March 15, 2018

Ellen Jane Crowder
4884 Forest Ave SE
Mercer Island, WA 98040
jcrowderstl@gmail.com

Re: Crowder Residence – Wetland and Watercourse Delineation Study
The Watershed Company Reference Number: 180220

Dear Ellen Jane Crowder:

On March 7, 2018, Ecologists Nell Lund and Peter Heltzel from The Watershed Company completed a wetland and watercourse delineation study on the property located at 4884 Forest Ave SE in Mercer Island, Washington (parcel number 2574900080).

This letter summarizes the findings of the fieldwork and details applicable federal, state, and local regulations. The following attachments are included:

- Wetland and Watercourse Delineation Sketch
- Wetland Determination Data Forms
- Wetland Rating Forms

Methods

Public-domain information on the subject property was reviewed for this delineation study. These sources include the following:

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

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). The wetland boundary was 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 boundary to make the determination. Five data points were marked with yellow- and black-striped flagging. Delineated wetlands were marked in the field using pink- and black-striped flagging. The encumbering (southern) boundary of Wetland B was delineated with four pink- and black- striped flags. The adjacent off-site (southwestern) boundary of Wetland C was delineated with four pink- and black- striped flags.

Wetlands on Mercer Island are classified based on the Washington State Wetland Rating System for Western Washington (Ecology Publication #04-06-025, 2004) (MIMC 19.16.10).

The study area was evaluated for watercourses 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, using recent guidance from the Department of Ecology, *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Publication no. 16-06-029).

Delineated watercourses were marked in the field using blue- and white-striped flagging. The left bank of Watercourse A was marked with 16 blue- and white-striped flags. Watercourses were classified based on duration of water flow and fish use using definitions provided in the Mercer Island City Code (MICC).

Findings

The study area is located within the Cedar-Sammamish Drainage Basin (WRIA 8); in Township 24 North, Range 4 East, Section 24. The subject parcel is zoned residential (R-15) and includes a paved driveway, single-family residence, maintained lawn areas, various landscaping vegetation, and a terraced backyard. The subject parcel is 0.4 acres, located at the top of a ravine leading to a watercourse to the north. The site slopes downhill to the northwest at a slope of approximately 40% as estimated on King County iMap. NRCS-mapped soils in the study area are Kitsap silt loam, 2-8 percent slopes (KpB).

Public-domain information on the subject property was reviewed for this study and includes the following, as summarized in Table 1.

One wetland was located on the subject parcel while one watercourse and two wetlands were located adjacent to the subject parcel.

Table 1. Summary of online mapping and inventory resources.

Resource	Summary
USDA Natural Resources Conservation Service, Web Soil Survey (WSS) application	Kitsap silt loam, 2-8 percent slopes (KpB)
U.S. Fish and Wildlife Service National Wetland Inventory (NWI) maps	No wetlands are mapped via NWI website.
Washington Department of Fish and Wildlife, Priority Habitats and Species (PHS on the Web)	No priority habitat or species are mapped in the project vicinity.
Washington Department of Fish and Wildlife, SalmonScape	No salmonids mapped within project site.
Washington Department of Natural Resources, Forest Practices Application Mapping Tool (FPARS)	No mapped stream on FPARS website.
King County's GIS mapping website (iMAP)	No mapped stream on King county iMap.
City of Mercer Island GIS Portal	Type 2, perennial, not piped.
WETS weather conditions based on precipitation from the prior three months	Normal

Wetland A

The encumbering (southern) boundary of Wetland A was not delineated due to the more encumbering buffer from Watercourse A. Wetland A is located on the northern slope of the ravine, adjacent to the subject parcel. It is a large slope wetland that contains a forested vegetation class with a shrub and emergent understory. Common plants observed in the wetland include bigleaf maple (partially rooted near wetland

edges and growing in hummocks within the wetland boundary) in the canopy, with red-osier dogwood, giant horsetail, fringed willow herb, lady fern, Himalayan blackberry, and English ivy in the understory.

Documented wetland soils are a black (5YR 2.5/1) sandy loam from 0 to 16 inches below the soil surface. Redoximorphic (redox) features were not visible in this layer likely due to organics masking redox. Surface water was present at a depth of ¼ inch and soils were saturated throughout at the time of sampling. Surface water and groundwater flowing downslope through the wetland merge into Watercourse A.

Wetland B

Wetland B is located on the southern slope of the ravine, straddling the northern parcel boundary. It is a small slope wetland that contains a forested vegetation class with an emergent understory. Common plants observed in the wetland include red alder in the canopy, with Oso-berry, iris, lady fern, and giant horsetail in the understory.

Documented wetland soils are a black (5YR 2.5/1) sandy loam from 0 to 8 inches over a depleted matrix from 8 to 14 inches from the soil surface. Redox features were present in the lower depths and met the Depleted Matrix (F3) soil indicator. Saturation was present throughout, with a water table starting at 6 inches below the soil surface. Surface water and groundwater flowing downslope through the wetland merge into Watercourse A.

Wetland C

Wetland C is located on the southern slope of the ravine, adjacent to the northeast corner of the subject property. It is a small slope wetland that contains an emergent vegetation class. Common plants observed in the wetland include salmonberry, lady fern, stinging nettle, and Himalayan blackberry. Bigleaf maple was present at the edge of the wetland yet rooted upslope.

Documented wetland soils are a black (5YR 2.5/1) sandy loam from 0 to 3 inches over a depleted matrix from 3 to 14 inches from the soil surface. Redox features were present and met the Depleted Matrix (F3) soil indicator. Saturation was present starting 3 inches from the soil surface. Surface water and groundwater flowing downslope through the wetland merge into Watercourse A.

Non-wetland Areas

Non-wetland areas in the study area are dominated by bigleaf maple, Douglas-fir, and red alder. Indian plum, beaked hazelnut, Oregon grape, salal, and sword fern are common native understory species. Non-native plant species prevalent on-site include English ivy, English laurel, and Himalayan blackberry. Vegetation on the subject

property is characterized by lawn, ornamental landscaping, native forest and shrub plants, and locally dominant patches of non-native blackberry and English ivy.

Watercourse A

Watercourse A originates approximately 950 feet to the northwest of the subject property. The open channel of Watercourse A flows generally southwest through the study area and is eventually conveyed under Forest Ave, where it is piped for approximately 450 feet before discharging into Lake Washington. The City of Mercer Island maps this feature as a Type 2 watercourse that flows adjacent to the northern boundary of the subject parcel.

Watercourse A is estimated to be four feet wide on average throughout the study area. The bed is composed of gravels, small cobbles, and sand. The channel is fairly steep (approximately 16% or greater in some areas) and appears to flow in this channel year-round. However, man-made (piped segments/control structures) and natural (steep gradient) fish passage barriers preclude fish use in the watercourse, consistent with the City's classification of the feature as a Type 2 watercourse (year-round flow, not used by fish).

Local Regulations

In the City of Mercer Island, wetlands and watercourses are regulated under the Mercer Island City Code (MICC), Chapter 19.07 – Environment.

Wetland buffers are designated based on the wetland classification (MICC 19.07.080). Wetlands A, B, and C rate as Category IV wetlands, with total function scores of 23, 19, and 19 points, respectively. Per MICC 19.07.080(C), Category IV wetlands receive a standard buffer width of 35 feet.

Watercourses are classified by Type based on flow conditions and fish use. Watercourse A is perennial and presumed non-fish bearing. It is a Type 2 watercourse with a standard buffer of 50 feet.

Standard buffer widths may be modified through averaging or reduction MICC 19.07.070(B) and 19.07.080(C). Buffer averaging may be permitted if it will result in a net improvement of critical area function, the averaged buffer is planted with native vegetation, the total buffer area is the same before and after averaging, the buffer is not reduced beyond the minimum width at any point, and the reduced buffer does not contain a steep slope. Category IV wetland buffers and Type 2 watercourse buffers may be reduced to 25 feet with enhancement, provided no net loss of buffer functions will occur, invasive vegetation is removed and replaced with native plants, best management practices are followed, and mitigation is provided.

State and Federal Regulations

Wetlands and streams (watercourses) are regulated by the Corps under section 404 of the Clean Water Act. Any proposed filling or other direct impacts to Waters of the U.S., including wetlands (except isolated wetlands), would require notification and permits from the Corps. Unavoidable impacts are typically required to be compensated through implementation of an approved mitigation plan.

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

Washington Department of Ecology

Similar to the Corps, Ecology, under Section 401 of the Clean Water Act, is charged with reviewing, conditioning, and approving or denying certain federally permitted actions that result in discharges to state waters. However, Ecology review would only become necessary if a Section 404 permit from the Corps was issued. Therefore, if filling activities are avoided, authorization from Ecology would not be needed.

Washington Department of Fish and Wildlife (WDFW)

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

In general, neither the Corps nor Ecology or WDFW regulates wetland and stream buffers, unless direct impacts are proposed. When direct impacts are proposed, mitigated wetlands and streams may be required to employ buffers based on Corps and Ecology joint regulatory guidance.

Disclaimer

The information contained in this letter or report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and

recommendations reflect the best professional judgment of the author(s) and are based upon information available to us at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, State and Federal regulatory authorities. No other warranty, expressed or implied, is made.

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

Sincerely,

Peter Heltzel, CFP
Fisheries Biologist/Ecologist

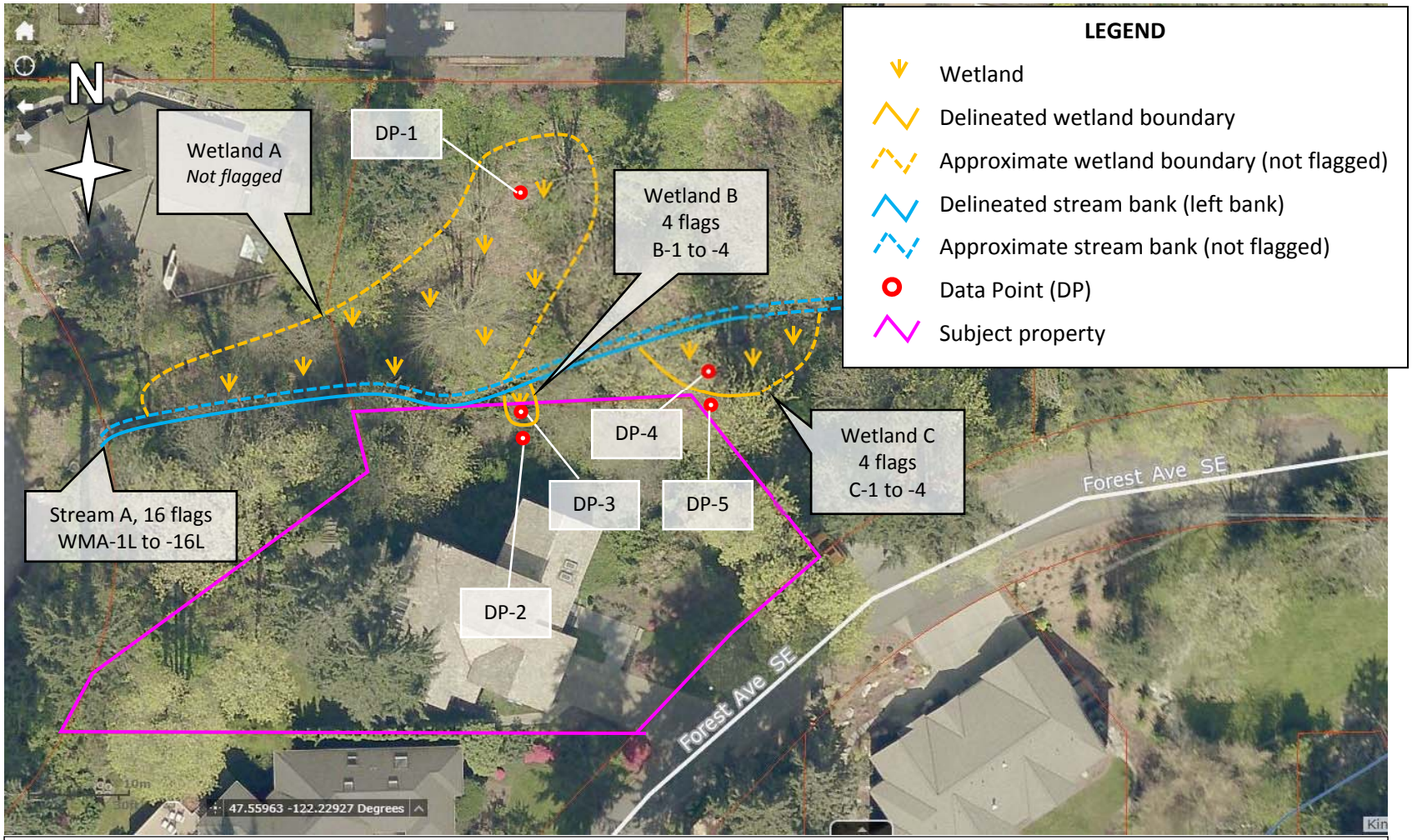
Enclosures

THE WATERSHED COMPANY

750 Sixth Street South | Kirkland | WA 98033
p 425.822.5242 f 425.827.8136

Crowder Property – Stream & Wetland Delineation Field Sketch

Site Address:	4884 Forest Ave. SE, Mercer Island, WA 98040	Prepared for:	Janie Crowder
Parcel Number:	2574900080	TWC Ref. No.:	180220
Site Visit Date:	March 7, 2018		



Note: Field sketch only. Features depicted are approximate and not to scale.
Wetland boundary is marked with pink- and black-striped flags. Stream left bank is marked with blue- and white-striped flags. Data points are marked with yellow- and black-striped flags. Flagging was tied to pink pin flags or vegetation. (Data points do not need to be surveyed.)

THE WATERSHED COMPANY

WETLAND DETERMINATION DATA FORM

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

DP- 1

750 Sixth Street South
Kirkland, Washington 98033
(425) 822-5242
watershedco.com

Project Site:	**Mercer Island Crowder – Parcel# 2574900080**	Sampling Date:	**3/7/2018**
Applicant/Owner:	**Ellen Crowder**	Sampling Point:	DP- **1**
Investigator:	**PH/NL**	City/County:	**King County**
Sect., Township, Range:	S **24** T **24** R **4**	State:	**WA**
Landform (hillslope, terrace, etc): **Hillslope**	Slope (%): **>20**	Local relief (concave, convex, none): **None**	
Subregion (LRR): **A**	Lat:	Long:	Datum:
Soil Map Unit Name: **Kitsap silt loam, 2 to 8 percent slopes (KpB)**		NWI classification: **None**	

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

Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation☐, Soil ☐, or Hydrology ☐ significantly disturbed?

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

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampling Point within a Wetland?**	Yes ☒ No ☐
Hydric Soils Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Wetland A In-pit**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Acer macrophyllum***	**70**	**Y**	**FACU**
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m diam.)			
1. ***Oemleria cerasiformis***	**5**	**Y**	**FACU**
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 1m diam.)			
1. ***Equisetum telmateia***	**30**	**Y**	**FACW**
2. ***Epilobium ciliatum***	**30**	**Y**	**FACW**
3. ***Geranium robertianum***	**15**	**N**	**FACU**
4. ***Athyrium filix-femina***	**15**	**N**	**FAC**
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size:)			
1. ***Rubus armeniacus***	**50**	**Y**	**FAC**
2.			
	50	= Total Cover	

% Bare Ground in Herb Stratum:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **3** (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: **60** (A/B)

Prevalence Index Worksheet

	Total % Cover of	Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column totals	(A)	(B)

Prevalence Index = B / A =

Hydrophytic Vegetation Indicators

- ☒ Dominance test is > 50%
- ☐ Prevalence test is ≤ 3.0 *
- ☐ Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants *
- ☐ Problematic Hydrophytic Vegetation * (explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL **Sampling Point – DP-1**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	**5YR 2.5/1**	**100**					**Sandy loam**	**++**

[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.)

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

Indicators for Problematic Hydric Soils[3]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)*
- ☐

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☒ No ☐

Remarks: **++ High organics**

*** Organics masking redox**

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply):

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

Secondary Indicators (2 or more required):

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

Field Observations

Surface Water Present? Yes ☒ No ☐ Depth (in): **¼ in.**

Water Table Present? Yes ☐ No ☐ Depth (in):

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (in): **0”**

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: **Seep observed**

THE WATERSHED COMPANY

WETLAND DETERMINATION DATA FORM

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

DP- 2

750 Sixth Street South
Kirkland, Washington 98033
(425) 822-5242
watershedco.com

Project Site:	**Mercer Island Crowder – Parcel# 2574900080**	Sampling Date:	**3/7/2018**
Applicant/Owner:	**Ellen Crowder**	Sampling Point:	DP- **2**
Investigator:	**PH/NL**	City/County:	**King County**
Sect., Township, Range:	S **24** T **24** R **4**	State:	**WA**
Landform (hillslope, terrace, etc): **Hillslope**	Slope (%): **5**	Local relief (concave, convex, none): **None**	
Subregion (LRR): **A**	Lat:	Long:	Datum:
Soil Map Unit Name: **Kitsap silt loam, 2 to 8 percent slopes (KpB)**		NWI classification: **None**	
Are climatic/hydrologic conditions on the site typical for this time of year?	☒ Yes ☐ No	(If no, explain in remarks.)	
Are "Normal Circumstances" present on the site?	☒ Yes ☐ No		
Are Vegetation☐, Soil ☐, or Hydrology ☐ significantly disturbed?			
Are Vegetation☐, Soil ☐, or Hydrology ☐ naturally problematic		(If needed, explain any answers in Remarks.)	

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

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soils Present?	Yes ☐	No ☒	**Is the Sampling Point within a Wetland?**	Yes ☐ No ☒
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Wetland B Out-pit**

VEGETATION – Use scientific names of plants.

		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5m diam.)				
1.	***Alnus rubra***	**90**	**Y**	**FAC**
2.				
3.				
4.				
			= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m diam.)				
1.	***Sambucus racemosa***	**10**	**Y**	**FACU**
2.	***Oemleria cerasiformis***	**5**	**Y**	**FACU**
3.				
4.				
5.				
		15	= Total Cover	
Herb Stratum (Plot size: 1m diam.)				
1.	***Hedera helix***	**20**	**Y**	**FACU**
2.	***Polystichum munitum***	**10**	**Y**	**FACU**
3.	***Carex sp.***	**10**	**Y**	**FACW***
4.	***Equisetum telmateia***	**10**	**Y**	**FACW**
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		50	= Total Cover	
Woody Vine Stratum (Plot size:)				
1.	***Rubus armeniacus***	**20**	**Y**	**FAC**
2.				
		20	= Total Cover	

% Bare Ground in Herb Stratum:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	**4**	(A)
Total Number of Dominant Species Across All Strata:	**8**	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	**50**	(A/B)

Prevalence Index Worksheet

	Total % Cover of	Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column totals	(A)	(B)

Prevalence Index = B / A =

Hydrophytic Vegetation Indicators

- ☐ Dominance test is > 50%
- ☐ Prevalence test is ≤ 3.0 *
- ☐ Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants *
- ☐ Problematic Hydrophytic Vegetation * (explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: *** Presumed FACW**

SOIL **Sampling Point – DP-2**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	**5YR 2.5/1**	**100**					**Gravelly sandy loam**	

[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.)

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

Indicators for Problematic Hydric Soils[3]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)
- ☐

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply):

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

Secondary Indicators (2 or more required):

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

Field Observations

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

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

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

THE WATERSHED COMPANY

WETLAND DETERMINATION DATA FORM

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

DP- 3

750 Sixth Street South
Kirkland, Washington 98033
(425) 822-5242
watershedco.com

Project Site:	**Mercer Island Crowder – Parcel# 2574900080**	Sampling Date:	**3/7/2018**
Applicant/Owner:	**Ellen Crowder**	Sampling Point:	DP- **3**
Investigator:	**PH/NL**	City/County:	**King County**
Sect., Township, Range:	S **24** T **24** R **4**	State:	**WA**
Landform (hillslope, terrace, etc): **Hillslope**	Slope (%): **>10**	Local relief (concave, convex, none): **Concave**	
Subregion (LRR): **A**	Lat:	Long:	Datum:
Soil Map Unit Name: **Kitsap silt loam, 2 to 8 percent slopes (KpB)**		NWI classification: **None**	
Are climatic/hydrologic conditions on the site typical for this time of year?	☒ Yes ☐ No	(If no, explain in remarks.)	
Are "Normal Circumstances" present on the site?	☒ Yes ☐ No		
Are Vegetation☐, Soil ☐, or Hydrology ☐ significantly disturbed?			
Are Vegetation☐, Soil ☐, or Hydrology ☐ naturally problematic		(If needed, explain any answers in Remarks.)	

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampling Point within a Wetland?**	Yes ☒ No ☐
Hydric Soils Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Wetland B In-Pit**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus rubra***	**95**	**Y**	**FAC**
2.			
3.			
4.			
	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m diam.)			
1. ***Oemleria cerasiformis***	**20**	**Y**	**FACU**
2. ***Ilex sp.***	**15**	**Y**	**FACU**
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 1m diam.)			
1. ***Iris sp.***	**50**	**Y**	**OBL**
2. ***Athyrium filix-femina***	**25**	**Y**	**FAC**
3. ***Equisetum telmateia***	**20**	**Y**	**FACW**
4. ***Polystichum munitum***	**10**	**N**	**FACU**
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105	= Total Cover	
Woody Vine Stratum (Plot size:)			
1. ***Rubus armeniacus***	**15**	**Y**	**FAC**
2.			
	15	= Total Cover	

% Bare Ground in Herb Stratum:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	**5**	(A)
Total Number of Dominant Species Across All Strata:	**7**	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	**71**	(A/B)

Prevalence Index Worksheet

Total % Cover of		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column totals	(A)	(B)

Prevalence Index = B / A =

Hydrophytic Vegetation Indicators

- ☒ Dominance test is > 50%
- ☐ Prevalence test is ≤ 3.0 *
- ☐ Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants *
- ☐ Problematic Hydrophytic Vegetation * (explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL **Sampling Point – DP-3**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	**5YR 2.5/1**	**100**					**Sandy loam**	
8-14	**10YR 5/1**	**98**	**10YR 4/6**	**2**	**C**	**M**	**Loamy sand**	

[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.)

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

Indicators for Problematic Hydric Soils[3]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)
- ☐

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply):

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

Secondary Indicators (2 or more required):

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

Field Observations

Surface Water Present?	Yes ☐	No ☒	Depth (in):
Water Table Present?	Yes ☒	No ☐	Depth (in): **6”**
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (in): **0”**

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

THE WATERSHED COMPANY

750 Sixth Street South
Kirkland, Washington 98033
(425) 822-5242
watershedco.com

WETLAND DETERMINATION DATA FORM

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

DP- 4

Project Site:	**Mercer Island Crowder – Parcel# 2574900080**	Sampling Date:	**3/7/2018**
Applicant/Owner:	**Ellen Crowder**	Sampling Point:	DP- **4**
Investigator:	**PH/NL**	City/County:	**King County**
Sect., Township, Range:	S **24** T **24** R **4**	State:	**WA**
Landform (hillslope, terrace, etc): **Hillslope**	Slope (%): **>5**	Local relief (concave, convex, none): **None**	
Subregion (LRR): **A**	Lat:	Long:	Datum:
Soil Map Unit Name: **Kitsap silt loam, 2 to 8 percent slopes (KpB)**		NWI classification: **None**	
Are climatic/hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No		(If no, explain in remarks.)	
Are "Normal Circumstances" present on the site? ☒ Yes ☐ No			
Are Vegetation☐, Soil ☐, or Hydrology ☐ significantly disturbed?			
Are Vegetation☐, Soil ☐, or Hydrology ☐ naturally problematic		(If needed, explain any answers in Remarks.)	

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampling Point within a Wetland?**	Yes ☒ No ☐
Hydric Soils Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **Wetland C In-Pit**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Acer macrophyllum***	**90**	**N***	**FACU**
2.			
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m diam.)			
1. ***Rubus spectabilis***	**5**	**Y**	**FAC**
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 1m diam.)			
1. ***Athyrium filix-femina***	**10**	**Y**	**FAC**
2. ***Urtica dioica***	**10**	**Y**	**FACW**
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0	= Total Cover	
% Bare Ground in Herb Stratum:			

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	**3**	(A)
Total Number of Dominant Species Across All Strata:	**3**	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	**100**	(A/B)

Prevalence Index Worksheet

	Total % Cover of	Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column totals	(A)	(B)

Prevalence Index = B / A =

Hydrophytic Vegetation Indicators

- ☒ Dominance test is > 50%
- ☐ Prevalence test is ≤ 3.0 *
- ☐ Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants *
- ☐ Problematic Hydrophytic Vegetation * (explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: ***Rooted upslope**

SOIL **Sampling Point – DP-4**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	**5YR 2.5/1**	**100**					**Sandy loam**	
3-14	**10YR 4/1**	**95**	**10YR 4/6**	**5**	**C**	**M**	**Gravelly sandy loam**	

[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.)

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

Indicators for Problematic Hydric Soils[3]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)
- ☐

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply):

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

Secondary Indicators (2 or more required):

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

Field Observations

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

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

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (in): **3”**

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

THE WATERSHED COMPANY

WETLAND DETERMINATION DATA FORM

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

DP- 5

750 Sixth Street South
Kirkland, Washington 98033
(425) 822-5242
watershedco.com

Project Site:	**Mercer Island Crowder – Parcel# 2574900080**	Sampling Date:	**3/7/2018**
Applicant/Owner:	**Ellen Crowder**	Sampling Point:	DP- **5**
Investigator:	**PH/NL**	City/County:	**King County**
Sect., Township, Range:	S **24** T **24** R **4**	State:	**WA**
Landform (hillslope, terrace, etc): **Hillslope**	Slope (%): **5**	Local relief (concave, convex, none): **None**	
Subregion (LRR): **A**	Lat:	Long:	Datum:
Soil Map Unit Name: **Kitsap silt loam, 2 to 8 percent slopes (KpB)**		NWI classification: **None**	
Are climatic/hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No		(If no, explain in remarks.)	
Are "Normal Circumstances" present on the site? ☒ Yes ☐ No			
Are Vegetation☐, Soil ☐, or Hydrology ☐ significantly disturbed?			
Are Vegetation☐, Soil ☐, or Hydrology ☐ naturally problematic		(If needed, explain any answers in Remarks.)	

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

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soils Present?	Yes ☐	No ☒	**Is the Sampling Point within a Wetland?**	Yes ☐ No ☒
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Wetland C Out-pit**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Acer macrophyllum***	**70**	**Y**	**FACU**
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m diam.)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 1m diam.)			
1. ***Hedera helix***	**80**	**Y**	**FACU**
2. ***Rubus armeniacus***	**40**	**Y**	**FAC**
3. ***Lotus corniculatus***	**Trace**	**N**	**FAC**
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0	= Total Cover	
% Bare Ground in Herb Stratum:			

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	**1**	(A)
Total Number of Dominant Species Across All Strata:	**3**	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	**33**	(A/B)

Prevalence Index Worksheet

Total % Cover of		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column totals	(A)	(B)

Prevalence Index = B / A =

Hydrophytic Vegetation Indicators

- ☐ Dominance test is > 50%
- ☐ Prevalence test is ≤ 3.0 *
- ☐ Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants *
- ☐ Problematic Hydrophytic Vegetation * (explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

SOIL **Sampling Point – DP-5**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	**10YR 2/1**	**100**					**Gravelly sandy loam**	

[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.)

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

Indicators for Problematic Hydric Soils[3]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)
- ☐

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply):

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

Secondary Indicators (2 or more required):

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

Field Observations

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

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

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Wetland name or number: **Wetland A**

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: Wetland A — Date of Site visit: March 7, 2018

Rated by: NL/PH — Trained by Ecology? Yes☒ No☐ — Date of Training: 6/2014

SEC: 24 TWNSHP: 24 RNGE: 4 — Is S/T/R in Appendix D? Yes☐ No ☒

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I □ II □ III □ IV ☒

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

Score for Water Quality Functions	6
Score for Hydrologic Functions	8
Score for Habitat Functions	9
TOTAL score for functions	**23**

Category based on SPECIAL CHARACTERISTICS of wetland

I □ II □ Does not Apply ☒

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

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**	☒
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		
None of the above	☒	Check if unit has multiple HGM classes present	☐

Wetland name or number: **Wetland A**

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)?* 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. *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 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/).**

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.

Wetland name or number: **Wetland A**

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)?

☒ NO – go to 2 ☐**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

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

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

3. Does the entire wetland unit **meet 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;

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

☒NO – go to 4 ☐**YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

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).*

☐ NO – go to 5 ☒ **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.

☐ NO - go to 6 ☐ **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.

Wetland name or number: **Wetland A**

S	**Slope Wetlands**	**Points**
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
S	**S 1. Does the wetland have the potential 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 ☐ Slope is 1% - 2% ..... points = 2 ☐ Slope is 2% - 5% ..... points = 1 ☒ Slope is greater than 5% ..... points = 0	0
S	**S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)*.** YES = 3 points NO = 0 points	0
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 have trouble seeing the soil surface. Dense vegetation means you have trouble seeing the soil surface (>75% 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 ..... points = 3 ☐ Dense, woody, vegetation > ½ of area ..... points = 2 ☐ Dense, ungrazed, herbaceous vegetation > 1/4 of area ..... points = 1 ☐ Does not meet any of the criteria above for vegetation ..... points = 0	3
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 **(Stream A)** ☐ Tilled fields, logging 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, or golf courses are within 150 ft upslope of wetland ☐ Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	(see p. 67) multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S 1 by S 2 ***Add score to table on p. 1***	**6**

Wetland name or number: **Wetland A**

S	**Slope Wetlands**	**Points**
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
	S 3. Does the wetland have the potential 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 > 1/8in), or dense enough, to remain erect during surface flows)* ☒ 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	6*
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. ☒ YES points = 2 ☐ NO points = 0	2
S	**Total for S 3** *Add the points in the boxes above*	8
S	**S 4. Does the wetland have the opportunity 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 ☐ 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**	(see p. 70) multiplier **1**
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	**8**

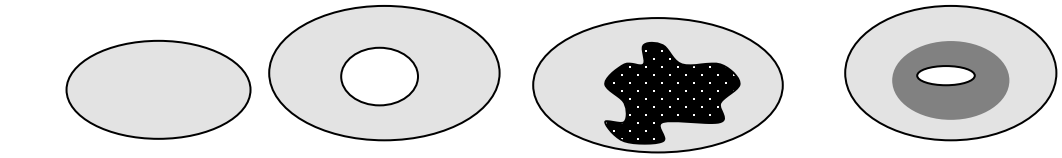
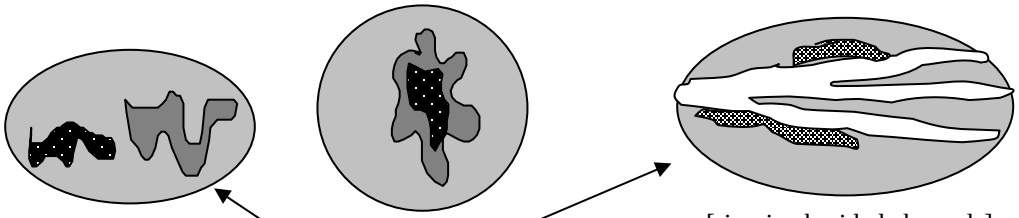
Comments

*Wetland A contained dense ivy rooted into the wetland which contributed to >90%.

Wetland name or number: **Wetland A**

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 <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> *(see p. 72)* *Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.* ☐ 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, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *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	1
H 1.2. <u>Hydroperiods</u> *(see p. 73)* *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 acre 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 types present points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland* = 2 points** ☐ ***Freshwater tidal wetland* = 2 points**	0
H 1.3. <u>Richness of Plant Species</u> *(see p. 75)* 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)* *You do not have to name the species.* *Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle* If you counted: ☐ > 19 species points = 2 *List species below if you want to:* ☒ 5 - 19 species points = 1 ☐ < 5 species points = 0 ALRU, ACMA, COCO, OECE, HEHE, EQTE, EPCI, ATFI, COSE, THPL (sapling)	1

Wetland name or number: **Wetland A**

H 1.4. <u>Interspersion of habitats</u> *(see p. 76)* Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  ☒None = 0 points ☐Low = 1 point ☐Moderate = 2 points  [riparian braided channels] ☐High = 3 points NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".	0
H 1.5. <u>Special Habitat Features:</u> *(see p. 77)* *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m). ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present. ☐ At least ¼ acre of thin-stemmed persistent vegetation 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 each stratum of plants. *Note: The 20% stated in early printings of the manual on page 78 is an error.*	0
H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	2

Wetland name or number: **Wetland A**

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% circumference. ..... 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 ☐ 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. ..... Points = 1	1
H 2.2 <u>Corridors and Connections</u> *(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 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**	1

Wetland name or number: **Wetland A**

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 http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330ft (100m) of the wetland? *(NOTE: 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:** (<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 (*full descriptions in WDFW PHS report p. 158.)* ☒ **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*) ☒ **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: 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. ☐ **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. ☐ **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.*	3

Wetland name or number: **Wetland A**

H 2.4 <u>Wetland Landscape</u> *(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. ..... points = 5 ☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other 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 ..... points = 3 ☐ The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 ☒ There is at least 1 wetland within ½ mile. ..... points = 2 ☐ There are no wetlands within ½ mile. ..... points = 0	2*
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	7
TOTAL for H1 from page 14	2
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

*** Although there are two wetlands nearby (on-site), no other wetlands are documented within ½ mile.**

Wetland name or number: **Wetland A**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*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 to SC 1.1 ☒ NO	
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? ☐ YES = Category I ☐ NO = Category II ☐ 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 area of 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.	**Cat. I** **Cat. II** **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 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, Engelmann'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 ☒ NO – is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 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 – 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 depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*) ☐ YES – Go to SC 5.1 ☒ NO – not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than 1/10 acre (4350 square feet) ☐ YES = Category I ☐ NO = Category II	**Cat. I** **Cat. II**
SC 6.0 Interdunal Wetlands (see p. 93) Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐YES – go to SC 6.1 ☒ NO – 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 ☐ NO – go to SC 6.2 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. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	**NA**

Wetland name or number: **Wetland B**

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: Wetland B — Date of Site visit: March 7, 2018

Rated by: NL/PH — Trained by Ecology? Yes☒ No☐ — Date of Training: 6/2014

SEC: 24 TWNSHP: 24 RNGE: 4 — Is S/T/R in Appendix D? Yes☐ No ☒

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I □ II □ III □ IV ☒

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

Score for Water Quality Functions	6
Score for Hydrologic Functions	5
Score for Habitat Functions	8
TOTAL score for functions	**19**

Category based on SPECIAL CHARACTERISTICS of wetland

I □ II □ Does not Apply ☒

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

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**	☒
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		
None of the above	☒	Check if unit has multiple HGM classes present	☐

Wetland name or number: **Wetland B**

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)?* 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. *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 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/).**

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.

Wetland name or number: **Wetland B**

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)?

☒ NO – go to 2 ☐**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

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

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

3. Does the entire wetland unit **meet 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;

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

☒NO – go to 4 ☐**YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

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).*

☐ NO – go to 5 ☒ **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.

☐ NO - go to 6 ☐ **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.

Wetland name or number: **Wetland B**

S	**Slope Wetlands**	**Points**
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
S	**S 1. Does the wetland have the potential 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 ☐ Slope is 1% - 2% ..... points = 2 ☐ Slope is 2% - 5% ..... points = 1 ☒ Slope is greater than 5% ..... points = 0	0
S	**S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)*.** YES = 3 points NO = 0 points	0
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 have trouble seeing the soil surface. Dense vegetation means you have trouble seeing the soil surface (>75% 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 ..... points = 3 ☐ Dense, woody, vegetation > ½ of area ..... points = 2 ☐ Dense, ungrazed, herbaceous vegetation > 1/4 of area ..... points = 1 ☐ Does not meet any of the criteria above for vegetation ..... points = 0	3
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 **(Stream A)** ☐ Tilled fields, logging 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, or golf courses are within 150 ft upslope of wetland ☐ Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	(see p. 67) multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S 1 by S 2 ***Add score to table on p. 1***	**6**

Wetland name or number: **Wetland B**

S	Slope Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
	S 3. Does the wetland have the potential 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 > 1/8in), or dense enough, to remain erect during surface flows)* ☐ 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	3
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. ☒ YES points = 2 ☐ NO points = 0	2
S	**Total for S 3** *Add the points in the boxes above*	5
S	**S 4. Does the wetland have the opportunity 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 ☐ 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**	(see p. 70) multiplier **1**
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	**5**

Comments

Wetland name or number: **Wetland B**

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 <u>potential</u> to provide habitat for many species?

H 1.1 <u>Vegetation structure</u> ***(see p. 72)***

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ 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, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

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

0

H 1.2. <u>Hydroperiods</u> ***(see p. 73)***

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 acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only

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

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

0

H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)***

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)*
You do not have to name the species.
Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

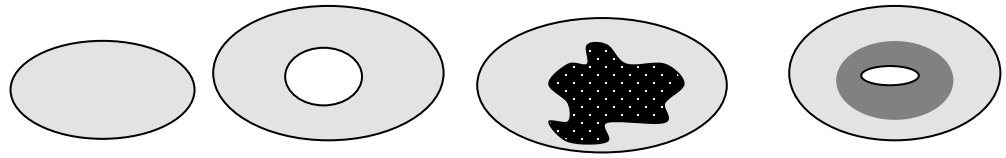
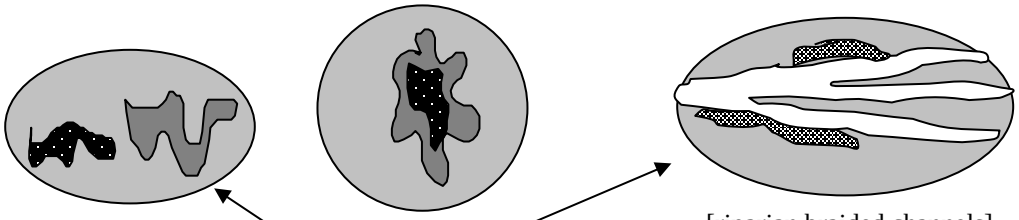
If you counted:
- ☐ > 19 species points = 2
- ☒ 5 - 19 species points = 1
- ☐ < 5 species points = 0

List species below if you want to:

ALRU, Iris sp., ATFI, EQTE, HEHE, HBB,
Unknown vine, Azalea sp.

1

Wetland name or number: **Wetland B**

H 1.4. <u>Interspersion of habitats</u> *(see p. 76)* Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  ☒None = 0 points ☐Low = 1 point ☐Moderate = 2 points  [riparian braided channels] ☐High = 3 points NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".	0
H 1.5. <u>Special Habitat Features:</u> *(see p. 77)* *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m). ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present. ☐ At least ¼ acre of thin-stemmed persistent vegetation 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 each stratum of plants. *Note: The 20% stated in early printings of the manual on page 78 is an error.*	0
H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	1

Wetland name or number: **Wetland B**

H 2. Does the wetland have 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)..... Points = 5
- ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. ..... 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
- ☐ 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. ..... Points = 1

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 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**

1

Wetland name or number: **Wetland B**

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 http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330ft (100m) of the wetland? *(NOTE: 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:** (<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 (*full descriptions in WDFW PHS report p. 158.)* ☒ **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*) ☒ **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: 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. ☐ **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. ☐ **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.*	3

Wetland name or number: **Wetland B**

H 2.4 <u>Wetland Landscape</u> *(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. ..... points = 5 ☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other 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 ..... points = 3 ☐ The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 ☒ There is at least 1 wetland within ½ mile. ..... points = 2 ☐ There are no wetlands within ½ mile. ..... points = 0	2*
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	7
TOTAL for H1 from page 14	1
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	8

*** Although there are two wetlands nearby (on-site), no other wetlands are documented within ½ mile.**

Wetland name or number: **Wetland B**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*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 to SC 1.1 ☒ NO	
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? ☐ YES = Category I ☐ NO = Category II ☐ 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 area of 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.	**Cat. I** **Cat. II** **Dual rating I/II**

Wetland name or number: **Wetland B**

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 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, Engelmann'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 ☒ NO – is not a bog for purpose of rating	**Cat. I**

Wetland name or number: **Wetland B**

SC 4.0 Forested Wetlands *(see p. 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.	**Cat. I**
☐ 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 – not a forested wetland with special characteristics	
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 depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.	
☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)	**Cat. I**
☐ YES – Go to SC 5.1 ☒ NO – not a wetland in a coastal lagoon	
SC 5.1 Does the wetland meet all of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	**Cat. II**
☐ The wetland is larger than 1/10 acre (4350 square feet)	
☐ YES = Category I ☐ NO = Category II	
SC 6.0 Interdunal Wetlands (see p. 93)	
Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?	
☐YES – go to SC 6.1 ☒ NO – not an Interdunal wetland for rating	**Cat. II**
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?	**Cat. III**
☐ YES = Category II ☐ NO – go to SC 6.2	
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	
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	**NA**

Wetland name or number: **Wetland C**

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: Wetland C — Date of Site visit: March 7, 2018

Rated by: NL/PH — Trained by Ecology? Yes☒ No☐ — Date of Training: 6/2014

SEC: 24 TWNSHP: 24 RNGE: 4 — Is S/T/R in Appendix D? Yes☐ No ☒

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I □ II □ III □ IV ☒

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

Score for Water Quality Functions	6
Score for Hydrologic Functions	5
Score for Habitat Functions	8
TOTAL score for functions	**19**

Category based on SPECIAL CHARACTERISTICS of wetland

I □ II □ Does not Apply ☒

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

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**	☒
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		
None of the above	☒	Check if unit has multiple HGM classes present	☐

Wetland name or number: **Wetland C**

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)?* 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. *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 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/).**

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.

Wetland name or number: **Wetland C**

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)?

☒ NO – go to 2 ☐**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

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

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

3. Does the entire wetland unit **meet 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;

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

☒NO – go to 4 ☐**YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

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

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

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

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

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).*

☐ NO – go to 5 ☒ **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.

☐ NO - go to 6 ☐ **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.

Wetland name or number: **Wetland C**

S	**Slope Wetlands**	**Points**
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
S	**S 1. Does the wetland have the potential 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 ☐ Slope is 1% - 2% ..... points = 2 ☐ Slope is 2% - 5% ..... points = 1 ☒ Slope is greater than 5% ..... points = 0	0
S	**S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)*.** YES = 3 points NO = 0 points	0
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 have trouble seeing the soil surface. Dense vegetation means you have trouble seeing the soil surface (>75% 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 ..... points = 3 ☐ Dense, woody, vegetation > ½ of area ..... points = 2 ☐ Dense, ungrazed, herbaceous vegetation > 1/4 of area ..... points = 1 ☐ Does not meet any of the criteria above for vegetation ..... points = 0	3
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 **(Stream A)** ☐ Tilled fields, logging 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, or golf courses are within 150 ft upslope of wetland ☐ Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	(see p. 67) multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S 1 by S 2 ***Add score to table on p. 1***	**6**

Wetland name or number: **Wetland C**

S	**Slope Wetlands**	**Points**
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	
	S 3. Does the wetland have the potential 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 > 1/8in), or dense enough, to remain erect during surface flows)* ☐ 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	3
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. ☒ YES points = 2 ☐ NO points = 0	2
S	**Total for S 3** *Add the points in the boxes above*	5
S	**S 4. Does the wetland have the opportunity 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 ☐ 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**	(see p. 70) multiplier **1**
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	**5**

Comments

Wetland name or number: **Wetland C**

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 <u>potential</u> to provide habitat for many species?

H 1.1 <u>Vegetation structure</u> *(see p. 72)*

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

☐ 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, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

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

0

H 1.2. <u>Hydroperiods</u> *(see p. 73)*

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 acre 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 types present — points = 0
☐ Permanently flowing stream or river in, or adjacent to, the wetland
☐ Seasonally flowing stream in, or adjacent to, the wetland
☐ ***Lake-fringe wetland* = 2 points**
☐ ***Freshwater tidal wetland* = 2 points**

0

H 1.3. <u>Richness of Plant Species</u> *(see p. 75)*

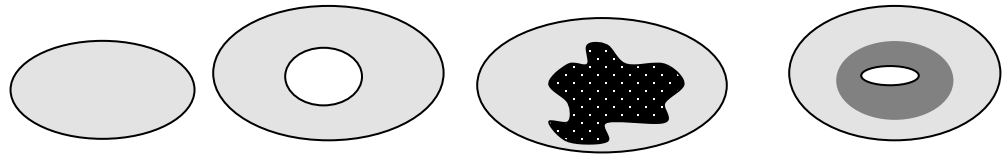
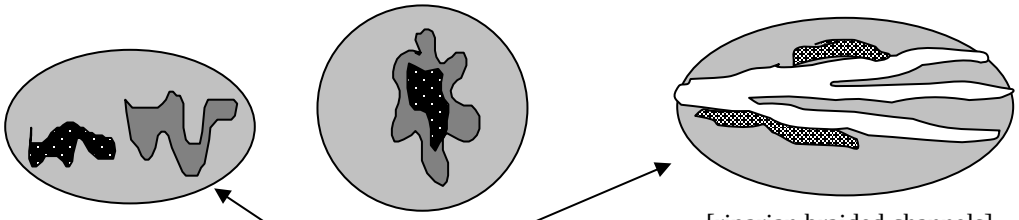
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*
You do not have to name the species.
Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted: ☐ > 19 species — points = 2
List species below if you want to: ☒ 5 - 19 species — points = 1
☐ < 5 species — points = 0

EQTE, ATFI, HBB, HEHE, Bittercress, EPCI

1

Wetland name or number: **Wetland C**

H 1.4. <u>Interspersion of habitats</u> *(see p. 76)* Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  ☒None = 0 points ☐Low = 1 point ☐Moderate = 2 points  [riparian braided channels] ☐High = 3 points NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".	0
H 1.5. <u>Special Habitat Features:</u> *(see p. 77)* *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m). ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present. ☐ At least ¼ acre of thin-stemmed persistent vegetation 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 each stratum of plants. *Note: The 20% stated in early printings of the manual on page 78 is an error.*	0
H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	1

Wetland name or number: **Wetland C**

H 2. Does the wetland have 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)..... Points = 5
- ☐ 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. ..... 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
- ☐ 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. ..... Points = 1

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 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**

1

Wetland name or number: **Wetland C**

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 http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330ft (100m) of the wetland? *(NOTE: 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:** (<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 (*full descriptions in WDFW PHS report p. 158.)* ☒ **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*) ☒ **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: 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. ☐ **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. ☐ **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.*	3

Wetland name or number: **Wetland C**

H 2.4 <u>Wetland Landscape</u> *(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. ..... points = 5 ☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other 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 ..... points = 3 ☐ The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 ☒ There is at least 1 wetland within ½ mile. ..... points = 2 ☐ There are no wetlands within ½ mile. ..... points = 0	2*
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	7
TOTAL for H1 from page 14	1
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	8

*** Although there are two wetlands nearby (on-site), no other wetlands are documented within ½ mile.**

Wetland name or number: **Wetland C**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands (*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 to SC 1.1 ☒ NO	
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? ☐ YES = Category I ☐ NO = Category II ☐ 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 area of 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.	**Cat. I** **Cat. II** **Dual rating I/II**

Wetland name or number: **Wetland C**

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 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, Engelmann'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 ☒ NO – is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands *(see p. 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.	**Cat. I**
☐ 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 – not a forested wetland with special characteristics	
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 depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.	
☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)	**Cat. I**
☐ YES – Go to SC 5.1 ☒ NO – not a wetland in a coastal lagoon	
SC 5.1 Does the wetland meet all of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.	**Cat. II**
☐ The wetland is larger than 1/10 acre (4350 square feet)	
☐ YES = Category I ☐ NO = Category II	
SC 6.0 Interdunal Wetlands (see p. 93)	
Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?	
☐YES – go to SC 6.1 ☒ NO – not an Interdunal wetland for rating	**Cat. II**
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?	**Cat. III**
☐ YES = Category II ☐ NO – go to SC 6.2	
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	
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1 .* If you answered NO for all types enter "Not Applicable" on p.1.	**NA**