SPECIAL CHARACTERISTICS of wetland

 $I \square II \square$ Does not Apply \boxtimes

Final Category (choose the "highest" category from above)

III

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. Has the wetland unit been documented as a habitat for any Federally listed		
Threatened or Endangered animal or plant species (T/E species)?		T 7 14
For the purposes of this rating system, "documented" means the wetland is on the		Х*
appropriate state or federal database.		
SP2. Has the wetland unit been documented as habitat for any State listed		
Threatened or Endangered animal species?		
For the purposes of this rating system, "documented" means the wetland is on the		X*
appropriate state database. Note: Wetlands with State listed plant species are		
categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		
SP3. Does the wetland unit contain individuals of Priority species listed by the		$\mathbf{V}*$
WDFW for the state?		Λ^*
SP4. Does the wetland unit have a local significance in addition to its functions?		
For example, the wetland has been identified in the Shoreline Master Program, the		v
Critical Areas Ordinance, or in a local management plan as having special		Λ
significance.		

* The study area was reviewed for the presence of endangered, threatened, and priority species using WDFW online Priority Habitat and Species Data, PHS on the Web (http://wdfw.wa.gov/mapping/phs/).

<u>To complete the next part of the data sheet you will need to determine the</u> <u>Hydrogeomorphic Class of the wetland being rated.</u>

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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 wetland unit usually controlled by tides (i.e. except during floods)? \square **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe 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 rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is 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 both of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
- \Box At least 30% of the open water area is deeper than 6.6 ft (2 m)?

 \boxtimes 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?
 - 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**? NOTE: Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).

 \square NO – go to 5 \square YES – The wetland class is Slope

- 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 two years

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

 \square NO - go to 6 \square YES – The wetland class is **Riverine**

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.*

 \square NO – go to 7 \square YES – The wetland class is **Depressional**

- 7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
 NO go to 8
 YES The wetland class is Depressional
- 8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. 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 class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under
	wetlands with special
	characteristics

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

S	Slope Wetlands	Points
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality		
S	S 1. Does the wetland have the <u>potential</u> to improve water quality?	(see p. 64)
S	S 1.1 Characteristics of average slope of wetland:	
	Slope is1% or less (a 1% slope has a 1 foot vertical drop in	
	elevation horizontal distance) for every 100 ft points = 3	0
	Slope is $1\% - 2\%$ points = 2	0
	Slope is $2\% - 5\%$ points = 1	
~	Slope is greater than 5%	
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>).	0
G	$YES = 3 \text{ points} \qquad NO = 0 \text{ points}$	
8	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants:	
	Choose the points appropriate for the description that best fits the vegetation in the wetland.	
	Dense vegetation means you have trouble seeing the soil surface. Dense vegetation means you have trouble seeing the soil surface ($>75\%$ cover) and uncut means not argzed or mowed and	
	nuve rouble seeing the soil surface (>1570 cover) and uncut means not grazed or mowed and plants are higher than 6 inches	
	Dense ungrazed herbaceous vegetation > 90% of the wetland area $points = 6$	2
	Dense, ungrazed, herbaceous vegetation $> 1/2$ of area points = 3	
	Dense, woody, vegetation $> \frac{1}{2}$ of area	
	Dense, ungrazed, herbaceous vegetation $> 1/4$ of area points = 1	
	Does not meet any of the criteria above for vegetation \dots points = 0	
S	Total for S 1Add the points in the boxes above	2
S	S 2. Does the wetland have the <u>opportunity</u> to improve water quality? (see p. 67)	
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming	
	into the wetland that would otherwise reduce water quality in streams, lakes or groundwater	
	downgradient from the wetland? Note which of the following conditions provide the sources of	
	pollutants. A unit may have pollutants coming from several sources, but any single source would	
	qualify as opportunity.	
	Grazing in the wetland or within 150 ft	
	Tilled fields, logging or orchards within 150 ft of wotland	multiplice
	A stream or culvert discharges into wetland that drains developed areas residential	multiplier
	areas farmed fields roads or clear-cut logging	1
	Residential, urban areas, or golf courses are within 150 ft unslope of wetland	_1
	Other:	
	YES multiplier is 2 NO multiplier is 1	
S	TOTAL - Water Quality Functions Multiply the score from S 1 by S 2	2
	Add score to table on p. 1	2

S	Slope Wetlands	Points	
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosi		
	S 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?		
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms.		
	Choose the points appropriate for the description that best fit conditions in the wetland. (stems		
	of plants should be thick enough (usually > $1/8in$), or dense enough, to remain erect during		
	surface flows)	6	
	Dense, uncut, rigid vegetation covers $> 90\%$ of the area of the wetland points = 6	0	
	Dense, uncut, rigid vegetation $> 1/2$ area of wetland points = 3		
	Dense, uncut, rigid vegetation > $1/4$ area points = 1		
~	More than $1/4$ of area is grazed, mowed, tilled or vegetation is not rigid points = 0		
s	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows:		
	The slope wetland has small surface depressions that can retain water over at least 10% of	2	
	its area.	2	
	$\begin{array}{llllllllllllllllllllllllllllllllllll$		
	NO points = 0	2	
S	Total for S 3Add the points in the boxes above	8	
S	S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? (see p. 70)		
	Is the wetland in a landscape position where the reduction in water velocity it provides helps protect		
	downstream property and aquatic resources from flooding or excessive and/or erosive flows? Note		
	which of the following conditions apply.		
	Wetland has surface runoff that drains to a river or stream that has flooding problems	multiplier	
	Other: Wetland retains surface water that would otherwise flow to a river or stream with		
	flooding problems	_2_	
	(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is		
	tidal fringe along the sides of a dike)		
	YES multiplier is 2 NO multiplier is 1		
S	TOTAL - Hydrologic Functions Multiply the score from S 3 by S 4	16	
	Add score to table on p. 1	16	

Comments

These questions apply to wetlands of all HGM classes.		
HADITAT FUNCTIONS - Indicators that we tand function H 1 Does the wetland have the potential to provide habita	t for many species?	
H 1 1 Vegetation structure (see n 72)	it for many species:	
Check the types of vegetation classes present (as defined by more than 10% of the area of the wetland if unit smaller Aquatic bed Emergent plants	v Cowardin) if the class is ¹ /4 acre or covers • than 2.5 acres.	
 Scrub/shrub (areas where shrubs have >30% cov Forested (areas where trees have >30% cover) Forested areas have 3 out of 5 strata (canopy, su cover) that each cover 20% within the forested p 	ver) b-canopy, shrubs, herbaceous, moss/ground- polygon	2
nuu me number of vegeninon types that quality. If you hav	4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0	
H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present we cover more than 10% of the wetland or ¼ acre to count. (se Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjace Seasonally flowing stream in, or adjacent to, the Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points	ithin the wetland. The water regime has to ee text for descriptions of hydroperiods) 4 or more types present points = 3 3 types present points = 2 2 types present points = 1 1 types present	1
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland that consume species can be combined to meet the size threshow. You do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, If you counted: List species below if you want to:	cover at least 10 ft ² . (<i>different patches of the ld</i>) purple loosestrife, Canadian thistle > 19 species points = 2 - 19 species points = 1 < 5 species points = 0	1



H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 <u>Buffers</u> (see p. 80)	
Choose the description that best represents condition of buffer of wetland. The highest	pring criterion that
applies to the wetland is to be used in the rating. See text for definition of "undisturbed	
100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water	>95% of
circumference. No developed areas within undisturbed part of buffer.	
(relatively undisturbed also means no-grazing)	$\dots Points = 5$
100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water > 50% circumference	$\dots Points = 4$
50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water >95% circumference	\dots Points = 4
100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water > 25% circumference	Points = 3 3
50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water for > 50% circumference	Points = 3
If buffer does not meet any of the criteria above	
No paved areas (except paved trails) or buildings within 25 m (80ft)	
of wetland > 95% circumference. Light to moderate grazing, or lawns are OK	$\dots Points = 2$
No paved areas or buildings within 50m of wetland for >50% circumference.	
Light to moderate grazing, or lawns are OK.	$\dots Points = 2$
Heavy grazing in buffer.	$\dots Points = 1$
Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference	
(e.g. tilled fields, paving, basalt bedrock extend to edge of wetland	$\dots \text{Points} = 0$
Buffer does not meet any of the criteria above	Points = 1
H 2.2 Corridors and Connections (see p. 81)	
H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated co	dor (either
riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, f	est or native
undisturbed prairie, that connects to estuaries, other wetlands or undisturbed upla	ls that are at least
250 acres in size? (dams in riparian corridors, heavily used gravel roads, paved	pads, are
considered breaks in the corridor).	
$YES = 4 \text{ points} (go to H 2.3) \qquad NO = go to H 2.2.2$	
H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated co	dor (either riparian
or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, ar	connects to 0
estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size	OR a Lake-fringe
wetland, if it does not have an undisturbed corridor as in the question above?	-
YES = 2 points (go to $H 2.3$) NO = H 2.2.3	
H 2.2.3 Is the wetland:	
within 5 mi (8km) of a brackish or salt water estuary OR	
within 3 mi of a large field or pasture (>40 acres) OR	
within 1 mi of a lake greater than 20 acres?	
YES = 1 point NO = 0 points	

H 2.3	Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of	
	WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	http://wdfw.wa.gov/hab/phslist.htm)	
Wł	hich of the following priority habitats are within 330ft (100m) of the wetland?	
	OTE: the connections do not have to be relatively undisturbed)	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acres).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species	
_	of native fish and wildlife (<i>full description in WDFW PHS report p. 152</i>)	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species,	
	forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8	
	trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (<u>Mature forests.</u>) Stands with average	
	diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be	
	less that 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: woodlands Stands of pure oak of oak/confirer associations where canopy	
	Coverage of the oak component is important (<i>juli descriptions in wDF w PHS report p. 158.</i>)	
	Riparian : The area adjacent to aquatic systems with flowing water that contains elements of both	
	Westeide Dreiviege Herbaccous, non forested plant communities that can either take the form of a	
	dry prairie or a wet prairie (full descriptions in WDEW PHS report n. 161)	
	Instream: The combination of physical biological and chemical processes and conditions that	4
	interact to provide functional life history requirements for instream fish and wildlife resources	
	Nearshore: Relatively undisturbed nearshore babitats. 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: pp. 167-169 and glossary in Appendix A.)	
	Cayes: 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 7.6 m (25 ft) high and occurring below 5000 ft.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
	composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings.	
	May be associated with cliffs.	
\boxtimes	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 >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are $>$	
	30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.	
	If wetland has 3 or more priority habitats = 4 points	
	If wetland has 2 priority habitats = 3 points	
	If wetland has 1 priority habitat = 1 point	
	No habitats = 0 points	
N	ote: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby	
W	etlands are addressed in question H2.4.	

11.2.4 Westend Londsonno (choose the one description of the landsonno anound the westend that best fits)	
H 2.4 <u>wettand Landscape</u> (choose the one description of the tandscape around the wettand that best fits)	
(see p. 84)	
There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
relatively undisturbed (light grazing between wetlands OK, as is lake shore with some	
boating, but connections should NOT be bisected by paved roads, fill, fields, or	
other development points = 5	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other	
lake-fringe wetlands within $\frac{1}{2}$ mile points = 5	3
There are at least 3 other wetlands within 1/2 mile, BUT the connections between them	
are disturbed points = 3	
The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe	
wetland within $\frac{1}{2}$ mile points = 3	
There is at least 1 wetland within $\frac{1}{2}$ mile points = 2	
There are no wetlands within $\frac{1}{2}$ mile points = 0	
H 2. TOTAL Score - opportunity for providing habitat	10
Add the scores from H2.1, H2.2, H2.3, H2.4	10
TOTAL for H1 from page 14	6
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	16
	=0

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): <u>Richards Creek Sub</u>	ostation – Wetland C	Date of site visit:	03/27/2017
Rated by: <u>Katy Crandall</u> Trained by Ecology?	Yes 🛛 No 🗌 Dat	te of Training	09/2014
SEC: <u>1</u> TWNSHP: <u>24N</u> RNGE: <u>05E</u>	Is S/T/R in Appendi	x D? Yes 🗆	No 🖂

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland $I \square II \square III \boxtimes IV \square$

Category I = Score \geq 70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30

Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions **TOTAL score for functions**

6
12
20
38

Category based on SPECIAL CHARACTERISTICS of wetland

 $I \square II \square$ Does not Apply \boxtimes

Final Category (choose the "highest" category from above)

III

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. Has the wetland unit been documented as a habitat for any Federally listed		
Threatened or Endangered animal or plant species (T/E species)?		T 7 14
For the purposes of this rating system, "documented" means the wetland is on the		Х*
appropriate state or federal database.		
SP2. Has the wetland unit been documented as habitat for any State listed		
Threatened or Endangered animal species?		
For the purposes of this rating system, "documented" means the wetland is on the		X*
appropriate state database. Note: Wetlands with State listed plant species are		
categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		
SP3. Does the wetland unit contain individuals of Priority species listed by the		$\mathbf{V}*$
WDFW for the state?		Λ^*
SP4. Does the wetland unit have a local significance in addition to its functions?		
For example, the wetland has been identified in the Shoreline Master Program, the		v
Critical Areas Ordinance, or in a local management plan as having special		Λ
significance.		

* The study area was reviewed for the presence of endangered, threatened, and priority species using WDFW online Priority Habitat and Species Data, PHS on the Web (http://wdfw.wa.gov/mapping/phs/).

<u>To complete the next part of the data sheet you will need to determine the</u> <u>Hydrogeomorphic Class of the wetland being rated.</u>

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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 wetland unit usually controlled by tides (i.e. except during floods)? \square **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe 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 rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is 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 both** of the following criteria?

- ☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
- \Box At least 30% of the open water area is deeper than 6.6 ft (2 m)?

 \boxtimes 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?
 - 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**? NOTE: Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).

 \square NO – go to 5 \square YES – The wetland class is Slope

- 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 two years

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

 \square NO - go to 6 \square YES – The wetland class is **Riverine**

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.*

 \square NO – go to 7 \square YES – The wetland class is **Depressional**

- 7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
 NO go to 8
 YES The wetland class is Depressional
- 8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. 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 class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under
	wetlands with special
	characteristics

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

S	Slope Wetlands	Points	
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality			
S	S 1. Does the wetland have the <u>potential</u> to improve water quality?		
S	S 1.1 Characteristics of average slope of wetland:		
	Slope is1% or less (a 1% slope has a 1 foot vertical drop in		
	elevation horizontal distance) for every 100 ft points = 3	0	
	Slope is $1\% - 2\%$ points = 2	0	
	Slope is $2\% - 5\%$ points = 1		
~	Slope is greater than 5%		
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>).	0	
G	$YES = 3 \text{ points} \qquad NO = 0 \text{ points}$		
8	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants:		
	Choose the points appropriate for the description that best fits the vegetation in the wetland.		
	Dense vegetation means you have trouble seeing the soil surface. Dense vegetation means you have trouble seeing the soil surface ($>75\%$ cover) and uncut means not argzed or mowed and		
	have trouble seeing the soil surface $(>/5\% \text{ cover})$ and uncut means not grazed or mowed and plants are higher than 6 inches		
	Dense ungrazed herbaceous vegetation > 90% of the wetland area points = 6		
	Dense, ungrazed, herbaceous vegetation > $1/2$ of area		
	Dense, woody, vegetation $> \frac{1}{2}$ of area		
	Dense, ungrazed, herbaceous vegetation $> 1/4$ of area points = 1		
	Does not meet any of the criteria above for vegetation		
S	Total for S 1Add the points in the boxes above	3	
S	S 2. Does the wetland have the opportunity to improve water quality? (see p. 67)		
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming		
	into the wetland that would otherwise reduce water quality in streams, lakes or groundwater		
	downgradient from the wetland? Note which of the following conditions provide the sources of		
	pollutants.A unit may have pollutants coming from several sources, but any single source would		
	qualify as opportunity.		
	Grazing in the wetland or within 150 ft		
	Untreated stormwater discharges to wetland		
	Tilled fields, logging or orchards within 150 ft of wetland		
	X A stream or culvert discharges into wetland that drains developed areas, residential		
	areas, farmed fields, roads, or clear-cut logging		
	Contential, urban areas, or gon courses are wrunn 150 it upsiope or wettand		
	VES multiplier is 2 NO multiplier is 1		
S	<u>TOTAL</u> - Water Quality Functions Multiply the score from S 1 by S 2	6	
	Add score to table on p. 1	÷	

S	Slope Wetlands	Points			
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream e				
	S 3. Does the wetland have the potential to reduce flooding and erosion?				
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms.				
	Choose the points appropriate for the description that best fit conditions in the wetland. (stems				
	of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during				
	surface flows)	6			
	Dense, uncut, rigid vegetation covers $> 90\%$ of the area of the wetland points = 6	0			
	Dense, uncut, rigid vegetation $> 1/2$ area of wetland points = 3				
	Dense, uncut, rigid vegetation $> 1/4$ area points = 1				
	More than $1/4$ of area is grazed, mowed, tilled or vegetation is not rigid points = 0				
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows:				
	The slope wetland has small surface depressions that can retain water over at least 10% of				
	its area.	0			
	YES points = 2				
	NO points = 0				
S	Total for S 3Add the points in the boxes above	6			
S	S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? (see p. 70)				
	Is the wetland in a landscape position where the reduction in water velocity it provides helps protect				
	downstream property and aquatic resources from flooding or excessive and/or erosive flows? Note				
	which of the following conditions apply.				
	\boxtimes Wetland has surface runoff that drains to a river or stream that has flooding problems				
	Other				
	(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is				
	tidal fringe along the sides of a dike)				
	YES multiplier is 2 NO multiplier is 1				
S	TOTAL - Hydrologic Functions Multiply the score from S 3 by S 4				
	Add score to table on p. 1	12			

Comments

These questions apply to wetlands of all HGM of HABITAT FUNCTIONS Indicators that watland fun	classes.	
HADITAT FUNCTIONS - Indicators that we take the net of the movide has	bitat for many species?	
H 1. Does the wetland have the <u>potential</u> to provide had H 1.1 Vegetation structure (see $n = 72$)	onat for many species:	
Check the types of vegetation classes present (as defined more than 10% of the area of the wetland if unit sma	d by Cowardin) if the class is ¼ acre or covers Iller than 2.5 acres.	
 Emergent plants Scrub/shrub (areas where shrubs have >30% Forested (areas where trees have >30% cove Forested areas have 3 out of 5 strata (canopy cover) that each cover 20% within the forested 	cover) er) y, sub-canopy, shrubs, herbaceous, moss/ground- ed polygon	2
Add the number of vegetation types that qualify. If you	have:	
	4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0	
H 1.2. Hydroperiods (see p. 73)		
Check the types of water regimes (hydroperiods) presen cover more than 10% of the wetland or ¼ acre to count. Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points	<pre>ht within the wetland. The water regime has to . (see text for descriptions of hydroperiods) 4 or more types present points = 3 3 types present points = 2 2 types present points = 1 1 types presentpoints = 0 djacent to, the wetland the wetland</pre>	1
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland th same species can be combined to meet the size thre. You do not have to name the species. Do not include Eurasian milfoil, reed canarygra If you counted: List species below if you want to:	hat cover at least 10 ft ² . (<i>different patches of the shold</i>) ass, purple loosestrife, Canadian thistle > 19 speciespoints = 2 5 - 19 speciespoints = 1 < 5 speciespoints = 0	1



H 2. Does the wetland have the opportunity to provide habitat for many species?		
H 2.1 <u>Buffers</u> (see p. 80)		
Choose the description that best represents condition of buffer of wetland. The highes	coring criterion that	
applies to the wetland is to be used in the rating. See text for definition of "undisturbe	,	
100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open wa	>95% of	
circumference. No developed areas within undisturbed part of buffer.		
(relatively undisturbed also means no-grazing)	$\dots Points = 5$	
100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or		
open water > 50% circumference	$\dots Points = 4$	
50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or		
open water >95% circumference	Points $= 4$	
100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or		
open water > 25% circumference	Points = 3 3	
50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or		
open water for > 50% circumference	Points = 3	
If buffer does not meet any of the criteria above		
No paved areas (except paved trails) or buildings within 25 m (80ft)		
of wetland > 95% circumference. Light to moderate grazing, or lawns are OK	Points = 2	
No paved areas or buildings within 50m of wetland for >50% circumference.		
Light to moderate grazing, or lawns are OK	Points = 2	
Heavy grazing in buffer.	Points = 1	
Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference		
(e.g. tilled fields, paving, basalt bedrock extend to edge of wetland	Points $= 0$	
Buffer does not meet any of the criteria above	\dots Points = 1	
H 2.2 Corridors and Connections (see p. 81)		
H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated	ridor (either	
riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs	rest or native	
undisturbed prairie, that connects to estuaries, other wetlands or undisturbed up	ds that are at least	
250 acres in size? (dams in riparian corridors, heavily used gravel roads, pave	roads, are	
considered breaks in the corridor).		
$YES = 4 \text{ points} (go to H 2.3) \qquad NO = go to H 2.2.2$		
H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated	ridor (either riparian	
or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest,	connects to 0	
estuaries, other wetlands or undisturbed uplands that are at least 25 acres in siz	OR a Lake-fringe	
wetland, if it does not have an undisturbed corridor as in the question above?	-	
YES = 2 points (go to $H 2.3$) NO = H 2.2.3		
H 2.2.3 Is the wetland:		
within 5 mi (8km) of a brackish or salt water estuary OR		
within 3 mi of a large field or pasture (>40 acres) OR		
within 1 mi of a lake greater than 20 acres?		
YES = 1 point NO = 0 point		

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of				
WDFW priority habitats, and the counties in which they can be found, in the PHS report				
	http://wdfw.wa.gov/hab/phslist.htm)			
W	hich of the following priority habitats are within 330ft (100m) of the wetland?			
_(A	<i>IOTE: the connections do not have to be relatively undisturbed)</i>			
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acres).			
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species			
	of native fish and wildlife (full description in WDFW PHS report p. 152)			
	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 20 trees/ha (8			
	trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (<u>Mature forests.</u>) Stands with average			
	diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be			
	less that 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: Woodlands Stands of pure oak or oak/conifer associations where canopy			
	coverage of the oak component is important (<i>full descriptions in WDF W PHS report p. 158.</i>)			
M	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 (<i>full descriptions in WDF w PHS report p. 161</i>)	4		
M	Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life biotomy requirements for instream field and wildlife resources.			
	Nearsharea, Delatively, undisturbed rearsharea behitete. These include Coastal Nearshare. Onen			
	Nearshore: Relatively undisturbed nearshore additates. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitate and the definition of			
	relatively undisturbed are in WDEW report; pp. 167, 160 and alossary in Appendix A.)			
	Caves: A naturally occurring cavity recess yold 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 7.6 m (25 ft) high and occurring below 5000 ft			
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft)			
	composed of basalt andesite and/or sedimentary rock including rinran slides and mine tailings			
	May be associated with cliffs.			
\boxtimes	Snags and Logs: Trees are considered snags if they are dead or dving and exhibit sufficient decay			
	characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast			
	height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are $>$			
	30 cm (12 in) in diameter at the largest end, and > 6m (20 ft) long.			
	If wetland has 3 or more priority habitats = 4 points			
	If we tland has 2 priority habitats = 3 points 1			
	If we tland has 1 priority habitat = 1 point			
	No habitats = 0 points			
Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby				
۱	vetlands are addressed in question H2.4.			

H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits)	
(see n 84)	
(see p. o4)	
There are at least 3 other wetlands within $\frac{1}{2}$ mile, and the connections between them are	
relatively undisturbed (light grazing between wetlands OK, as is lake shore with some	
boating, but connections should NOT be bisected by paved roads, fill, fields, or	
other development points = 5	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other	3
lake-fringe wetlands within $\frac{1}{2}$ mile	
There are at least 3 other wetlands within 1/2 mile, BUT the connections between them	
are disturbed points = 3	
The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe	
wetland within $\frac{1}{2}$ mile points = 3	
There is at least 1 wetland within $\frac{1}{2}$ mile	
There are no wetlands within $\frac{1}{2}$ mile points = 0	
H 2. TOTAL Score - opportunity for providing habitat	10
Add the scores from H2.1, H2.2, H2.3, H2.4	10
TOTAL for H1 from page 14	10
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	20
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WETLAND RATING FORM – WESTERN WASHINGTON Version 2 – Updated July 2006 to increase accuracy and reproducibility among users Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland: Richards Creek Wetland – Wetland DDate of Site visit: 10/2016Rated by: M. Foster, K. CrandallTrained by Ecology? Yes \boxtimes No \square Date of Training: 09/2014SEC: 3, 4TWNSHP: 24N RNGE: 05EIs S/T/R in Appendix D? Yes \square No \boxtimes

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland I \square II \boxtimes III \square IV \square

Category I = Score \geq 70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30

Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions **TOTAL score for functions**

20]
22	
21	
63	

Category based on SPECIAL CHARACTERISTICS of wetland

 $\mathbf{I} \Box \quad \mathbf{II} \Box \quad \mathbf{Does not Apply} \boxtimes$

Final Category (choose the "highest" category from above)

Π	

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	\boxtimes
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	\boxtimes	Check if unit has multiple HGM classes present	
Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or</i> <i>Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X*
SP2. Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species? For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X*
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		X*
SP4. <i>Does the wetland unit have a local significance in addition to its functions</i> ? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		Х

* The study area was reviewed for the presence of endangered, threatened, and priority species using WDFW online Priority Habitat and Species Data, PHS on the Web (http://wdfw.wa.gov/mapping/phs/).

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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 wetland unit usually controlled by tides (i.e. except during floods)? \boxtimes NO – go to 2 \square YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe 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 rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is 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 both** of the following criteria?
 - \Box The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
 - \Box 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**? NOTE: Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).

 \boxtimes NO – go to 5 \square YES – The wetland class is Slope

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

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

 \boxtimes The overbank flooding occurs at least once every two years

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

 \Box NO - go to 6 \boxtimes **YES** – The wetland class is **Riverine**

- 6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland*.
 □ NO go to 7 □ **YES** The wetland class is **Depressional**
- 7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
 □ NO go to 8
 □ YES The wetland class is Depressional
- 8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. 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 class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under
	wetlands with special
	characteristics

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

R	Riverine and Freshwater Tidal Fringe Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
R	R 1. Does the wetland have the potential to improve water quality?	(see p. 52)
R	 R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: □ Depressions cover > 3/4 area of wetlandpoints = 8 □ Depressions cover > 1/2 area of wetlandpoints = 4 □ Depressions present but cover < 1/2 area of wetlandpoints = 2 □ No depressions presentpoints = 0 R 1.2 Characteristics of the vegetation in the wetland (areas with > 90% cover at person height): 	2
	 ☑ Forest or shrub > 2/3 the area of the wetlandpoints = 8 □ Forest or shrub > 1/3 area of the wetlandpoints = 6 □ Ungrazed, emergent plants > 2/3 area of wetlandpoints = 6 □ Ungrazed emergent plants > 1/3 area of wetlandpoints = 3 □ Forest, shrub, and ungrazed emergent < 1/3 area of wetlandpoints = 0 	8
R	Total for R 1Add the points in the boxes above	10
R	 R 2. Does the wetland have the <u>opportunity</u> to improve water quality? (see p. 53) Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? Note which of the following conditions provide the sources of pollutants. □ Grazing in the wetland or within 150 ft □ Untreated stormwater discharges to wetland □ Tilled fields or orchards within 150 ft of wetland □ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging □ Residential, urban areas, golf courses are within 150 ft of wetland □ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality □ Other	multiplier <u>2</u>
R	TOTAL - Water Quality Functions Multiply the score from R 1 by R 2 Add score to table on p. 1	20

Comments

R	Riverine and Freshwater Tidal Fringe Wetlands		
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream er		
	R 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p. 54)	
R	 R 3.1 Characteristics of the overbank storage the wetland provides: Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (width of wetland)/(width of stream). □ If the ratio is more than 20points = 9 □ If the ratio is between 10 – 20points = 6 ∞ If the ratio is 5 - <10points = 4 □ If the ratio is 1- <5points = 1 	4	
R	 R 3.2 Characteristics of vegetation that slow down water velocities during floods: Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes) ☑ Forest or shrub for >1/3 area OR Emergent plants > 2/3 areapoints = 7 □ Forest or shrub for > 1/10 area OR Emergent plants > 1/3 areapoints = 4 □ Vegetation does not meet above criteriapoints = 0 	7	
R	Total for R 3Add the points in the boxes above	11	
R	 R 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? (see p. 57) Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Note which of the following conditions apply. ☑ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. 	(see p. 57) multiplier	
	☑ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding	multiplier	
	□ Other (Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike) YES multiplier is 2 NO multiplier is 1	<u>2</u>	
R	TOTAL - Hydrologic Functions Multiply the score from R 3 by R 4 Add score to table on p. 1	22	

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat		
H 1. Does the wetland have the potential to provide hat	bitat for many species?	
 H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined more than 10% of the area of the wetland if unit sma □ Aquatic bed ⊠ Emergent plants ⊠ Scrub/shrub (areas where shrubs have >30% cover) ⊠ Forested (areas where trees have >30% cover) ⊠ Forested areas have 3 out of 5 strata (canopy, subthat each cover 20% within the forested polygon Add the number of vegetation types that qualify. If you find the straight of the straight	d by Cowardin) if the class is ¼ acre or covers eller than 2.5 acres. r) canopy, shrubs, herbaceous, moss/ground-cover) have: 4 structures or morepoints = 4 3 structurespoints = 2 2 structurespoints = 1	4
	2 structure $points = 0$	
 H 1.2. <u>Hydroperiods (see p. 73)</u> Check the types of water regimes (hydroperiods) presen cover more than 10% of the wetland or ¼ acre to count. □ Permanently flooded or inundated □ Seasonally flooded or inundated □ Saturated only □ Permanently flowing stream or river in, or adjacent □ Seasonally flowing stream in, or adjacent to, the w □ Lake-fringe wetland = 2 points □ Freshwater tidal wetland = 2 points 	at within the wetland. The water regime has to (see text for descriptions of hydroperiods) 4 or more types presentpoints = 3 3 types presentpoints = 1 1 types present points = 0 at to, the wetland yetland	2
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland that species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, pu If you counted: List species below if you want to:	cover at least 10 ft ² . (different patches of the same urple loosestrife, Canadian thistle $\square > 19$ species points = 2 $\boxtimes 5 - 19$ species points = 1 $\square < 5$ species points = 0	1



H 2. Does the wetland have the opportunity to provide habitat for many species?	
 H 2. Does the wetrand nave the opportunity to provide habitat for many species? H 2.1 Buffers (see p. 80) Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed." □ 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. (relatively undisturbed also means no-grazing)	1
H 2.2 Corridors and Connections (see p. 81)H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor). \Box YES = 4 points (go to H 2.3) \boxtimes NO = go to H 2.2.2H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above? \Box YES = 2 points (go to H 2.3) \boxtimes WES = 2 points (go to H 2.3) \boxtimes NO = H 2.2.3H 2.2.3 Is the wetland: \Box within 5 mi (8km) of a brackish or salt water estuary OR \Box within 3 mi of a large field or pasture (>40 acres) OR \Box within 1 mi of a lake greater than 20 acres? \Box YES = 1 point	0

H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS	
report <u>http://wdfw.wa.gov/hab/phslist.htm</u>)	
Which of the following priority habitats are within 330ft (100m) of the wetland?	
(NOTE: the connections do not have to be relatively undisturbed)	
\Box Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acres).	
□ Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full description in WDFW PHS report p. 152</i>)	
□ Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
 Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 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: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (<i>full descriptions in WDFW PHS report p. 158.</i>) 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 (<i>full descriptions in WDFW PHS report p. 161</i>) 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 	4
Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)	
□ 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.	
\Box Chris: Greater than 7.6 in (25 ft) high and occurring below 5000 ft.	
Tails: Homogenous areas of rock rubble ranging in average size 0.13 - 2.0 in (0.3 - 0.5 it), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are $>$ 30cm (12 in) in diameter at the largest end, and $> 6m$ (20 ft) long.	
If wetland has 3 or more priority habitats = 4 points If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points	
Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.	

 H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 84) □ There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other developmentpoints = 5 □ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ milepoints = 5 □ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbedpoints = 3 □ The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ milepoints = 3 □ The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe metland within ½ mile	3
F	
H 2 . TOTAL Score - opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
TOTAL for H1 from page 14	13
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	21

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Richard	rds Creek Substation – Wetland H	Date of site visit:	7/1/2015, 5/8/2017
R. Kahlo, Rated by: A. Hoenig, K. Crandall Trained	by Ecology? Yes ⊠□ No □[[Date of Training	09/2014
SEC: 10 TWNSHP: 24N RNO	GE: 05E Is S/T/R in Appen	ıdix D? Yes 🗌	□ No ⊠□

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

 $\mathbf{I} \Box \Box \quad \mathbf{II} \Box \Box \quad \mathbf{III} \boxtimes \Box \quad \mathbf{IV} \Box \Box$

Category I = Score \geq 70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30

Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions **TOTAL score for functions**

6	
16	
21	
43	

Category based on SPECIAL CHARACTERISTICS of wetland

 $\mathbf{I} \square \square \mathbf{II} \square \square \mathbf{Does not Apply} \square$

Final Category (choose the "highest" category from above)

III

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	Χ
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple	
		HGM classes present	

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?		v
For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		Λ
SP2. <i>Has the wetland unit been documented as habitat for any State listed</i> <i>Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		Х
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

*The study area was reviewed for the presence of endangered, threatened, and priority species using WDFW online Priority Habitat and Species Data, PHS on the Web

(http://wdfw.wa.gov/mapping/phs/). Resident coastal cutthroat are mapped as occurring in the stream adjacent to this wetland.

To complete the next part of the data sheet you will need to determine the *Hydrogeomorphic Class of the wetland being rated.*

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

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 wetland unit usually controlled by tides (i.e. except during floods)? \square **PRS** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe 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 rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

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

 \square 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 both** of the following criteria?

The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

 \Box 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?
 - \square 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.
 - \square The water leaves the wetland **without being impounded**?

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

 \square NO – go to 5

 \square **YES** – The wetland class is **Slope**

- 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 two years

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

 \square NO - go to 6 \square YES – The wetland class is **Riverine**

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.*

 \square NO – go to 7 \square 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 your wetland. 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 class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under
	wetlands with special
	characteristics

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

S	Slope Wetlands	Points				
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality					
S	S 1. Does the wetland have the <u>potential</u> to improve water quality?	(see p. 64)				
S	S 1.1 Characteristics of average slope of wetland:					
	Slope is1% or less (a 1% slope has a 1 foot vertical drop in					
	elevation horizontal distance) for every 100 ft points = 3	0				
	Slope is $1\% - 2\%$ points = 2	0				
	Slope is $2\% - 5\%$ points = 1					
~	Slope is greater than 5%					
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>).	0				
G	$YES = 3 \text{ points} \qquad NO = 0 \text{ points}$					
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants:					
	Choose the points appropriate for the description that best fits the vegetation in the wetland.					
	Dense vegetation means you nave trouble seeing the soil surface. Dense vegetation means you have trouble seeing the soil surface (> 75% cover) and uncut means not argzed or moved and					
	nuve trouble seeing the soil surface (>1570 cover) and uncut means not grazed of mowed and plants are higher than 6 inches					
	Dense ungrazed herbaceous vegetation $> 90\%$ of the wetland area points $= 6$	3				
	Dense, ungrazed, herbaceous vegetation $> 1/2$ of area points = 3					
	Dense, woody, vegetation $> 1/2$ of area points = 2					
	Dense, woody, vegetation $> 1/2$ of area					
	Does not meet any of the criteria above for vegetation					
S	Total for S 1Add the points in the boxes above	3				
S	S 2. Does the wetland have the <u>opportunity</u> to improve water quality? (see p. 67)					
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming					
	into the wetland that would otherwise reduce water quality in streams, lakes or groundwater					
	downgradient from the wetland? Note which of the following conditions provide the sources of					
	pollutants.A unit may have pollutants coming from several sources, but any single source would					
	qualify as opportunity.					
	Grazing in the wetland or within 150 ft					
	Untreated stormwater discharges to wetland	1 1.				
	\square I filled fields, logging or orchards within 150 ft of wetland	multiplier				
	A stream or curvert discharges into wettand that drains developed areas, residential	2				
	areas, farmed fields, foads, of clear-cut logging \square Posidential urban areas, or colf courses are within 150 ft unslope of wetland					
	\square Other					
	YES Multiplier is 2 NO Multiplier is 1					
S	TOTAL - Water Quality Functions Multiply the score from S 1 by S 2	í.				
	Add score to table on p. 1	6				

5

S	Slope Wetlands				
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream er				
	S 3. Does the wetland have the potential to reduce flooding and erosion?				
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms.				
	Choose the points appropriate for the description that best fit conditions in the wetland. (stems				
	of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during				
	surface flows)	6			
	Dense, uncut, rigid vegetation covers $> 90\%$ of the area of the wetland points = 6				
	Dense, uncut, rigid vegetation $> 1/2$ area of wetland points = 3				
	Dense, uncut, rigid vegetation $> 1/4$ area points = 1				
	More than $1/4$ of area is grazed, mowed, tilled or vegetation is not rigid points = 0				
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows:				
	The slope wetland has small surface depressions that can retain water over at least 10% of				
	its area.	2			
	YES points = 2				
	NO points = 0				
S	Total for S 3Add the points in the boxes above	8			
S	S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? (see p. 70)				
	Is the wetland in a landscape position where the reduction in water velocity it provides helps protect				
	downstream property and aquatic resources from flooding or excessive and/or erosive flows? Note				
	which of the following conditions apply.				
	\square Wetland has surface runoff that drains to a river or stream that has flooding problems n				
	Other				
	(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is				
	tidal fringe along the sides of a dike)				
	YES multiplier is 2 NO multiplier is 1				
S	TOTAL - Hydrologic Functions Multiply the score from S 3 by S 4	16			
	Add score to table on p. 1	10			

Comments

These questions apply to wetlands of all HGM classes.		
HABITAT FUNCTIONS - Indicators that wetland function	ons to provide important habitat	
H 1. Does the wetland have the <u>potential</u> to provide habita	it for many species?	
Check the types of vegetation classes present (as defined by more than 10% of the area of the wetland if unit smaller Aquatic bed Emergent plants	v Cowardin) if the class is ¼ acre or covers r than 2.5 acres.	
Scrub/shrub (areas where shrubs have >30% Forested (areas where trees have >30% cov Forested areas have 3 out of 5 strata (canop moss/ground-cover) that each cover 20% within Add the number of vegetation types that qualify. If you hav	% cover) er) by, sub-canopy, shrubs, herbaceous, a the forested polygon be:	2
	4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0	
H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present w cover more than 10% of the wetland or ¼ acre to count. (see Permanently flooded or inundated Seasonally flooded or inundated Saturated only Permanently flowing stream or river in, or adjace Seasonally flowing stream in, or adjacent to, the Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points	ithin the wetland. The water regime has to ee text for descriptions of hydroperiods)4 or more types present points = 3 3 types present points = 2 2 types present points = 1 1 types present points = 0 cent to, the wetland e wetland	1
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland that of same species can be combined to meet the size thresho You do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, If you counted: List species below if you want to:	cover at least 10 ft ² . (<i>different patches of the</i> <i>bld</i>) <i>purple loosestrife, Canadian thistle</i> > 19 species points = 2 - 19 species points = 1 < 5 species points = 0	2



H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 <u>Buffers</u> (see p. 80)	
Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that	
applies to the wetland is to be used in the rating. See text for definition of "undisturbed."	
100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of	
circumference. No developed areas within undisturbed part of buffer.	
(relatively undisturbed also means no-grazing)Points = 5	
100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water > 50% circumferencePoints = 4	
50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water >95% circumferencePoints = 4	
□100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water > 25% circumferencePoints = 3	3
50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or	
open water for > 50% circumferencePoints = 3	
If buffer does not meet any of the criteria above	
No paved areas (except paved trails) or buildings within 25 m (80ft)	
of wetland > 95% circumference. Light to moderate grazing, or lawns are OKPoints = 2	
\Box No paved areas or buildings within 50m of wetland for >50% circumference.	
Light to moderate grazing, or lawns are OKPoints = 2	
Heavy grazing in bufferPoints = 1	
Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference	
(e.g. tilled fields, paving, basalt bedrock extend to edge of wetlandPoints = 0	
Buffer does not meet any of the criteria abovePoints = 1	
H 2.2 Corridors and Connections (see p. 81)	
H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either	
riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native	
undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least	
250 acres in size? (dams in riparian corridors, heavily used gravel roads, paved roads, are	
considered breaks in the corridor).	
YES = 4 points (go to H 2.3) NO = go to H 2.2.2	
H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian	
or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to	0
estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe	
wetland, if it does not have an undisturbed corridor as in the question above?	
YES = 2 points (go to H 2.3) $NO = H 2.2.3$	
H 2.2.3 Is the wetland:	
within 5 mi (8km) of a brackish or salt water estuary OR	
within 3 mi of a large field or pasture (>40 acres) OR	
within 1 mi of a lake greater than 20 acres?	
YES = 1 point NO = 0 points	

9

H 2.3	Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of	
	WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	http://wdfw.wa.gov/hab/phslist.htm)	
Wh	ich of the following priority habitats are within 330ft (100m) of the wetland?	
	OTE: the connections do not have to be relatively undisturbed)	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acres).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species	
	of native fish and wildlife (<i>full description in WDFW PHS report p. 152</i>)	
	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-nayered canopy with occasional sinan openings; with at least 20 trees/ha (8 trees/agra) $\gtrsim 81$ am (22 in) dbh or $\gtrsim 200$ years of aga. (Mature forests.) Stands with every	
	(1) $(32 III)$ doll of > 200 years of age. (<u>Mature forests.</u>) Stands with average	
	less that 100%; decay, decadance, 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: Woodlands Stands of nure oak or oak/conifer associations where canony	
	coverage of the oak component is important (full descriptions in WDFW PHS report p. 158)	
	Rinarian . The area adjacent to aquatic systems with flowing water that contains elements of both	
	aduatic 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)	4
\boxtimes	Instream: The combination of physical, biological, and chemical processes and conditions that	4
	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: pp. 167-169 and glossary in Appendix A.)	
	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 7.6 m (25 ft) high and occurring below 5000 ft. Takes Hamman for $h = 111$ marging in a second se	
	Talus: Homogenous areas of fock rubble ranging in average size $0.15 - 2.0 \text{ m} (0.5 - 6.5 \text{ m})$,	
	May be associated with eliffe	
	Single and Loge: 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 >51 cm (20 in) in western Washington and are >2 m (6.5 ft) in height. Priority logs are >	
	30 cm (12 in) in diameter at the largest end, and $> 6 m (20 ft)$ long.	
	If wetland has 3 or more priority habitats = 4 points	
	If we tland has 2 priority habitats = 3 points	
	If wetland has 1 priority habitat = 1 point	
	No habitats = 0 points	
Ne	ote: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby	
we	etlands are addressed in question H2.4.	

(see p. 84) There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other points = 5 The wetland is Lake-fringe wetlands within ½ mile. points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed are disturbed points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	10
TOTAL for H1 from page 14	11
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	21

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the Category when the	
SC 1.0 Estuarine wetlands (see p. 86)	
Does the wetland unit meet the following criteria for Estuarine wetlands?	
The dominant water regime is tidal,	
Vegetated, and	
With a salinity greater than 0.5 ppt.	
$YES = Go \text{ to } SC 1.1 \qquad \text{NO} \boxtimes$	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? YES = Category I NO = go to SC 1.2	Cat. I
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?	Cat. I
\Box YES = Category I \Box NO = Category II \Box The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I(II)). The are sof Sperting would be rated a Category II while the	Cat. II
 relating (11) The are an Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. 	Dual rating I/II

SC 2.0 Natural Heritage Wetlands (see p. 87)	
 Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? (this question is used to screen out most sites before you need to contact WNHP/DNR) S/T/R information from Appendix D □ or accessed from WNHP/DNR web site □ YES□ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ⊠ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO □ Not a Heritage Wetland 	Cat. I
SC = 0 Page (and p. 97)	
 SC 3.0 Bogs (see p. 87) Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions. 1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.) Yes - go to Q.3 NO - go to Q.2 2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes - go to Q.3 NO ⊠ is not a bog for purpose of rating 3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)? Yes - Is a bog for purpose of rating NO - go to Q.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" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 	
 4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (>30% coverage of the total shrub/herbaceous cover)? YES = Category I 	Cat. I

SC 4.0 Forested Wetlands (see n. 90)	
Does the wetland have at least 1 acre of forest that meet one of these criteria for	
the Department of Fish and Wildlife's forests as priority habitats? If you answer	
yes you will still need to rate the wetland based on its functions.	
 Old growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); 	
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	
YES = Category 1 NO \boxtimes not a forested wetland with special characteristics	Cat. I
SC 5.0 Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
The wetland lies in a degreesion adjacent to maxing waters that is whally	
or partially separated from marine waters by sandbanks, gravel banks	
shingle, or, less frequently, rocks.	
The lagoon in which the wetland is located contains surgace 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 \boxtimes not a wetland in a coastal lagoon	
	Cat. I
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 invasive plant species	
(see list of invasive species on p. 74).	
At least $\frac{3}{4}$ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	Cot II
The wetalnd is larger than $1/10$ acre (4350 square feet)	Cat. 11
$\frac{1}{\text{YES}} = \text{Category I} \qquad \text{NO} = \text{Category II}$	

SC 6.0 Interdunal Wetlands (see p. 93)	
Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of	
Upland Ownership or WBUO)?	
YES – go to SC 6.1 NO \boxtimes not an interdunal wetland for rating	
If you answer yes you will still need to rate the wetland based on its functions.	
In practical terms that means the following geographic areas:	
 Long Beach Peninsula – lands west of SR 103 	
 Grayland-Westport – lands west of SR 105 	
 Ocean Shores-Copalis – lands west of SR 115 and SR 109 	
SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre	
or larger?	
$YES = Category II \qquad NO - go to SC 6.2$	Cat. II
SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is	
between 0.1 and 1 acre?	
YES = Category III	Cat. III
Category of wetland based on Special Characteristics	
Choose the "highest" rating if wetland falls into several categorie, and record on	
p. 1 .	
If you answered NO for all types enter "Not Applicable" on p.1.	

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Richards Creek Substation – Wetland ADate of site visit: 3/27/2016Rated by: Katy CrandallTrained by Ecology? \square NDate of training: 09/2014

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

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map: <u>King County iMap and Google Earth</u>

OVERALL WETLAND CATEGORY (based on functions \square or special characteristics \square)

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	Hydrologic	Habitat	
	-	Circle the app	propriate ratings	
Site Potential	HML	HML	H M L	
Landscape Potential	H M L	H M L	HML	
Value	HML	HML	HML	TOTAL
Score Based on	6	6	6	18
Ratings	Ũ	Ŭ	Ŭ	10

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		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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	2
(can be added to figure above)		5
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	0
polygons for accessible habitat and undisturbed habitat		0
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	9
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	10

HGM Classification of Wetlands in Western Washington

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

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

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

⊠NO – go to 2

- \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).

⊠NO – go to 4 □**YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

 \boxtimes The water leaves the wetland without being impounded.

 \Box 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,

 \Box 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	HGM class to
	Pivorino
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.

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

Rating of Site Potential If score is: \Box **12 = H** \Box **6-11 = M** \boxtimes **0-5 = L**

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?		1
	\boxtimes Yes = 1 \square No = 0	T
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?		1
Other sources: refuse, turbid runoff observed, gravel pole yard, parking	imes Yes = 1 $ imes$ No = 0	T
Total for S 2	Add the points in the boxes above	2

Rating of Landscape Potential If score is: 🖾 1-2 = M 🗌 0 = L

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin is on the 303(d) list.	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a TMDL for the basin in which unit is found.	0
Total for S 3Add the points in the boxes above	2

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

Record the rating on the first page

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream eros	ion
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
 S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually >1/8₈ in), or dense enough, to remain erect during surface flows. □ Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1 ○ All other conditions 	0
Rating of Site Potential If score is: $\Box 1 = M \ \boxtimes 0 = L$ Record the rating on	the first page

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface	S 5.0. Does the land	scape have the potential to support the hydrologic functions of the site?	
	S 5.1. Is more than 2	% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface	1
runoff? \square Yes = 1 \square No = 0	runoff?	imes Yes = 1 $ imes$ No = 0	Ŧ

Rating of Landscape Potential If score is: $\square \mathbf{1} = \mathbf{M}$ $\square \mathbf{0} = \mathbf{L}$

Record the rating on the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or	
natural resources (e.g., houses or salmon redds)points = 2Surface flooding problems are in a sub-basin farther down-gradientpoints = 1No flooding problems anywhere downstreampoints = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	0
Total for S 6Add the points in the boxes above	2

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

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked. □ Aquatic bed 4 structures or more: points = 4 ⊠ Emergent 3 structures: points = 2 ⊠ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 ⊠ Forested (areas where trees have > 30% cover) 1 structure: points = 0 If the unit has a Forested class, check if: ∑ ⊠ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	4
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). □ Permanently flooded or inundated 4 or more types present: points = 3 □ Seasonally flooded or inundated 3 types present: points = 2 ☑ Occasionally flooded or inundated 2 types present: points = 1 ☑ Saturated only 1 type present: points = 0 □ Permanently flowing stream or river in, or adjacent to, the wetland 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 ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: ≥ 19 species □ 5 - 19 species □ < 5 species	2
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	3

Richards Creek Substation – Wetland A

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
\boxtimes 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).	3
□ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present <i>(cut shrubs or trees that have not yet weathered where wood is exposed).</i>	J
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians).</i>	
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	13
Rating of Site Potential If score is: \Box 15-18 = H \boxtimes 7-14 = M \Box 0-6 = L Record the rating on the second 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] = 3.0% + 0%= 3.0% If total accessible habitat is: $\square > 1/3$ (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 \boxtimes < 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 = 13.8% + (0%/2) = 13.8% □ Undisturbed habitat > 50% of Polygon points = 31 □ Undisturbed habitat 10-50% and in 1-3 patches points = 2 \boxtimes 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 -2 ≥ 50% of 1 km Polygon is high intensity land use points = (-2) $\Box \leq 50\%$ of 1 km Polygon is high intensity points = 0 -1 Total for H 2 Add the points in the boxes above

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	y the highest score	
that applies to the wetland being rated.		
Site meets ANY of the following criteria:	points = 2	
It has 3 or more priority habitats within 100 m (see next page)		
$\square\;$ It provides habitat for Threatened or Endangered species (any plant or animal on th	e state or federal lists)	
It is mapped as a location for an individual WDFW priority species		2
$\square\;$ It is a Wetland of High Conservation Value as determined by the Department of Nat	ural 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	
\Box Site does not meet any of the criteria above	points = 0	
	Descend the subtine section	h - Cart a -

Rating of Value If score is: $\square 2 = H \square 1 = M \square 0 = L$ Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

Record the rating on the first page

Richards Creek Substation – Wetland A

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.

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.
RATING SUMMARY – Western Washington

Name of wetland (or ID #): Richards Creek Substation – Wetland BDate of site visit: 3/27/2017Rated by: Katy CrandallTrained by Ecology? \boxtimes Y \Box NDate of training: 09/2014

HGM Class used for rating: Slope

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: <u>King County iMap and Google Earth</u>

OVERALL WETLAND CATEGORY (based on functions \boxtimes or special characteristics \square)

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	ydrol	ogic	ŀ	labit	at		
					Circle	the app	oroprie	ate ra	tings	
Site Potential	Н	Μ		Н	M) L	Н	Μ		
Landscape Potential	Н	Μ		Н	М		Н	Μ	$\overline{\mathbf{O}}$	
Value	H	Μ	L	H	Μ	L	H	Μ	L	TOTAL
Score Based on Ratings		5			6			5		16

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		Ι
Bog		Ι
Mature Forest		Ι
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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	Н 1.1, Н 1.4	1
Hydroperiods	H 1.2	2
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	2
(can be added to figure above)		5
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	0
polygons for accessible habitat and undisturbed habitat		0
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	9
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	10

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?
 - \boxtimes 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,

 \boxtimes The water leaves the wetland without being impounded.

 \Box NO – go to 5

 $\boxtimes \textbf{YES}$ – 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,

 \Box 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	HGM class to
being rated	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.

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

Rating of Site Potential If score is: \Box **12 = H** \Box **6-11 = M** \boxtimes **0-5 = L**

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water qua	ality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in la	nd uses that generate pollutants?	0	
	\Box Yes = 1 \boxtimes No = 0	0	
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?		0	
Other sources	□Yes = 1 ⊠ No = 0	U	
Total for S 2	Add the points in the boxes above	0	

Rating of Landscape Potential If score is: \Box **1-2 = M** \boxtimes **0 = L**

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin is on the 303(d) list.	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a TMDL for the basin in which unit is found.	0
Total for S 3Add the points in the boxes above	2

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

Record the rating on the first page

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosi	on
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
 S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually >1/8₈ in), or dense enough, to remain erect during surface flows. ☑ Dense, uncut, rigid plants cover > 90% of the area of the wetland 	1
\Box All other conditions points = 0	

Rating of Site Potential If score is: $\square 1 = M \square 0 = L$

Record the rating on the first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of t	the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover tha runoff?	at generate excess surface □Yes = 1 ⊠ No = 0	0
Rating of Landscape Potential If score is: $\Box 1 = M \boxtimes 0 = L$	Record the rating on t	the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
 S 6.1. Distance to the nearest areas downstream that have flooding problems: ☑ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) □ Surface flooding problems are in a sub-basin farther down-gradient □ No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	
Total for S 6Add the points in the boxes above	2

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

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

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)	2
that each cover 20% within the Forested polygon	
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). □ Permanently flooded or inundated 4 or more types present: points = 3 □ 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 ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species ∅ 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 All three diagrams in this row are HIGH = 3points	1

Richards Creek Substation – Wetland B

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
\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	6
Rating of Site Potential If score is: \Box 15-18 = H \Box 7-14 = M \boxtimes 0-6 = L Record the rating of the statement of t	n the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the s	iite?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).		
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 3.0%	+ (0%/2) = 3.0%	
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 uses)/2 = 13.8%	+ (0%/2) = 13.8%	
Undisturbed habitat > 50% of Polygon	points = 3	1
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
□ ≤ 50% of 1 km Polygon is high intensity	points = 0	
Total for H 2 Add the po	ints 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	e 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? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 	
 It has 3 or more priority habitats within 100 m (see next page) It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) It is mapped as a location for an individual WDFW priority species It is a Wetland of High Conservation Value as determined by the Department of Natural Resources It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan 	2
□ Site has 1 or 2 priority habitats (listed on next page) within 100 mpoints = 1□ Site does not meet any of the criteria abovepoints = 0	

Rating of Value If score is: $\square \mathbf{2} = \mathbf{H} \square \mathbf{1} = \mathbf{M} \square \mathbf{0} = \mathbf{L}$ Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

Richards Creek Substation – Wetland B

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.

 \boxtimes **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.

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Richards Creek Substation – Wetland CDate of site visit: 3/27/2017Rated by: Katy CrandallTrained by Ecology? \boxtimes Y \square NDate of training: 09/2014

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

Wetland has multiple HGM classes? \boxtimes Y \square N

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map: <u>King County iMap and Google Earth</u>

OVERALL WETLAND CATEGORY (based on functions \boxtimes or special characteristics \square)

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		Ну	drol	ogic	Habitat				
			-	(Circle	the ap	oropr	iate ra	ntings	
Site Potential	Н	Μ		Н	M	L	Н	M	L	
Landscape Potential	Н	M	L	Н	Μ		Н	Μ		
Value	H	М	L	H	Μ	L	H	Μ	L	TOTAL
Score Based on Ratings		6			6			6		18

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	Н 1.1, Н 1.4	1
Hydroperiods	H 1.2	2
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	2
(can be added to figure above)		5
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	0
polygons for accessible habitat and undisturbed habitat		Ö
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	9
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	10

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

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.

YES – The wetland class is **Flats** \boxtimes NO – go to 3 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; \Box At least 30% of the open water area is deeper than 6.6 ft (2 m).

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

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

 \Box 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.

YES – Freshwater Tidal Fringe

□ 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.

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

Rating of Site Potential If score is: \Box **12** = H \Box **6-11** = M \boxtimes **0-5** = L

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?			
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?		0	
	\Box Yes = 1 \boxtimes No = 0	U	
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?		1	
Other sources <u>Stream conveying roadway and urban runoff</u>	⊠Yes = 1 □ No = 0	T	
Total for S 2	Add the points in the boxes above	1	

Rating of Landscape Potential If score is: \square **1-2 = M** \square **0 = L**

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin is on the 303(d) list.	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a TMDL for the basin in which unit is found.	0
Total for S 3Add the points in the boxes above	2

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

Record the rating on the first page

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosite	on
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
 S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually >1/8, in), or dense enough, to remain erect during surface flows. ☑ Dense, uncut, rigid plants cover > 90% of the area of the wetland 	1
\Box All other conditions points = 0	

Rating of Site Potential If score is: $\square \mathbf{1} = \mathbf{M} \square \mathbf{0} = \mathbf{L}$

Record the rating on the first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of the	site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that ge runoff?	enerate excess surface \Box Yes = 1 \boxtimes No = 0	0
Rating of Landscape Potential If score is: $\Box 1 = \mathbf{M} \ \boxtimes 0 = \mathbf{L}$ Record the rating on the first page		the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
 S 6.1. Distance to the nearest areas downstream that have flooding problems: 	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? \Box Yes = 2 \boxtimes No = 0	
Total for S 6Add the points in the boxes above	2

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

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

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 ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: □ > 19 species ∅ 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	

Richards Creek Substation – Wetland C

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
\boxtimes 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).	Λ
□ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>).	4
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians).</i>	
☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>).	
Total for H 1 Add the points in the boxes above	10
Rating of Site Potential If score is: \Box 15-18 = H \boxtimes 7-14 = M \Box 0-6 = L Record the rating on the second sec	the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the site	e?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).		
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 3.0% +	(0%/2) = 3.0%	
If total accessible habitat is:		
\Box > 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 uses)/2 = 13.8% +	(0%/2) = 13.8%	
Undisturbed habitat > 50% of Polygon	points = 3	1
Undisturbed habitat 10-50% and in 1-3 patches	points = 2	Ţ
\boxtimes 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 point	ts 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	e 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? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 It has 3 or more priority habitats within 100 m (see next page) It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) It is mapped as a location for an individual WDFW priority species It is a Wetland of High Conservation Value as determined by the Department of Natural Resources It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1	2
$\Box \text{ Site does not meet any of the criteria above} $	

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.

 \boxtimes **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.

RATING SUMMARY – Western Washington

Name of wetland: <u>Richards Creek Substation – Wetland D</u> Date of site visit: <u>10/10/2016, 5/8/2017</u> Rated by: <u>M. Foster, K. Crandall</u> Trained by Ecology? XY IN Date of training: 09/2014

HGM Class used for rating: <u>Riverine</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: <u>King County iMap and Google Earth</u>

OVERALL WETLAND CATEGORY (based on functions \square or special characteristics \square)

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	Hydrologic	Habitat	
	_	Circle the ap	propriate ratings	
Site Potential	H M L	H M L	H M L	
Landscape Potential	HML	H M L	HML	
Value	H M L	HML	HML	TOTAL
Score Based on	7	7	6	20
Ratings	/	/	0	20

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY	
Estuarine	Ι	II
Wetland of High Conservation Value	I	
Bog	I	
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

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	4
Hydroperiods	H 1.2	5
Ponded depressions	R 1.1	5
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	4
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	6
Width of unit vs. width of stream (can be added to another figure)	R 4.1	5
Map of the contributing basin	R 2.2, R 2.3, R 5.2	7
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	8
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	9
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	10

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

- **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.

YES – The wetland class is **Flats** \boxtimes NO – go to 3 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; \Box At least 30% of the open water area is deeper than 6.6 ft (2 m).

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

- 4. Does the entire wetland unit **meet all** of the following criteria?
 - The wetland is on a slope (*slope can be very gradual*),

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

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

 \boxtimes 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.

 \boxtimes The overbank flooding occurs at least once every 2 years.

YES – Freshwater Tidal Fringe

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	HGM class to
being rated	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.

RIVERINE AND FRESHWATER TIDAL FRINGE WET	LANDS	
Water Quality Functions - Indicators that the site functions to impr	ove water quality	
R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a f	looding event:	
\Box Depressions cover \geq 3/4 area of wetland	points = 8	
\Box Depressions cover > 1/2 area of wetland	points = 4	2
Depressions present but cover < 1/2 area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, not Cowardin	classes)	
\boxtimes Trees or shrubs > 2/3 area of the wetland	points = 8	
Trees or shrubs > 1/3 area of the wetland	points = 6	0
\Box Herbaceous plants (> 6 in high) > 2/3 area of the wetland	points = 6	8
\Box Herbaceous plants (> 6 in high) > 1/3 area of the wetland	points = 3	
\Box Trees, shrubs, and ungrazed herbaceous < 1/3 area of the wetland	points = 0	
Total for R 1 Add the poir	nts in the boxes above	10
Rating of Site Potential If score is: \Box 12-16 = H \boxtimes 6-11 = M \Box 0-5 = L	Record the rating on th	e first page

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA? \Box Yes = 2 \Box No = 0	2	
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? \Box Yes = 1 \Box No = 0	1	
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	0	
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? \Box Yes = 1 \Box No = 0	1	
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4Other sources: \Box Yes = 1 \boxtimes No = 0	0	
Total for R 2Add the points in the boxes above	4	

Rating of Landscape Potential If score is: \square **3-6 = H** \square **1 or 2 = M** \square **0 = L**

Record the rating on the first page

R 3.0. Is the water quality improvement provided by the site valuable to s	society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tribe	utary that drains to one within 1 mi? \Box Yes = 1 \Box No = 0	1
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, to	oxics, or pathogens? □Yes = 1 ⊠ No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for n (Answer YES if there is a TMDL for the drainage in which the unit is found)	naintaining water quality? □Yes = 2 ⊠ No = 0	0
Total for R 3	Add the points in the boxes above	1
Deting of Velue, if some is: $\square 2 A = U$, $\square 4 = M$, $\square 6 = U$	Descud the wating on th	a first war a

Rating of Value If score is: $\Box 2-4 = H \quad \boxtimes 1 = M \quad \Box 0 = L$

Record the rating on the first page

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion? R 4.1. Characterisitis of the overbank storage the wetland provides: Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of stream between banks). I if the ratio is 10-20 points = 9 I if the ratio is 10-20 points = 5 If the ratio is 10-20 points = 4 If the ratio is 10-20 points = 1 If the ratio is 10-20 points = 1 If the ratio is 1-05 points = 1 If the ratio is 1-05 points = 1 If the ratio is 1-05 points = 1 If the ratio is 1-3 points = 1 R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are MOI Coundin classes). 7 If forest or shrub for > 1/13 area OR emergent plants > 1/3 area points = 1 R tails do not meet above criteria points = 1 R tails of Site Potential If score is: 12:16 = H Site 1 = M O = 5 = L Record the rating on the first page R 5.2. Does the landscape have the potential to support the hydrologic functions of the site? 0 1	RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS		
R 4.0. Does the site have the potential to reduce flooding and erosion? R 4.1. Obaracteristics of the overbank storage the wetland provides: Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks). If the ratio is 10-20 points = 9 If the ratio is 5<10	Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion		
R 4.1. Characteristics of the overbank storage the wetland provides: Estimate the overage width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Image: the overage width of the wetland perpendicular to the direction of the flow and the width of wetland)/(average width of stream between banks). Points = 9 Image: the atta is more than 20 points = 9 points = 0 Image: the atta is the overbank storage the wetland provides: points = 0 points = 0 Image: the atta is the atta is the store overbank storage the wetland provides: points = 1 points = 1 Image: the atta is the atta is the atta is the store overbank storage the wetland provides: points = 1 points = 1 R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub for > 1/3 area 0 Remergent plants > 2/3 area points = 7 7 Example: the store should for > 1/3 area 0 Remergent plants > 1/3 area points = 0 11 Rating of Site Potential If score is: ll 2 16 = H ⊠ 6 11 = M ⊡ 0.5 = L Record the rating on the first page R 5.0. Does the landscape have the potential to support the hydrologic functions of the site? 1 0 R 5.1. Is the stream or river adjacent to the wetland downcut? Image: No = 1 1 1 Total for R 5 Add the points in the	R 4.0. Does the site have the potential to reduce flooding and erosion?		
Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (overage width of vetland)/(overage width of stream between banks).	R 4.1. Characteristics of the overbank storage the wetland provides:		
stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks). points = 9 If the ratio is 10-20 points = 6 If the ratio is 5-10 points = 4 If the ratio is 5-10 points = 1 R 4. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub r. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes). 7 Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub for >1/10 area 0 Remergent plants > 2/3 area points = 7 7 Forest or shrub for >1/10 area 0 Remergent plants > 2/3 area points = 0 points = 0 Total for R 4 Add the points in the boxes above 11 Rating of Site Potential If score is: 12:16 = H Impoints = 1 Record the rating on the first page R 5.0. Does the landscape have the potential to support the hydrologic functions of the site? 0 1 R 5.2. Does the up-gradient stream or river controlled by dams? Impoints = 1 0 1 R 5.3. Is the up-gradient stream or river controlled by dams? Impoints = 1 1 1 Total for R 5 Add the points in the boxes abovee 2 2	Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the		
width of stream between banks). points = 9 If the ratio is more than 20 points = 9 If the ratio is 10-20 points = 4 points = 1 points = 2 If the ratio is 15 points = 2 points = 1 points = 1 R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub. Choose the points epropriate for the best description (polygons need to have >90% cover at person height. These are NOTCowardin classes). 7 Forest or shrub for > 1/3 area 0R emergent plants > 2/3 area points = 4 points = 7 7 Plants do not meet above criteria points = 1 Record the rating on the site? 7 R 5.0. Does the landscape have the potential to support the hydrologic functions of the site? 0 10 R 5.1. Is the stream or river adjacent to the wetland downcut? IVes = 0 No = 1 0 R 5.2. Does the landscape have the potential to support the hydrologic functions of the site? 11 11 Total for R 5 Add the points in the boxes above 12 R 5.1. Is the stream or river adjacent to the wetland downcut? IVes = 0 No = 1 1 Total for R 5 Add the points in the boxes above 2 2 R f.1. Distance to the nearest are	stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average		
□ If the ratio is more than 20 points = 9 4 □ If the ratio is 10-20 points = 6 □ If the ratio is 5-<10	width of stream between banks).		
□ If the ratio is 10-20 points = 6 ○ If the ratio is 5~10 points = 4 □ If the ratio is 1~5 points = 1 □ If the ratio is 1~5 points = 1 □ If the ratio is 1~5 points = 1 R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes). 7 ○ Forest or shrub for > 1/3 area 0R emergent plants > 2/3 area points = 7 points = 7 □ Points > 1/3 area 0R emergent plants > 1/3 area points = 0 11 Rating of Site Potential If score is: 12-16 = H © 6-5 = L Record the rating on the trating on the rating on the rating on the rating on the points = 1 0 R 5.0. Does the landscape have the potential to support the hydrologic functions of the site? 1 0 R 5.1. Is the stream or river adjacent to the wetland downcut? □ No = 0 1 R 5.2. Joes the up-gradient watershed include a UGA or incorporated area? □ No = 1 1 Total for R 5 Add the points in the boxes above 2 2 Rating of Landscape Potential If sc	\Box If the ratio is more than 20 points = 9	4	
□ If the ratio is 5-c10 points = 4 □ if the ratio is 1-C5 points = 2 □ if the ratio is 1-C points = 1 R.4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes). 7 □ Forest or shrub for > 1/3 area OR emergent plants > 2/3 area points = 7 points = 7 □ Forest or shrub for > 1/1 area OR emergent plants > 1/3 area points = 4 points = 4 □ Plants do not meet above criteria Add the points in the boxes above 11 Rating of Site Potential If score is: □2-16 = H Bef-11 = M 0-5 = L Record the rating on the first page R 5.0. Does the landscape have the potential to support the hydrologic functions of the site? R 0 1 R 5.1. Is the stream or river adjacent to the wetland downcut? □ 0 1 1 Total for R 5 Add the points in the boxes above 1 1 1 Total for R 5 Add the points in the boxes above 2 2 R 6.0. Are the hydrologic functions provided by the site valuable to society? 2 Record the rating on the	\Box If the ratio is 10-20 points = 6		
□ If the ratio is 1- <s< td=""> points = 2 points = 1 R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes). 7 Characteristics of plants that slow down water velocities during floods: Treat large woody debris os forest or shrub for > 1/3 area 0R emergent plants > 2/3 area points = 7 points = 7 7 □ Plants do not meet above criteria points = 1 7 □ Plants do not meet above criteria points = 0 7 □ Total for R 4 Add the points in the boxes above 11 Rating of Site Potential If score is: □2-16 = H ⊠6-11 = M 0-5 = L Record the rating on the first page R 5.0. Does the landscape have the potential to support the hydrologic functions of the site? 0 No = 1 0 R 5.1. Is the stream or river adjacent to the wetland downcut? ⊠ Yes = 0 No = 1 1 1 Total for R 5 Add the points in the boxes above 2 2 Rating of Landscape Potential If score is::] 3 = H N o 2 = M 1 1 1 Total for R 5 Add the points in the boxes above 2 2</s<>	\boxtimes If the ratio is 5-<10 points = 4		
□ If the ratio is < 1	\Box If the ratio is 1-<5 points = 2		
R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are MOT Cowardin closses). 7 □ Forest or shrub for > 1/3 area OR emergent plants > 2/3 area points = 7 points = 4 points = 0 7 □ Plants do not meet above criteria Add the points in the boxes above 11 R forest or shrub for > 1/10 area OR emergent plants > 1/3 area points = 0 Plants do not meet above criteria 11 R forest or shrub for > 1/10 area OR emergent plants > 1/3 area points = 0 Plants do not meet above criteria 11 R forest or shrub for > 1/10 area OR emergent plants > 1/3 area points = 0 No = 1 0 R forest or shrub for > 1/3 area OR points = 1 Plants do not meet above criteria 10 R forest or shrub for > 1/3 area OR points = 1 R forest or shrub for > 1/1 0 0 R forest or shrub for > 1/2 OR Potential If score is: 12 - 16 + M @ -1 = M @ -5 = L Record the rating on the strest page 0 R forest the up-gradient watershed include a UGA or incorporated area? If yes = 0 No = 1 1 Total for R 5 Add the points in the boxes above 2 Rating of Landscape Potential If score is: 1 or 2 = M @ 0 = L Record the rating o	\Box If the ratio is < 1 points = 1		
shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes). 7 Forest or shrub for > 1/3 area OR emergent plants > 2/3 area points = 7 points = 4 points = 0 7 Total for R 4 Add the points in the boxes above 11 Rating of Site Potential If score is: □12-16 = H ⊠6-11 = M □0-5 = L Record the rating on the first page R 5.0. Does the landscape have the potential to support the hydrologic functions of the site? 0 No = 1 R 5.1. Is the stream or river adjacent to the wetland downcut? Sin the up-gradient stream or river controlled by dams? Yes = 0 No = 1 Total for R 5 Add the points in the boxes above 1 R 5.3. Is the up-gradient stream or river controlled by dams? Yes = 0 No = 1 0 R 6.0. Are the hydrologic functions provided by the site valuable to society? Record the rating on the first page 2 Choose the up-gradient areas downstream that have flooding problems? Choose the description that best fits the site. 2	R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or		
height. These are MOT Cowardin_classes). 7 □ Forest or shrub for > 1/3 area OR emergent plants > 2/3 area points = 7 points = 4 points = 4 points = 4 points = 0 7 □ Plants do not meet above criteria points = 0 11 Rating of Site Potential If score is: □ 12-16 = H □ 6-11 = M □ 0-5 = L Record the rating on the first page R 5.0. Does the landscape have the potential to support the hydrologic functions of the site? 0 0 R 5.1. Is the stream or river adjacent to the wetland downcut? □ Yes = 0 □ No = 1 0 R 5.2. Does the landscape have the potential to support area? □ Yes = 1 □ No = 0 1 R 5.3. Is the up-gradient stream or river controlled by dams? □ Yes = 0 □ No = 1 0 R 5.3. Is the up-gradient stream or river controlled by dams? □ Yes = 0 □ No = 1 1 Total for R 5 Add the points in the boxes above 2 R 6.0. Are the hydrologic functions provided by the site valuable to society? R 6.1. Distance to the nearest areas downstream that have flooding problems? 2 □ □ The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 0 □ □ No	shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person		
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Rating of Value If score is: $\square 2-4 = H \square 1 = M \square 0 = L$

Record the rating 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 △ Aquatic bed △ Emergent ○ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 ○ Forested (areas where trees have > 30% cover) 1 structure: points = 0 If the unit has a Forested class, check if: ○ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	4
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present: points = 3 Seasonally flooded or inundated 3 types present: points = 2 Occasionally flooded or inundated 2 types present: points = 1 Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Freshwater tidal wetland 2 points	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species ∅ 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 All three diagrams in this row are HIGH = 3points	3

Richards Creek Substation – Wetland D

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. Large, downed, woody debris within the wetland. Undercut banks are present for at least 6.6 ft (2 m) AND/OR overhanging plants cented as at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, or at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, or at least 3.3 ft (1 m) over a stream (or ditch) in or contiguous with the wetland or at least 3.3 ft (1 m) over a stream (or ditch) in or contiguous with the wetland or sexposed. 3 Invasive plants cover least than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strato). Invasive plants cover least than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strato). Coludote: % undisturbed habitat 1 (fixmoderate and low intensity land uses)/2] = 3.0% + (0%/2) = 3.0% If total accessible habitat is the directly dots wetland units. Coludote: % undisturbed habitat + [fixmoderate and low intensity land uses]/2] = 3.0% + (0%/2) = 3.0% If total accessible habitat is 1.1 km Polygon points = 3 Q (20.33% of 1 km Polygon around the wetland. Coludote: % undisturbed habitat 1.0% molygon around the wetland. Coludote: % undisturbed habitat 1.0% molygon points = 0	H 1.5. Special habitat features:						
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 It has 3 or more priority habitats within 100 m (see next page) It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) It is mapped as a location for an individual WDFW priority species It is a Wetland of High Conservation Value as determined by the Department of Natural Resources It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0 	Site meets ANY of the following criteria:	points = 2					
 It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) It is mapped as a location for an individual WDFW priority species It is a Wetland of High Conservation Value as determined by the Department of Natural Resources It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0 	It has 3 or more priority habitats within 100 m (see next page)						
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Site does not meet any of the criteria above points = 0	\square Site has 1 or 2 priority babitats (listed on payt page) within 100 m	noints — 1					
Pating of Value If score ic: $M^2 = H = 1 = M = 0 = 1$	\square Site does not meet any of the criteria above	points = 1 noints = 0					
	$Pating of Value f coording: \nabla 2 = H = D = H$	Decord the ration of	the first name				

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

8

Richards Creek Substation – Wetland D

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*).

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□ **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.

 \boxtimes **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.

RATING SUMMARY – Western Washington

Name of wetland: <u>Richards Creek Substation – Wetland H</u> Date of site visit: <u>7/1/2015, 5/8/2017</u> Rated by: <u>R. Kahlo, A. Hoenig, K. Crandall</u> Trained by Ecology? X V N Date of training: <u>09/2014</u>

HGM Class used for rating: <u>Slope</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: <u>King County iMap and Google Earth</u>

OVERALL WETLAND CATEGORY (based on functions \square or special characteristics \square)

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			H	ydrol	ogic		Habit	at	
			-		Circle	the ap	propr	iate ra	tings	
Site Potential	Н	М		Н	M) L	Н	M	L	
Landscape Potential	Н	M	Ĺ	Н	М		Н	М		
Value	H	М	L	H	Μ	L	H	М	L	ΤΟΤΑΙ
Score Based on Ratings		6			6			6		18

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY	
Estuarine	I	II
Wetland of High Conservation Value	Ι	
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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	Н 1.1, Н 1.4	4
Hydroperiods	H 1.2	5
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	6
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	6
(can be added to figure above)		0
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	0
polygons for accessible habitat and undisturbed habitat		0
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	9
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	10

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).

 \boxtimes 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?
 - \boxtimes 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,

 \boxtimes The water leaves the wetland without being impounded.

 \Box NO – go to 5

 $\boxtimes \textbf{YES}$ – 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,

 \Box 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	HGM class to
being rated	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.

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

Rating of Site Potential If score is: \Box **12 = H** \Box **6-11 = M** \boxtimes **0-5 = L**

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the	water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the w	etland in land uses that generate pollutants?	1
	imes Yes = 1 $ imes$ No = 0	T
S 2.2. Are there other sources of pollutants coming into the wetla	nd that are not listed in question S 2.1?	0
Other sources	\Box Yes = 1 \boxtimes No = 0	0
Total for S 2	Add the points in the boxes above	1

Rating of Landscape Potential If score is: 🛛 1-2 = M 🗌 0 = L

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin is on the 303(d) list.	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a TMDL for the basin in which unit is found.	0
Total for S 3Add the points in the boxes above	2

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

Record the rating on the first page

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream eros	ion
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually >1/8₈ in), or dense enough, to remain erect during surface flows.</i>	1
Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1	
\Box All other conditions points = 0	
Rating of Site Potential If score is: $\square 1 = \mathbf{M} \square 0 = \mathbf{L}$ Record the rating on	the first page

 S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

 S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?
 0

Rating of Landscape Potential If score is: $\Box 1 = M \boxtimes 0 = L$

Record the rating on the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
 S 6.1. Distance to the nearest areas downstream that have flooding problems: ☑ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) □ Surface flooding problems are in a sub-basin farther down-gradient □ No flooding problems anywhere downstream 	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	0
Total for S 6Add the points in the boxes above	2

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

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:
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 □ Aquatic bed □ Scrub-shrub (areas where shrubs have > 30% cover) □ Structures: points = 1 □ Forested (areas where trees have > 30% cover) □ Istructure: 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 Image: the tripe wetland 2 points	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: ≥ 19 species □ 5 - 19 species (SASC, TEGR, BUTTERFLY BUSH, EQGI, GAAP, RUAR) □ < 5 species	2
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	3

Richards Creek Substation – Wetland H

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).	
\boxtimes 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).	3
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians).</i>	
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 second secon	the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the s	ite?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).		
<i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 3.0%	+ (0%/2) = 3%	
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 uses)/2 = 13.8%	+ (0%/2) = 13.8%	
Undisturbed habitat > 50% of Polygon	points = 3	1
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 2Add the po	ints 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	e 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? <i>Choose on that applies to the wetland being rated.</i>	ly the highest score	
 It has 3 or more priority habitats within 100 m (see next page) It provides habitat for Threatened or Endangered species (any plant or animal on the second structure of the	points = 2 he state or federal lists) tural Resources	2
 It has been categorized as an important habitat site in a local or regional comprehering a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m Site does not meet any of the criteria above 	points = 1 points = 0	
Rating of Value If score is: $\square 2 = H \square 1 = M \square 0 = L$	Record the rating on t	he first page

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

Richards Creek Substation – Wetland H

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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.

2014 Ecology Wetland Rating Form Figures

PSE RICHARDS CREEK SUBSTATION

Wetlands A, B, and C (Slope)1
Figure 1. Cowardin plant classes – H1.1, H1.41
Figure 2. Hydroperiods and 150-foot buffer – H1.2, S2.1, S5.1
Figure 3. Plant cover of dense and rigid trees, shrubs, and herbaceous plants – S1.3, S4.1
Wetlands D (Riverine) and H (Slope)4
Figure 4. Cowardin plant classes and 150-ft buffer – H1.1, H1.4, R2.4, S2.1, S5.1
Figure 5. Hydroperiods, ponded depressions, and wetland-width-to-stream-width ratio – H1.2, R1.1, R4.15
Figure 6. Plant cover of trees, shrubs, and herbaceous plants (not Cowardin) – R1.2, R4.2, S1.3, S4.1.6
Figure 7. Map of the contributing basin (for Wetland D only) – R2.2, R2.3, R5.2
All Wetlands
Figure 8. 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 (move to all)
Figure 9. Screen-capture of 303(d) listed waters in basin – S3.1, S3.2
Figure 10. Screen-capture of TMDL list for WRIA in which unit is found – S3.3, R3.1

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WETLANDS A, B, AND C (SLOPE)



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



Figure 2. Hydroperiods and 150-foot buffer – H1.2, S2.1, S5.1



Figure 3. Plant cover of dense and rigid trees, shrubs, and herbaceous plants – S1.3, S4.1

WETLANDS D (RIVERINE) AND H (SLOPE)



Figure 4. Cowardin plant classes and 150-ft buffer – H1.1, H1.4, R2.4, S2.1, S5.1

Features depicted are not be to scale. Sketches are based on available data and best professional judgment.

Wetland Figures - 4



Figure 5. Hydroperiods, ponded depressions, and wetland-width-to-stream-width ratio – H1.2, R1.1, R4.1



Figure 6. Plant cover of trees, shrubs, and herbaceous plants (not Cowardin) – R1.2, R4.2, S1.3, S4.1



Figure 7. Map of the contributing basin (for Wetland D only) – R2.2, R2.3, R5.2

ALL WETLANDS



Figure 8. 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 (move to all).



Figure 9. Screen-capture of 303(d) listed waters in basin – S3.1, S3.2

Water Quality Improvement Projects (TMDLs)

Water Quality Improvement > Water Quality Improvement Projects by WRIA > WRIA 8: Cedar-Sammamish

WRIA 8: Cedar-Sammamish

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

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<u>King</u>
<u>Snohomish</u>

All wetlands located in the Kelsey Creek / Mercer Slough Basin of WRIA 8



Waterbody Name	Pollutants	Status**	TMDL Lead
<u>Ballinger Lake</u>	Total Phosphorus	Approved by EPA	<u>Tricia Shoblom</u> 425-649-7288
<u>Bear-Evans Creek Basin</u>	Fecal Coliform	Approved by EPA	Joan Nolan
	Dissolved Oxygen Temperature	Approved by EPA	425-649-4425
<u>Cottage Lake</u>	Total Phosphorus	Approved by EPA Has an implementation plan	<u>Tricia Shoblom</u> 425-649-7288
<u>Issaquah Creek Basin</u>	Fecal Coliform	Approved by EPA	<u>Joan Nolan</u> 425-649-4425
<u>Little Bear Creek</u> Tributaries: Trout Stream Great Dane Creek Cutthroat Creek	Fecal Coliform	Approved by EPA	<u>Ralph Svrjcek</u> 425-649-7036
North Creek	Fecal Coliform	Approved by EPA Has an implementation plan	<u>Ralph Svricek</u> 425-649-7036
<u>Pipers Creek</u>	Fecal Coliform	Approved by EPA	<u>Joan Nolan</u> 425-649-4425
<u>Sammamish River</u>	Dissolved Oxygen Temperature	Field work starts summer 2015	<u>Ralph Svricek</u> 425-649-7036
<u>Swamp Creek</u>	Fecal Coliform	Approved by EPA Has an implementation plan	Ralph Svricek 425-649-7036

Figure 10. Screen-capture of TMDL list for WRIA in which unit is found – S3.3, R3.1