

October 11, 2022

Barry Baker
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**RE: Mercer Island Watercourse Stabilization Project – Site 25,
Wetland and Stream Delineation Report**

The Watershed Company Reference Number: 220301

Dear Barry,

On October 5, 2022, Ecologists Peter Heltzel and Anna Murphy visited parcel #2574900075 on Mercer Island, Washington to delineate jurisdictional wetlands and streams to support the bank stabilization project. This letter summarizes the findings of the study and current regulatory requirements. The following documents are enclosed:

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

Findings Summary

Two jurisdictional wetlands were found within the study area. Wetland A is a Category III slope wetland with a habitat score of six points. Wetland B is a Category VI slope wetland with a habitat score of five points. The City of Mercer Island requires a standard buffer of 110-feet for Category III wetlands having a habitat score of six to seven and a standard buffer of 40 feet for Category VI wetlands having a habitat score of three to five.

Table 1. Wetland classification and buffer summary per 19.07.190.C.

Feature Name	Category/Type	Habitat Score	Meets isolated size exception?	Standard Buffer	Setback
Wetland A	III	6	No	110 ft.	10 ft.
Wetland B	VI	5	No	60 ft	10 ft.

One perennial, potentially non-fish bearing (Np) watercourse was identified on site (Watercourse A). The City of Mercer Island requires a standard buffer of 60-feet for Type Np watercourses and 120-for fish bearing watercourses (Type F).

Study Area

The study area for this project is defined as parcel #2574900075 located north of Forest Ave NE in the City of Mercer Island. The surrounding properties within approximately 300 feet were evaluated visually from public property or the subject parcel and using aerial photos. Adjoining private properties were not entered.



Figure 1. Study area and vicinity map. Study area highlighted in yellow.

Methodology

The study area was evaluated for wetlands using methodology from the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (U.S. Army Corps of Engineers 2010). The presence or absence of wetlands was determined based on an examination of vegetation, soils, and hydrology. These parameters were sampled at several locations along the wetland boundary to determine the approximate wetland edge. Data was recorded at two representative locations. Wetlands were classified using the Department of Ecology's 2014 rating system (Hruby 2014).

The study area was evaluated for the presence or absence of an ordinary high water mark as defined by Section 404 of the Clean Water Act, the Washington Administrative Code (WAC) 220-660-030, and the Revised Code of Washington (RCW) 90.58.030 and guidance documents including Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State (Anderson 2016) and A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (Mersel 2014).

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

Findings

The subject property is within the Mercer Island drainage basin of the Cedar-Sammamish River watershed (WRIA 8); Section 24 of Township 24 North, Range 04 East of the Public Land Survey System. The subject property is 0.6 acres in size per the King County Assessor and is undeveloped. The subject property is bounded by single-family homes on its north, east, and west sides and a single-family home and Forest Ave SE on its southern side.

Watercourse A flows east to west on the subject property through a ravine. The northern and southern portions of the subject property slope steeply downhill into the ravine. The surrounding area is zoned residential with a minimum lot size of 15,000 square feet (R-15). Lake Washington is located approximately 800 feet to the west of the subject property.

The property is forested and dominated by big-leaf maple and red alder with a dense understory dominated by Himalayan blackberry, lady fern, and English Ivy.



Figure 2. View of the forest canopy and blackberry and ivy understory of the subject property (10/5/2022).

Reviewed public-domain information for the site is summarized below (Table 2).

Table 2. Summary of online mapping and inventory resources.

Resource	Summary
USDA NRCS: Web Soil Survey	<i>Kitsap silt loam, 2 to 8 percent slopes (KpB).</i>
USFWS: NWI Wetland Mapper	<i>No features are mapped within the subject property. Riverine habitat (R4SBC) is mapped on the adjacent properties approximately 270 feet to the south.</i>
WDFW: PHS on the Web	<i>No features are mapped within 500 feet of the subject property.</i>
WDFW: SalmonScope	<i>No features are mapped within the subject property. An intermittent non-fish-bearing watercourse is mapped 270 feet to the south of the subject property.</i>
DNR Mapping Tool	<i>No features are mapped within the subject property. A non-fish-bearing watercourse is mapped 270 feet to the south of the subject property.</i>
King County iMap	<i>No features are mapped within the subject property. A watercourse is mapped 270 feet to the south of the subject property.</i>
Mercer Island GIS Portal	<i>Watercourse A is mapped as a non-fish-bearing perennial watercourse with a 60-foot buffer (Np).</i>
WETS Climatic Condition	<i>Drier than normal hydrological conditions at the time of the site visit.</i>

Wetlands

Two slope wetlands (Wetlands A and B) were delineated and flagged in the study area and the results are summarized in Tables 3 and 4. Wetlands A and B are slope wetlands abutting Watercourse A and are located on the northern and southern slopes of the ravine, respectively. The wetlands meet the criteria for hydrophytic vegetation, hydric soils, and hydrology. The dominant vegetation in Wetland A includes big-leaf maple, red alder, Himalayan blackberry, lady fern, giant horsetail, and stinging nettle, . The dominant vegetation in Wetland B includes giant horsetail, stinging nettle, and lady fern.

Table 3. Wetland A assessment summary.


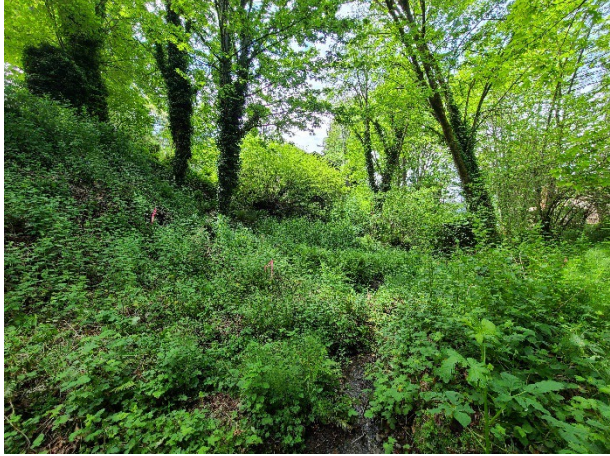


 THE WATERSHED COMPANY		WETLAND A – Assessment Summary								
Location:	North side of parcel #2574900075									
WRIA / Sub-basin:	Cedar-Sammamish River Watershed (WRIA 8) / Mercer Island Drainage Basin									
	2014 Western WA Ecology Rating:	Category III								
	Buffer Width and Buffer Setback:	110 feet 10 feet								
	Wetland Size:	Approx. 0.15 acres								
	Cowardin Classification(s):	Palustrine Forested								
	HGM Classification(s):	Slope								
	Wetland Data Sheet(s):	DP-1								
	Upland Data Sheet (s):	DP-2								
	Flag Color:	Pink- and black-striped								
	Flag Numbers:	Flags A1-A11, connect A1 to WMA 8R- WMA 14R, do not connect WMA 14R to A11								
	Vegetation	Tree stratum:	Acer macrophyllum, Alnus rubra							
Shrub stratum:		Himalayan blackberry								
Herb stratum:		Athyrium filix-femina, Equisetum telmateia, Helix hedera, Convolvulus spp.								
Soils	Soil survey:	Kitsap silt loam, 2 to 8 percent slopes.								
	Field data:	Hydrogen Sulfide (A4)								
Hydrology	Source:	High Water Table								
	Field data:	Surface water (A1), Saturation (A3), Hydrogen Sulfide (C1)								
Wetland Functions										
	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	<u>M</u>	L	H	<u>M</u>	L	H	<u>M</u>	L	
Landscape Potential	H	<u>M</u>	L	H	<u>M</u>	L	H	M	<u>L</u>	
Value	H	M	<u>L</u>	H	M	<u>L</u>	<u>H</u>	M	L	TOTAL
Score Based on Ratings	5			5			6			16
Description and Comments										
Wetland A is a slope wetland located on the northern slope of the ravine.										

Table 1. Wetland B assessment summary.

 THE WATERSHED COMPANY		WETLAND B – Assessment Summary								
Location:	Southern side of parcel #2574900075									
WRIA / Sub-basin:	Cedar-Sammamish River Watershed (WRIA 8) / Mercer Island Drainage Basin									
	2014 Western WA Ecology Rating:		Category VI							
	Buffer Width and Buffer Setback:		40 feet 10 feet							
	Wetland Size:		Approx. 900 square feet							
	Cowardin Classification(s):		Palustrine emergent							
	HGM Classification(s):		Slope							
	Wetland Data Sheet(s):		DP-3							
	Upland Data Sheet (s):		DP-4							
	Flag Color:		Pink- and black-striped							
	Flag Numbers:		Flags B1-B6 connect to WMA 12L - WMA 9L							
	Vegetation	Tree stratum:	None							
Shrub stratum:		Himalayan blackberry								
Herb stratum:		Athyrium filix-femina, Urtica dioica, Convolvulus spp., Hedera helix								
Soils	Soil survey:	Kitsap silt loam, 2 to 8 percent slopes.								
	Field data:	Hydrogen sulfide (A4), Loamy gleyed matrix (F2)								
Hydrology	Source:	High Water Table								
	Field data:	High Water Table (A2), Saturation (A3), Hydrogen Sulfide Odor (C1)								
Wetland Functions										
	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	<u>M</u>	L	H	<u>M</u>	L	H	M	<u>L</u>	
Landscape Potential	H	<u>M</u>	L	H	<u>M</u>	L	H	M	<u>L</u>	
Value	H	M	<u>L</u>	H	M	<u>L</u>	<u>H</u>	M	L	TOTAL
Score Based on Ratings	5			5			5			15
Description and Comments										
Wetland B is a slope wetland located on the southern slope of the ravine.										

Watercourses

The open channel of Watercourse A enters the parcel at the east end, flows westerly in the ravine bottom, and exits in the southwest corner. According to the City of Mercer Island GIS Portal, the open channel continues for approximately 75 feet off property prior to entering a culvert and ultimately discharging into Lake Washington approximately 800 feet to the west.

Watercourse A has a bankfull width of approximately three to four feet on average, sorted sediments (gravel and cobble), and defined, scoured banks with an unvegetated bed. The substrate consists mainly of gravel and cobble with pockets of sand and organic material. Large woody debris is present throughout the watercourse. The gradient, as measured via King County iMap topography, is approximately 12 percent within the subject parcel.

Overhanging vegetation is dominated by western sword fern, English ivy, and Himalayan blackberry. The riparian areas are dominated by red alder, big leaf maple, Douglas-fir, and western red cedar.

Non-wetlands

Areas outside of observed wetlands do not meet the criteria for wetland hydrophytic vegetation, hydric soils, and/or wetland hydrology. Non-wetland areas are located upslope of Wetlands A and B and the eastern portion of the subject property. The dominant vegetation in the non-wetland areas includes big-leaf maple, western red cedar, Douglas-fir, beaked hazelnut, osoberry, salmonberry, English ivy, western sword fern, and Himalayan blackberry.

Local Regulations

Wetlands in the City of Mercer Island are regulated under Chapter 19.07 – Environment. Per MICC 19.07.190, wetlands are rated as one of four categories based on Ecology's 2014 Rating System. Wetland buffers are determined based on a combination of the wetland category and habitat score. According to the Rating System, Wetland A scores five points for water quality functions, five points for hydrologic functions, and six points for habitat functions, for a total of 16 points. This score qualifies Wetland A as a Category III wetland. Category III wetlands with a habitat score of six to seven are required to have a 110-foot standard buffer (MICC 90.07.190.C). Wetland A and the associated buffer would encumber most of the subject property. Wetland B scores five points for water quality functions, five points for hydrologic functions, and five points for habitat functions, for a total of 15 points. Category VI wetlands with a habitat score of three to five are required to have a 40-foot standard buffer (MICC 90.07.190.C). Wetlands A and B will also require a 10-foot building setback which may be reduced to five feet depending on its size.

Classification of streams, lakes, and marine waters is established in accordance with the water typing rules contained in WAC 222-16-030 and -031 and summarized in Mercer Island City Code (MICC) 19.07.180, *Watercourses*. Based on an analysis of Mercer Island and King County public domain mapping tools, the stream section within the subject parcel has an estimated gradient of 12%. Although below the steep gradient limitations outlined by WAC 222-16-031 (16%), Watercourse A is categorized as Type Np (perennial non-fish bearing) by the City of Mercer Island. The lower end of Watercourse A is a piped watercourse for nearly 500 feet under several properties and existing houses. Per WAC 222-16-030 (which references WAC 222-16-031), streams with “potential habitat likely to be used by fish which could be recovered by restoration or management” are classified as Type F streams. For the purposes of determining the potential for fish use, it appears unlikely that fish use would be recovered in a reasonable timeframe considering the length and complexity of downstream barriers. However, we recommend confirmation with the City for concurrence prior to undertaking in-stream design work. The City of Mercer Island requires a 60-foot buffer measured laterally from the OHWM for this stream type (19.07.180.C). Watercourse A is presumed to be a perennial watercourse, however, if it does occasionally go completely dry during summer months, the required buffer of 60-feet would not change. If Watercourse A was determined to be fish-bearing, a required buffer of 120-feet would apply (19.07.180.C).

State and Federal Regulations

Federal Agencies

Most wetlands and streams 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. Wetland A is not isolated due to its proximity to Lake Washington; Unavoidable impacts to jurisdictional wetlands are typically required to be compensated through the implementation of an approved mitigation plan. If activities requiring a Corps permit are proposed, a Joint Aquatic Resource Permit Application (JARPA) could be submitted to obtain authorization.

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

Washington Department of Ecology (Ecology)

Similar to the Corps, Ecology, 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 under the Clean Water Act would only become necessary if a Section 404 permit from the Corps was issued. However, Ecology also regulates wetlands, including isolated wetlands, under the Washington Pollution Prevention and Control Act, but only if direct wetland impacts are proposed. Therefore, if filling activities are avoided, authorization from Ecology would not be needed.

If filling is proposed, a JARPA may also be submitted to Ecology to obtain a Section 401 Water Quality Certification and Coastal Zone Management Consistency Determination. Ecology permits are either issued concurrently with the Corps permit or within 90 days following the Corps permit. Ecology now requires a Pre-Filing Meeting Request for Clean Water Act Section 401 Water Quality Certification.

In general, neither the Corps nor Ecology 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.

Washington Department of Fish and Wildlife (WDFW)

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

Through the issuance of an HPA, WDFW can also restrict activities to a particular timeframe. Work is typically restricted to late summer and early fall. However, WDFW has in the past allowed crossings that do not involve in-stream work to occur at any time during the year.

Disclaimer

The information contained in this letter is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria referenced above. All discussions, conclusions, and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and

timing. The findings of this report are subject to verification and agreement by the appropriate local, state, and federal regulatory authorities. No other warranty, expressed or implied, is made.

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

Sincerely,



Peter Heltzel
Ecologist



Anna Murphy
Ecologist

References

- Anderson, P.S. et al. 2016. Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State. (Publication #16-06-029). Olympia, WA: Shorelands and Environmental Assistance Program, Washington Department of Ecology.
- Department of Ecology (Ecology). 2018. Modifications for Habitat Score Ranges. Modified from Wetland Guidance for CAO Updates, Western Washington Version. (Publication #16-06-001). Accessed 8/16/18: <https://fortress.wa.gov/ecy/publications/parts/1606001part1.pdf>.
- Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Hruby, T. 2014. Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington Department of Ecology.

- Mersel, M.K. and Lichvar, R.W. 2014. A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States. ERDC/CRREL TR-14-13.
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). ed. J. S. Wakely, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2015. National Engineering Handbook, Part 650 Engineering Field Handbook, Chapter 19 Hydrology Tools for Wetland Identification and Analysis. ed. R. A. Weber. 210-VI-NEH, Amend. 75. Washington, DC.

Site Photos



Photo 1. View looking northeast of the ravine and Watercourse A from the southern edge of the subject property.



Photo 2. View looking southeast from the eastern boundary of Wetland A.



Photo 3. View looking west from the eastern edge of Wetland B.

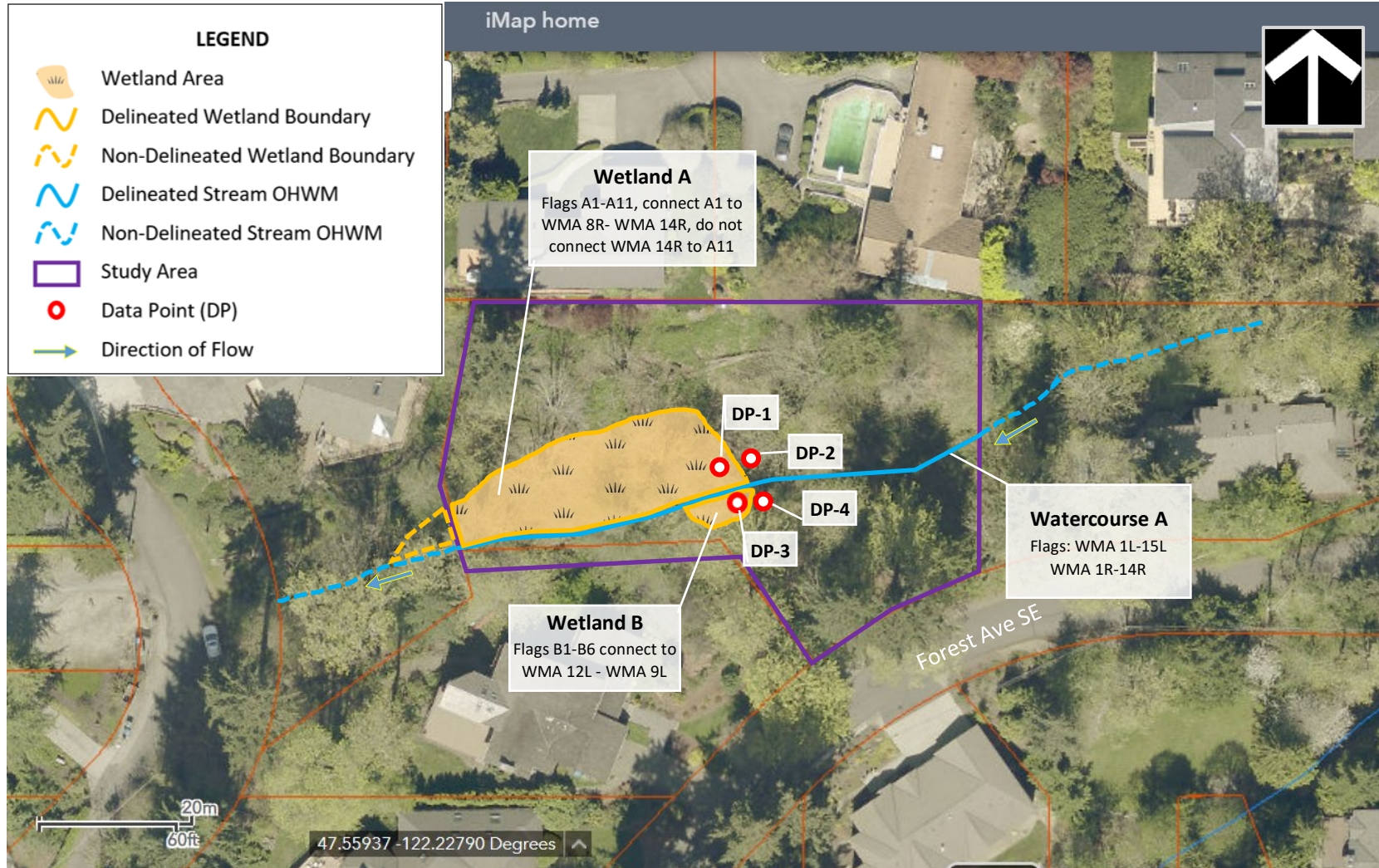


Photo 4. View looking west on the western end of Watercourse A in the spring (May 2022).

Wetland and Watercourse Delineation Sketch – City of Mercer Island Site #25

Site Address: North of Forest Ave SE, Mercer Island
Parcel Number: 2574900075
Site Visit Date: October 5, 2022

Prepared for: Gray & Osborne
TWC Ref. No.: 220301



Note: Field sketch only. Features depicted are approximate and not to scale. Wetland boundaries are marked with pink- and black-striped flags. Data points are marked with yellow- and black-striped flags. All observations were made from within the study area; adjoining private properties were not entered.

Project/Site: Mercer Island Bank Stabilization, Site 25 City/County: Mercer Island Sampling date: 10-5-22
 Applicant/Owner: City of Mercer Island State: WA Sampling Point: DP-1 in
 Investigator(s): P. Heltzel, A. Murphy Section, Township, Range: S 24, T 24 N, R 04 E
 Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): none Slope (%): 10
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kitsap silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present on the site? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks: Drier than normal. Wetland A in-pit					

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 5-m diameter)				Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)
1. <u>Acer macrophyllum</u>	100	N*	FACU	Total Number of Dominant Species Across all Strata: <u>2</u> (B)
2. _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>100</u> (A/B)
3. _____				
4. _____				
<u>100</u> = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 3-m diameter)				Prevalence Index worksheet:
1. _____				<u>Total % Cover of:</u> <u> </u> <u>Multiply by:</u>
2. _____				OBL species <u> </u> x 1 = <u> </u>
3. _____				FACW species <u> </u> x 2 = <u> </u>
4. _____				FAC species <u> </u> x 3 = <u> </u>
5. _____				FACU species <u> </u> x 4 = <u> </u>
<u>0</u> = Total Cover				UPL species <u> </u> x 5 = <u> </u>
<u>Herb Stratum</u> (Plot size: 1-m diameter)				Column Totals: (A) <u> </u> (B) <u> </u>
1. <u>Equisetum telmateia</u>	20	Y	FACW	Prevalence Index = B/A = <u> </u>
2. <u>Athyrium filix-femina</u>	20	Y	FACW	
3. <u>Hedera helix</u>	5	N	FACU	
4. <u>Convolvulus arvensis</u>	5	N	FACU	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>50</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: 3-m diameter)				Hydrophytic Vegetation Indicators:
1. _____				<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation
2. _____				<input checked="" type="checkbox"/> 2 – Dominance Test is > 50%
<u>0</u> = Total Cover				<input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹
% Bare Ground in Herb Stratum: <u>50</u>				<input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
				<input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹
				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks: <u>*A. macrophyllum is rooted out of the plot</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Project/Site: Mercer Island Bank Stabilization, Site 25 City/County: Mercer Island Sampling date: 10-5-22
 Applicant/Owner: City of Mercer Island State: WA Sampling Point: DP-2 out
 Investigator(s): P. Heltzel, A. Murphy Section, Township, Range: S 24, T 24 N, R 04 E
 Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): none Slope (%): 10
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kitsap silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present on the site? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: Drier than normal Wetland A out-pit					

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 5-m diameter)				Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)
1. <u><i>Acer Macrophyllum</i></u>	100	Y	FACU	Total Number of Dominant Species Across all Strata: <u>4</u> (B)
2. _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>50</u> (A/B)
3. _____				
4. _____				
	<u>100</u>		= Total Cover	
<u>Sapling/Shrub Stratum</u> (Plot size: 3-m diameter)				Prevalence Index worksheet:
1. <u><i>Rubus bifrons</i></u>	20	Y	FAC	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
	<u>20</u>		= Total Cover	UPL species _____ x 5 = _____
				Column Totals: (A) _____ (B) _____
<u>Herb Stratum</u> (Plot size: 1-m diameter)				Prevalence Index = B/A = _____
1. <u><i>Hedera helix</i></u>	30	Y	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Urtica dioica</i></u>	15	Y	FACW	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	<u>45</u>		= Total Cover	
<u>Woody Vine Stratum</u> (Plot size: 3-m diameter)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
	<u>0</u>		= Total Cover	
% Bare Ground in Herb Stratum: <u>35</u>				
Remarks:				

Project/Site: Mercer Island Bank Stabilization, Site 25 City/County: Mercer Island Sampling date: 10-5-22
 Applicant/Owner: City of Mercer Island State: WA Sampling Point: DP 3-in
 Investigator(s): P. Heltzel, A. Murphy Section, Township, Range: S 24, T 24 N, R 04 E
 Landform (hillslope, terrace, etc): slope Local relief (concave, convex, none): none Slope (%): <5
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kitsap silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present on the site? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks: Drier than normal Wetland B in-pit					

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 5-m diameter)				Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A)
1. <u><i>Acer macrophyllum</i></u>	85*	N	FACU	Total Number of Dominant Species Across all Strata: <u>4</u> (B)
2. _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>75</u> (A/B)
3. _____				
4. _____				
	<u>85</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: 3-m diameter)				Prevalence Index worksheet:
1. <u><i>Rubus bifrons</i></u>	10	Y	FAC	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
	<u>10</u> = Total Cover			UPL species _____ x 5 = _____
				Column Totals: (A) _____ (B) _____
				Prevalence Index = B/A = _____
<u>Herb Stratum</u> (Plot size: 1-m diameter)				Hydrophytic Vegetation Indicators:
1. <u><i>Athyrium filix-femina</i></u>	20	Y	FACW	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation
2. <u><i>Urtica dioica</i></u>	15	Y	FAC	<input checked="" type="checkbox"/> 2 – Dominance Test is > 50%
3. <u><i>Convolvulus arvensis</i></u>	15	Y	FACU	<input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹
4. <u><i>Hedera helix</i></u>	5	N	FACU	<input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
	<u>55</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: 3-m diameter)				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
	_____ = Total Cover			
% Bare Ground in Herb Stratum: <u>35</u>				
Remarks: *Rooted out				

Project/Site: Mercer Island Bank Stabilization, Site 25 City/County: Mercer Island Sampling date: 10-5-22
 Applicant/Owner: City of Mercer Island State: WA Sampling Point: DP 4 out
 Investigator(s): P. Heltzel, A. Murphy Section, Township, Range: S 24, T 24 N, R 04 E
 Landform (hillslope, terrace, etc): slope Local relief (concave, convex, none): none Slope (%): <10
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kitsap silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present on the site? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: Drier than normal Wetland B out-pit					

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 5-m diameter)				Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A)
1. <u><i>Acer macrophyllum</i></u>	60*	N	FACU	Total Number of Dominant Species Across all Strata: <u>2</u> (B)
2. _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>50</u> (A/B)
3. _____				
4. _____				
	<u>60</u>	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: 3-m diameter)				Prevalence Index worksheet:
1. <u><i>Rubus bifrons</i></u>	75	Y	FAC	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
	<u>75</u>	= Total Cover		UPL species _____ x 5 = _____
				Column Totals: (A) _____ (B) _____
<u>Herb Stratum</u> (Plot size: 1-m diameter)				Prevalence Index = B/A = _____
1. <u><i>Hedera helix</i></u>	20	Y	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Equisetum telmateia</i></u>	5	N	FAC	
3. <u><i>Athyrium filix-femina</i></u>	5	N	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	<u>30</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: 3-m diameter)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum: <u>75</u>				
Remarks: <u><i>A. macrophyllum</i> is rooted out of the plot</u>				

Wetland name or number: Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 10/5/2022

Rated by: P. Heltzel, A. Murphy Trained by Ecology? Y N Date of training: October 2018

HGM Class used for rating: Slope

Wetland has multiple HGM classes? Y N

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

Source of base aerial photo/map: Google Earth, DOE Water Quality Atlas, Stream Stats

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

1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 - 27
- Category II – Total score = 20 - 22
- Category III – Total score = 16 - 19
- Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	<u>M</u>	L	H	<u>M</u>	L	H	<u>M</u>	L	
Landscape Potential	H	<u>M</u>	L	H	<u>M</u>	L	H	M	<u>L</u>	
Value	H	M	<u>L</u>	H	M	<u>L</u>	<u>H</u>	M	L	
Score Based on Ratings	5			5			6			TOTAL 16

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	<input checked="" type="checkbox"/>

Wetland name or number: Wetland A

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	3
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	6

Wetland name or number: Wetland A

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number: Wetland A

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

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

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

Record the rating on the first page

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

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

Record the rating on the first page

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

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

Record the rating on the first page

Wetland name or number: Wetland A

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually >1/8₈ in), or dense enough, to remain erect during surface flows.*

Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1

All other conditions points = 0

1

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

Record the rating on the first page

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

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0

1

Rating of Landscape Potential If score is: 1 = M 0 = L

Record the rating on the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems:

The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2

Surface flooding problems are in a sub-basin farther down-gradient points = 1

No flooding problems anywhere downstream points = 0

0

S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0

0

Total for S 6 Add the points in the boxes above

0

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

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

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

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

1

H 1.2. Hydroperiods

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

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

1

H 1.3. Richness of plant species

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

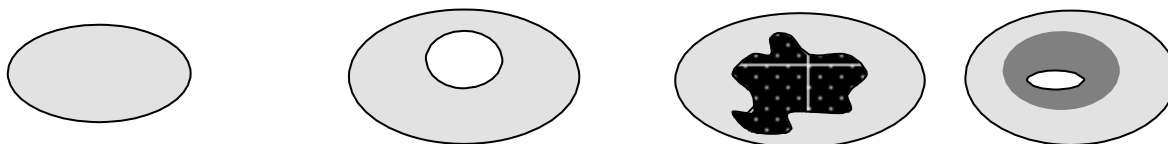
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

1

H 1.4. Interspersion of habitats

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

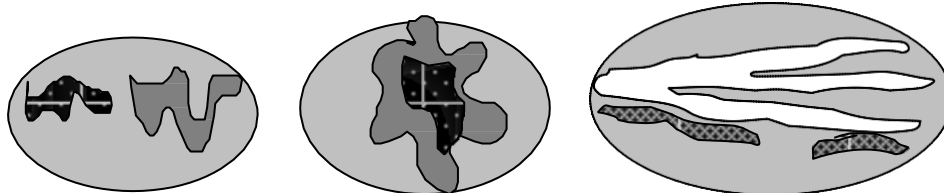


- None** = 0 points
- Low** = 1 point
- Moderate** = 2 points

1

All three diagrams in this row are

- HIGH** = 3points



Wetland name or number: Wetland A

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland.</p> <p><input checked="" type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) AND/OR overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m).</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>).</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>).</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>).</p>		3
Total for H 1	Add the points in the boxes above	7

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?			
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 0% + (0%/2) = 0%</i></p> <p>If total accessible habitat is:</p> <p><input type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3</p> <p><input type="checkbox"/> 20-33% of 1 km Polygon points = 2</p> <p><input type="checkbox"/> 10-19% of 1 km Polygon points = 1</p> <p><input checked="" type="checkbox"/> < 10% of 1 km Polygon points = 0</p>			0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 2.5% + (39%/2) = 22.1%</i></p> <p><input type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p><input checked="" type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p><input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0</p>			1
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p><input checked="" type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p><input type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>			-2
Total for H 2	Add the points in the boxes above	-1	

Rating of Landscape Potential If score is: 4-6 = H 1-3 = M < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?			
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <p><input checked="" type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)</p> <p><input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p><input type="checkbox"/> It is mapped as a location for an individual WDFW priority species</p> <p><input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p><input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan</p> <p><input type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p> <p><input type="checkbox"/> Site does not meet any of the criteria above points = 0</p>			2

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

Wetland name or number: Wetland A

WDFW Priority Habitats

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

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

- Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland name or number: Wetland A

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 6.1 <input checked="" type="checkbox"/> No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>NA</p>

Wetland name or number: Wetland B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 10/5/2022

Rated by: P. Heltzel, A. Murphy Trained by Ecology? Y N Date of training: October 2018

HGM Class used for rating: Slope

Wetland has multiple HGM classes? Y N

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

Source of base aerial photo/map: Google Earth, DOE Water Quality Atlas, Streamstats

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

1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 - 27
- Category II – Total score = 20 - 22
- Category III – Total score = 16 - 19
- Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <u>M</u> L	H <u>M</u> L	H M <u>L</u>	
Landscape Potential	H <u>M</u> L	H <u>M</u> L	H M <u>L</u>	
Value	H M <u>L</u>	H M <u>L</u>	<u>H</u> M L	TOTAL
Score Based on Ratings	5	5	5	15

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	<input checked="" type="checkbox"/>

Wetland name or number: Wetland B

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	3
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	6

Wetland name or number: Wetland B

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number: Wetland B

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i> <input type="checkbox"/> Slope is 1% or less points = 3 <input type="checkbox"/> Slope is > 1%-2% points = 2 <input checked="" type="checkbox"/> Slope is > 2%-5% points = 1 <input type="checkbox"/> Slope is greater than 5% points = 0		1
S 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions):</u> Yes = 3 <input type="checkbox"/> No = 0 <input checked="" type="checkbox"/>		0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> <input checked="" type="checkbox"/> Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 <input type="checkbox"/> Dense, uncut, herbaceous plants > ½ of area points = 3 <input type="checkbox"/> Dense, woody, plants > ½ of area points = 2 <input type="checkbox"/> Dense, uncut, herbaceous plants > ¼ of area points = 1 <input type="checkbox"/> Does not meet any of the criteria above for plants points = 0		6
Total for S 1 Add the points in the boxes above		7

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

Record the rating on the first page

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

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

Record the rating on the first page

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

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

Record the rating on the first page

Wetland name or number: Wetland B

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually >1/8₈ in), or dense enough, to remain erect during surface flows.</i> <input checked="" type="checkbox"/> Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1 <input type="checkbox"/> All other conditions points = 0	1
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Rating of Site Potential If score is: 1 = M 0 = L

Record the rating on the first page

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

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? <input checked="" type="checkbox"/> Yes = 1 <input type="checkbox"/> No = 0	1
--	---

Rating of Landscape Potential If score is: 1 = M 0 = L

Record the rating on the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems: <input type="checkbox"/> The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 <input type="checkbox"/> Surface flooding problems are in a sub-basin farther down-gradient points = 1 <input checked="" type="checkbox"/> No flooding problems anywhere downstream points = 0	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? <input type="checkbox"/> Yes = 2 <input checked="" type="checkbox"/> No = 0	0
Total for S 6 Add the points in the boxes above	0

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

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

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

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

0

H 1.2. Hydroperiods

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

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

1

H 1.3. Richness of plant species

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

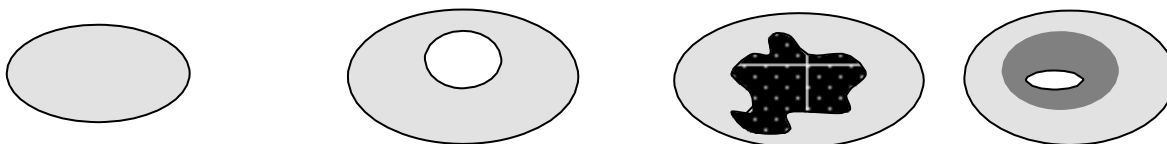
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

1

H 1.4. Interspersion of habitats

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

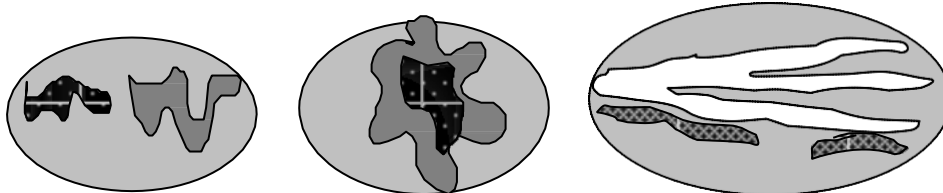


- None** = 0 points
- Low** = 1 point
- Moderate** = 2 points

1

All three diagrams in this row are

- HIGH** = 3points



Wetland name or number: Wetland B

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland. <input checked="" type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) AND/OR overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m). <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>). <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>). <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>). 	2
<p>Total for H 1</p> <p style="text-align: right;">Add the points in the boxes above</p>	5

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

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = 0% + (0%/2) = 0%</i></p> <p>If total accessible habitat is:</p> <ul style="list-style-type: none"> <input type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3 <input type="checkbox"/> 20-33% of 1 km Polygon points = 2 <input type="checkbox"/> 10-19% of 1 km Polygon points = 1 <input checked="" type="checkbox"/> < 10% of 1 km Polygon points = 0 	0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = 2.5% + (39%/2) = 22.1%</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3 <input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2 <input checked="" type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1 <input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0 	1
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2) <input type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0 	-2
<p>Total for H 2</p> <p style="text-align: right;">Add the points in the boxes above</p>	

Rating of Landscape Potential If score is: 4-6 = H 1-3 = M < 1 = L *Record the rating on the first page*

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan <input type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 <input type="checkbox"/> Site does not meet any of the criteria above points = 0 	2

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

Wetland name or number: Wetland B

WDFW Priority Habitats

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

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

- Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland name or number: Wetland B

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> Yes – Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p><input type="checkbox"/> Yes – Go to SC 6.1 <input checked="" type="checkbox"/> No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>NA</p>

2014 Ecology Wetland Rating Form Figures

MERCER ISLAND WATERCOURSE STABILIZATION PROJECT – SITE 25

Wetlands A and B (Slope)	1
Figure 1. Cowardin plant classes – H1.1, H1.4.....	1
Figure 2. Hydroperiods and 150-foot area – H1.2, S2.1, S5.1	2
Figure 3. Plant cover of dense and rigid trees, shrubs, and herbaceous plants – S1.3, S4.1	3
Figure 4. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3.....	4
Figure 5. Screen-capture of 303(d) listed waters in basin – S3.1, S3.2	5
Figure 6. Screen-capture of TMDL list for WRIA in which unit is found – S3.3	6

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WETLANDS A AND B (SLOPE)



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

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

WETLANDS A AND B (SLOPE)



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

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

WETLANDS A AND B (SLOPE)



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

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

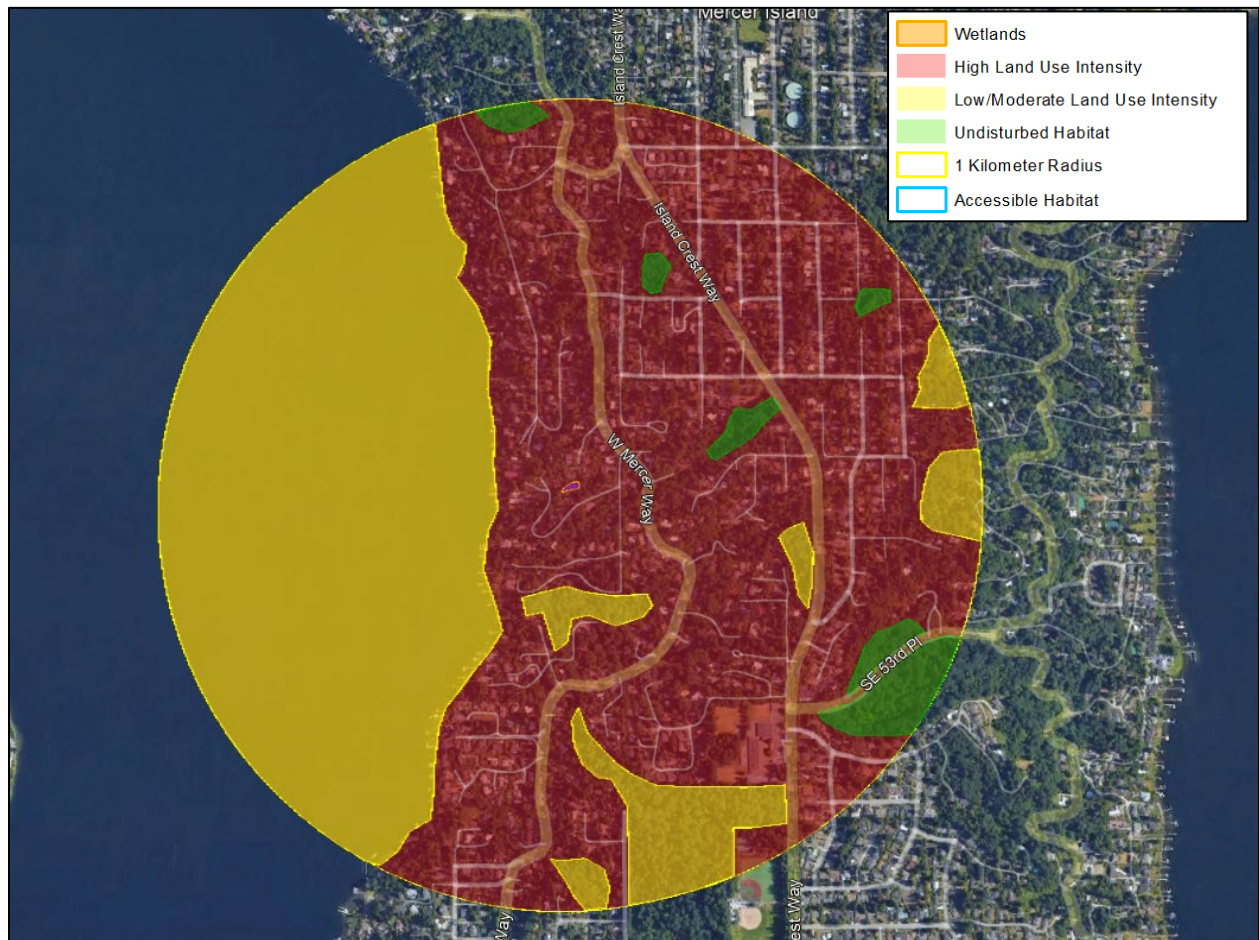


Figure 4. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3

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

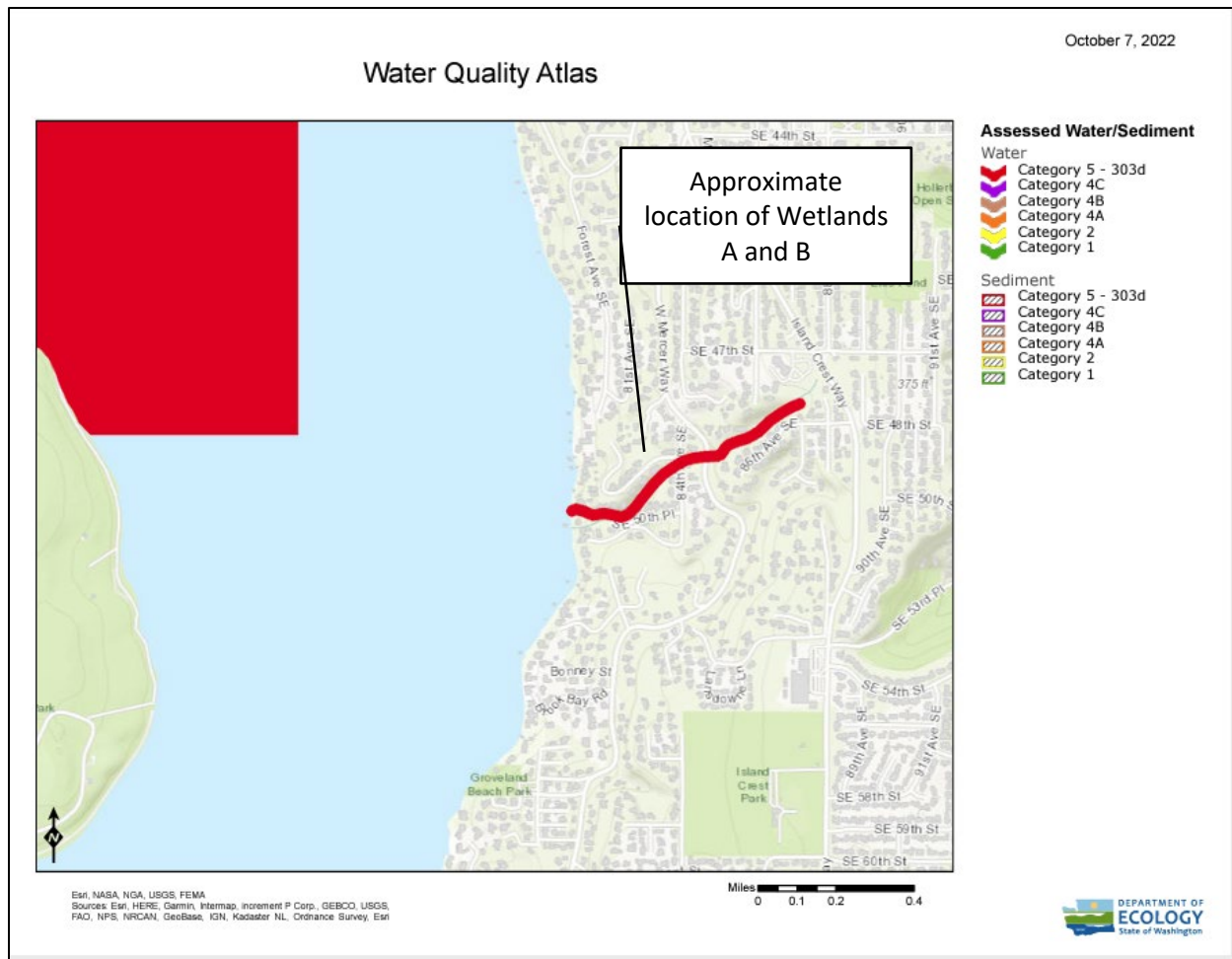


Figure 5. Screen-capture of 303(d) listed waters in basin – S3.1, S3.2

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

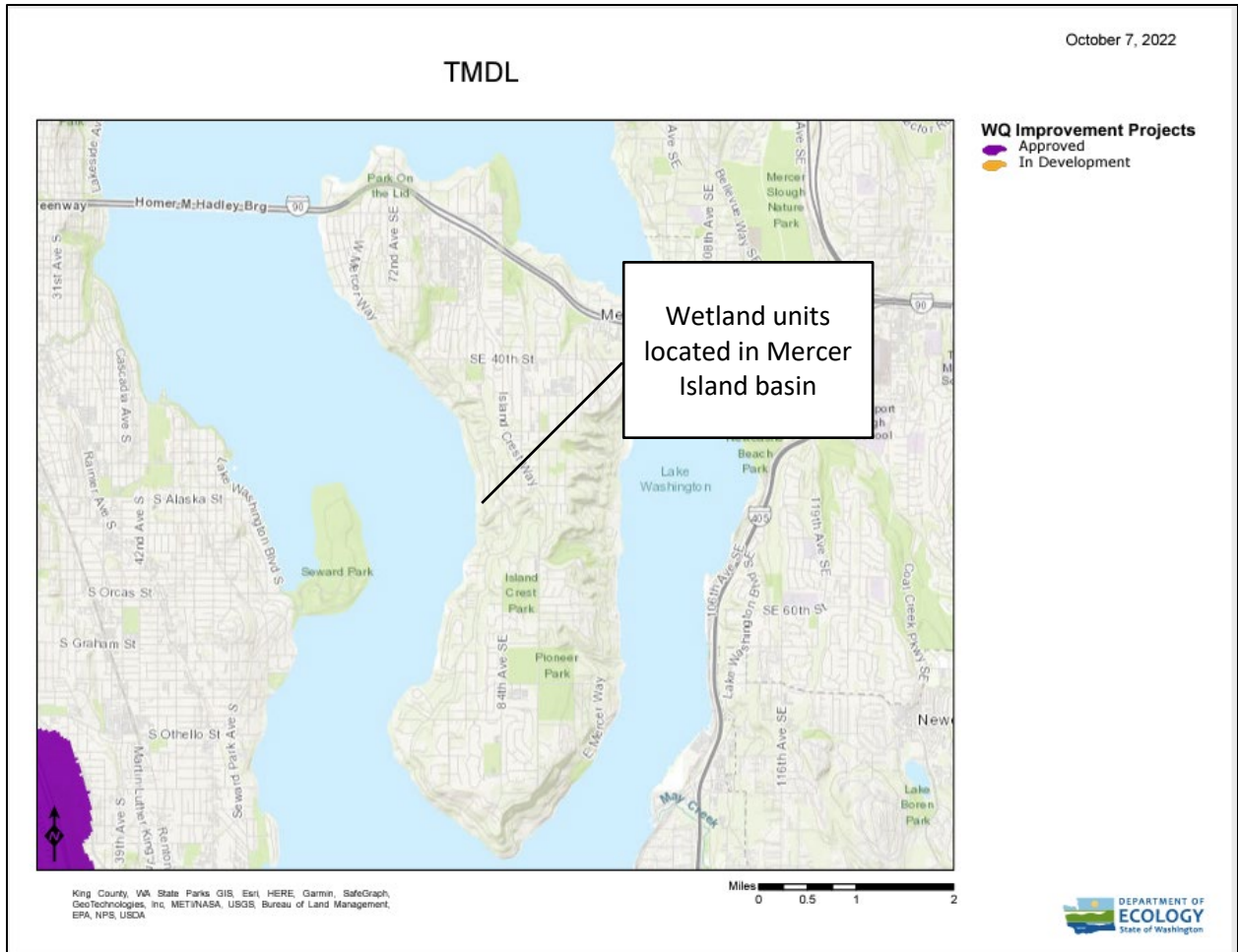


Figure 6. Map of TMDL for WRIA in which unit is found – S3.3

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