

TECHNICAL MEMORANDUM

Prepared for: Kevin Anderson – CEO
Wesley Homes
815 South 216th Street
Des Moines, WA 98198-6332

November 2, 2023

Prepared by: Grette Associates^{LLC}
2709 Jahn Ave NW, Suite H-5
Gig Harbor, WA 98335

File No.: 621.008

Re: Wesley Homes – Bradley Park Phase II

1 INTRODUCTION

Grette Associates is under contract with Wesley Homes to complete a wetland verification at the Bradley Park Phase II project in Puyallup, WA (Figure 1). This project primarily includes an addition to an existing retirement home. This wetland verification is meant to determine if the boundaries of a previously approved wetland delineation associated with Wetland C have changed significantly since 2013.

Figure 1. Map



2 PREVIOUS WETLAND DELINEATION

In support of the Wesley Homes retirement home (Phase I and II) project, Soundview Consultants LLC (Soundview) identified and delineated four wetlands within the project site during their assessment performed in 2013 (Wetlands A, B, C, and D; Soundview Consultants LLC 2017). This technical memorandum is intended to provide a wetland verification in support of the Phase II project. As such, this summary is limited to Wetland C that was provided in the 2017 report.

Wetland C was mapped in 2017 at approximately 3,075 square feet in size. The wetland was classified as palustrine scrub-shrub wetland with a saturated hydrological regime (Cowardin et al. 1979), and as a slope wetland using the hydrogeomorphic method (Brinson 1993). Dominant vegetation included salmonberry (*Rubus spectabilis*) and soft rush (*Juncus effusus*). Hydrological support came primarily from uphill seeps.

Initially rated Category IV using the 2004 Washington Department of Ecology rating system (Hruby 2004), the wetland was rated again in 2017, during which the 2014 Washington Department of Ecology rating system was applied (Hruby 2014). Using the 2014 method, Wetland C was rated Category III and was subject to a standard buffer width of 110 feet. This buffer was approved to be reduced to 50 feet with buffer enhancement (Soundview Consultants LLC 2017). Namely, protective fencing was installed and the buffer was enhanced with the removal of invasive species and planting of native vegetation.

3 METHODS

The portion of Wetland C near the Phase II project area was verified according to wetland delineation procedures described in the U.S. Army Corps of Engineers' (USACE) *Federal Wetland Delineation Manual* (1987), and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010). Paired data plots and soil test pits were excavated to evaluate wetland and upland conditions. Guidance from the USACE's *Regional Supplement* was used to evaluate the data at each data point.

The boundary of the wetland was established based on changes in vegetation, field indicators of hydric soils, water levels, topographic changes, and best professional judgment. GPS points were taken for each soil plot and those boundary flags placed during Grette Associates' verification.

The previous wetland rating conducted by Soundview was also reviewed to determine if it was still valid. The most recent Washington Department of Ecology rating system was used (Hruby and Yahnke 2023) to complete this task.

4 RESULTS

4.1 Wetland Boundary Determination

Three soil pits were investigated to verify the location of the wetland boundary: two paired data plots as required by the USACE *Federal Wetland Delineation Manual* (1987; SP1 and SP2), and one data plot (SP3) between the two that was explored in order to determine the wetland boundary. See Attachment A for the locations of these data plots, and Attachment B for the wetland determination datasheets.

The wetland boundary was determined to be between SP2 (wetland) and SP3 (upland) (Attachment A). This indicates a change of approximately 10 feet southward of the boundary delineated in 2013.

4.2 Wetland Categorization

A preliminary wetland categorization was completed using the most recent version of the Washington Department of Ecology 2014 wetland rating system (Hruby and Yahnke 2023). The wetland was rated Category III, suggesting that the current wetland buffer still applies.

5 CONCLUSION

Based on Grette Associates' 2023 verification, a portion of Wetland C's boundary has appeared to shift slightly southward (Attachment A). According to the project site plans, two stormwater dispersion trenches were installed during the construction of Phase I. These two stormwater features are located upslope of Wetland C and the area identified to exhibit wetland conditions (Attachment A). Grette Associates identified the southern dispersion trench that is located immediately upslope of the small area that exhibited wetland conditions and outside of the wetland area delineated in 2013.

In Grette Associates' professional opinion, this area is likely exhibiting wetland conditions because it is very likely that the existing stormwater discharge structure constructed during Phase I is providing artificial hydrological support to this location. While this stormwater feature is intended to allow stormwater discharge to sheet flow across the landscape, these types of features still provide a relatively concentrated discharge to an area which Grette believes is likely the result to why the questionable area exhibits wetland conditions rather than from a change that occurring naturally. This determination is also supported by the fact that Grette Associates only observed these changes near and downslope area of the stormwater outfall southeast of the wetland rather than throughout the entire wetland area evaluated.

Grette Associates' rating review determined that conditions have not significantly changed from the 2017 rating conducted by Soundview Consultants (2017) and that Wetland C is classified as a Category III wetland per Chapter 21.06 of the Puyallup Municipal Code (PMC).

In closing, while Grette Associates did identify a slight change in the boundary associated with Wetland C, it is Grette Associates' professional opinion that this change is a result of the placement of the stormwater dispersion trench that was constructed during Phase I and is not a result of a change in conditions that occurred naturally. Therefore, it is Grette Associates recommendation that the current modified buffer should continue to apply in support of the Phase II project.

Based on the City's September 19, 2023 review comments, there was concern whether or not the proposed paved trail along the new building will encroach into the wetland buffer. As shown in project plans (Attachment A), this trail will be constructed outside of the previously approved modified wetland buffer.

If you have any questions on this wetland verification, please contact me at (253) 573-9300, or by email at chadw@gretteassociates.com.

Regards,



Terra Hauser
Biologist



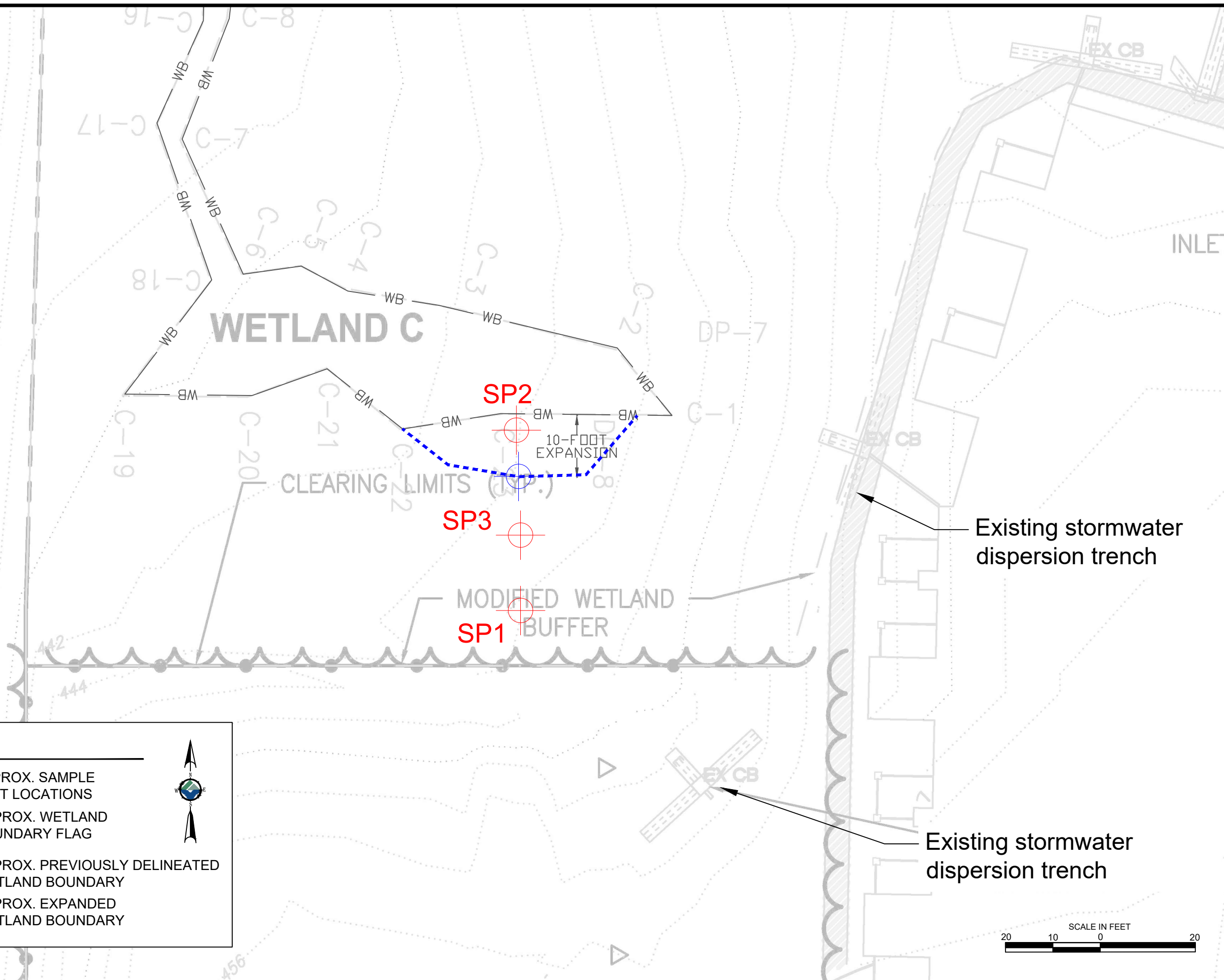
Chad Wallin, PWS
Biologist

References

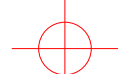
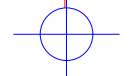


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- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats for the United States. FWS/OBS-79/31, U.S. Department of Interior, Fish and Wildlife Service. Washington D.C.
- Hruby, T. 2004. Washington State wetland rating system for western Washington – Revised. Washington State Department of Ecology Publication # 04-06-025.
- Hruby, T. 2014. Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington Department of Ecology.
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- Soundview Consultants LLC. 2017. Wetland Delineation, Habitat Assessment, and Final Mitigation Plan: Wesley Homes – Puyallup Senior Living. Prepared for: Wesley Homes.
- U.S. Army Corps of Engineers (Corps). 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- U.S. Army Corps of Engineers (Corps). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.


ATTACHMENT A

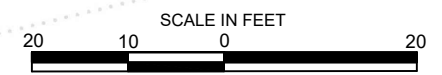
WETLAND VERIFICATION MAP





LEGEND

-  APPROX. SAMPLE PLOT LOCATIONS
-  APPROX. WETLAND BOUNDARY FLAG
-  WB ——— APPROX. PREVIOUSLY DELINEATED WETLAND BOUNDARY
-  - - - - - APPROX. EXPANDED WETLAND BOUNDARY





 <p>Grette Associates LLC ENVIRONMENTAL CONSULTANTS 2709 Jahn Ave NW, Suite H-5 GIG HARBOR, WA 98335 (253) 573-9300 gretteassociates.com</p>	<p>CLIENT: WESLEY HOMES</p>	<p>PROJECT #: 621.008</p>
	<p>DESIGNED BY: TH</p>	<p>DATE: 09/28/2023</p>
<p>WESLEY HOMES - WETLAND VERIFICATION</p>		<p>DRAWING SCALE: SEE SCALE</p>
<p>WETLAND VERIFICATION BOUNDARIES</p>		<p>SITE ADDRESS: PUYALLUP, WASHINGTON</p>
<p>WETLAND VERIFICATION BOUNDARIES</p>		<p>CHECKED BY: CW</p>
<p>SHEET</p> <p style="font-size: 2em;">1</p> <p>OF</p> <p style="font-size: 2em;">1</p>		

ATTACHMENT B

WETLAND DETERMINATION DATASHEETS

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

Project/Site: Wesley Homes Phase 2 City/County: Placerville/Pierce Sampling Date: 9/21/23
 Applicant/Owner: Wesley Homes State: WA Sampling Point: SP1
 Investigator(s): Terra House Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Slight slope Local relief (concave, convex, none): _____ Slope (%): 2
 Subregion (LRR): A Lat: see map Long: see map Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			
Remarks: <u>Drier than normal</u>					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Pacific willow</u>	<u>85</u>	<u>Y</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)	
2. <u>red alder</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)				Total % Cover of:	
1. <u>HBB</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	Multiply by:	
2. <u>black cottonwood</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	OBL species <u>0</u>	x 1 = _____
3. _____	_____	_____	_____	FACW species _____	x 2 = _____
4. _____	_____	_____	_____	FAC species _____	x 3 = _____
5. _____	_____	_____	_____	FACU species _____	x 4 = _____
Herb Stratum (Plot size: <u>5 ft</u>)				UPL species _____	
1. <u>Epilobium ciliatum</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	Column Totals: _____	(A) _____ (B) _____
2. _____	_____	_____	_____	Prevalence Index = B/A = _____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Indicators:	
4. _____	_____	_____	_____	___ 1 - Rapid Test for Hydrophytic Vegetation	
5. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
6. _____	_____	_____	_____	___ 3 - Prevalence Index is ≤3.0 ¹	
7. _____	_____	_____	_____	___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
8. _____	_____	_____	_____	___ 5 - Wetland Non-Vascular Plants ¹	
9. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation ¹ (Explain)	
10. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
11. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
Woody Vine Stratum (Plot size: <u>5 ft</u>)					
1. <u>Draddy nightshade</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>		
2. _____	_____	_____	_____		
% Bare Ground in Herb Stratum <u>95</u>					
Remarks:					

SOIL

Sampling Point: SPI

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-6	10YR 5/1	48	10YR 4/4	2	C	M	Silty clay	
0-6	10YR 3/2	50					Silty clay	Mixed matrix
6-11+	10YR 4/1	95	10YR 3/4	5	C	M	Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):
 Type: Bedrock
 Depth (inches): 11
 Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:
 Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____
 Wetland Hydrology Present? Yes No

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

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

Project/Site: Wesley Homes Phase 2 City/County: Puyallup/Pierce Sampling Date: 9/21/23
 Applicant/Owner: Wesley Homes State: WA Sampling Point: SP2
 Investigator(s): Terra Hauser Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): _____ Slope (%): 1
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks: <u>Drier than normal</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Red alder</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>4</u> (A)
2. <u>Douglas-fir</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	Total Number of Dominant Species Across All Strata:	<u>6</u> (B)
3. <u>Bigleaf maple</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>67%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:	
<u>60</u> = Total Cover				Total % Cover of:	
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)				Multiply by:	
1. <u>red-osier dogwood</u>	<u>40</u>	<u>N</u>	<u>FACW</u>	OBL species _____	x 1 = <u>0</u>
2. <u>HBR</u>	<u>100</u>	<u>Y</u>	<u>FAC</u>	FACW species <u>40</u>	x 2 = <u>80</u>
3. <u>Salmonberry</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	FAC species <u>225</u>	x 3 = <u>675</u>
4. _____	_____	_____	_____	FACU species <u>40</u>	x 4 = <u>160</u>
5. _____	_____	_____	_____	UPL species _____	x 5 = _____
<u>220</u> = Total Cover				Column Totals:	<u>305</u> (A) <u>995</u> (B)
Herb Stratum (Plot size: <u>5 ft</u>)				Prevalence Index = B/A = <u>3</u>	
1. <u>Sword fern</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators:	
2. <u>lady fern</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" 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 _____ Problematic Hydrophytic Vegetation ¹ (Explain)	
3. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
4. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
5. _____	_____	_____	_____		
Woody Vine Stratum (Plot size: <u>5 ft</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>75</u>					
Remarks:					

0-7
7-14
SOIL

14-18+

Sampling Point: SP2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/1	100					silty clay	
7-14	10YR 2/1	35					sandy clay	Mixed matrix
7-14	10YR 4/1	61	10YR 3/4	4	C	M	sandy clay	
14-18+	10YR 2/1	10					sandy loam	Mixed matrix
14-18+	10YR 4/1	85	10YR 3/4	5	C	M	sandy lam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

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

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

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

Restrictive Layer (if present):

Type: hard pan
Depth (inches): 19

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

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

Project/Site: Wesley Homes Phase 2 City/County: Puyallup/Pierce Sampling Date: 9/21/23
 Applicant/Owner: Wesley Homes State: WA Sampling Point: SP3
 Investigator(s): Terra Hauser Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Slight slope Local relief (concave, convex, none): _____ Slope (%): 1
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No _____			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. <u>red alder</u>	20 <u>5</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)														
2. <u>Pac. willow</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)														
3. <u>douglas-fir</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83.3</u> (A/B)														
4. _____				Prevalence Index worksheet:														
	<u>35</u> = Total Cover				<table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Total % Cover of:</th> <th style="width:50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species <u>50</u></td> <td>x 2 = <u>100</u></td> </tr> <tr> <td>FAC species <u>160</u></td> <td>x 3 = <u>480</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 = <u>40</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>220</u> (A)</td> <td><u>620</u> (B)</td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species <u>50</u>	x 2 = <u>100</u>	FAC species <u>160</u>	x 3 = <u>480</u>	FACU species <u>10</u>	x 4 = <u>40</u>	UPL species _____	x 5 = _____	Column Totals: <u>220</u> (A)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species <u>50</u>	x 2 = <u>100</u>																	
FAC species <u>160</u>	x 3 = <u>480</u>																	
FACU species <u>10</u>	x 4 = <u>40</u>																	
UPL species _____	x 5 = _____																	
Column Totals: <u>220</u> (A)	<u>620</u> (B)																	
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)				Prevalence Index = B/A = <u>2.82</u>														
1. <u>HPB</u>	<u>90</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:														
2. <u>red osier dogwood</u>	<u>45</u>	<u>Y</u>	<u>FACW</u>															
3. _____																		
4. _____																		
5. _____																		
Herb Stratum (Plot size: <u>5 ft</u>)																		
1. <u>Unidentified grass</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>															
2. _____																		
3. _____																		
4. _____																		
5. _____																		
6. _____																		
7. _____																		
8. _____																		
9. _____																		
10. _____																		
11. _____																		
Woody Vine Stratum (Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____														
1. <u>Deadly night shade</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>															
2. _____																		
% Bare Ground in Herb Stratum <u>90</u>																		
Remarks:																		

SOIL

Sampling Point: SP3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 2/2	99	10YR 3/4	1	C	M	loamy clay	
9-18+	10YR 3/2	50	10YR 3/4	5	C	M	clay	Mixed matrix
9-18+	10YR 4/1	15					clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | | |
|---|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

- | | |
|---|--|
| Primary Indicators (minimum of one required; check all that apply) | Secondary Indicators (2 or more required) |
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:
Soils moist but not saturated

ATTACHMENT C

WETLAND RATING FORM

Wetland name or number C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C Date of site visit: 9/21/23
 Rated by Terra Hauser Trained by Ecology? Yes ___ No Date of training 10/13/22
 HGM Class used for rating Slope Wetland has multiple HGM classes? ___ Y N

NOTE: Form is not complete without the required figures (figures can be combined).
 Source of base aerial photo/map N/A

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 M <u>L</u>	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	<u>H</u> M L	<u>H</u> M L	<u>H</u> M L	TOTAL
Score Based on Ratings	6	7	5	18

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number C

Maps and figures required to answer questions correctly for Western Washington Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and total habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and total habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – **Saltwater Tidal Fringe (Estuarine)**

YES – **Freshwater Tidal Fringe**

If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe, it is an **Estuarine** wetland and is not scored. This method cannot be used to score functions for estuarine wetlands.

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

NO – go to 3

YES – The wetland class is **Flats**

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

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

- The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size,
- At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe (Lacustrine Fringe)**

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

- The wetland is on a slope (slope can be very gradual),
- The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheet flow, or in a swale without distinct banks,
- The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

Wetland name or number C

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

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- The overbank flooding occurs at least once every 2 years.

NO – go to 6

YES – The wetland class is Riverine

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

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

NO – go to 7

YES – The wetland class is Depressional

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

NO – go to 8

YES – The wetland class is Depressional

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

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

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

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

Wetland name or number C

SLOPE WETLANDS

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

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

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?		
	Yes = 1 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 <u>Stormwater pipe</u>	Yes = 1 No = 0	1
Total for S 2	Add the points in the boxes above	2

Rating of Landscape Potential If score is: 1-2 = M 0 = L *Record the rating on the first page*

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

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

Wetland name or number C

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?

<p>S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows. Dense, uncut, rigid plants cover > 90% of the area of the wetland All other conditions</p>	1 points = 1 points = 0
--	-----------------------------------

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?

<p>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?</p>	1 Yes = 1 No = 0
---	---------------------------

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?

<p>S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately downgradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther downgradient No flooding problems anywhere downstream</p>	2 points = 2 points = 1 points = 0
--	---

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

<p>Total for S 6</p>	Add the points in the boxes above 2
-----------------------------	--

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number C

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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/groundcover) 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 if the unit is < 2.5 ac, or ¼ ac if the unit is at least 2.5 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
 Intermittently or seasonally flowing stream in, or adjacent to, the wetland
 Lake Fringe wetland 2 points
 Freshwater tidal wetland 2 points

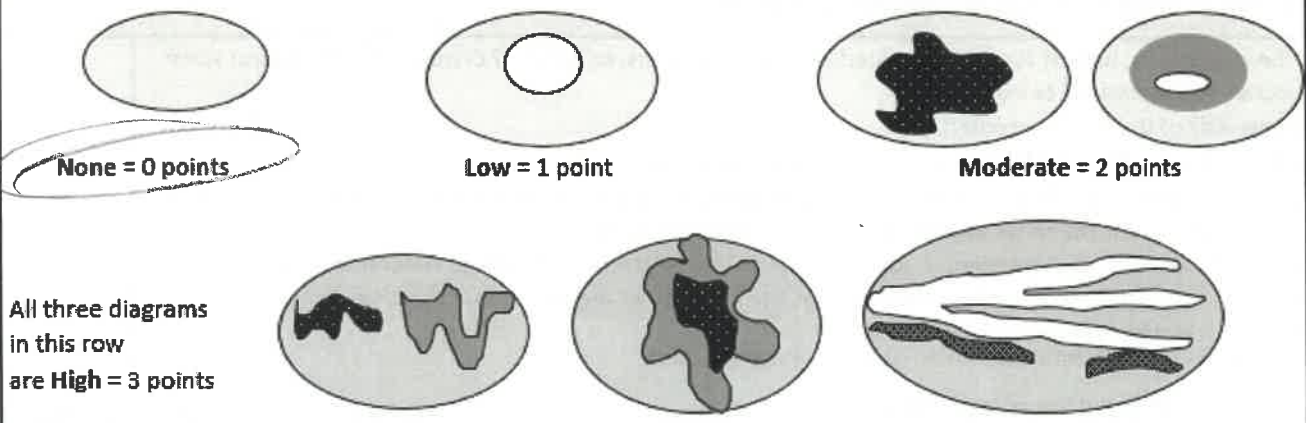
0

H 1.3. Richness of plant species
 Count the number of plant species in the wetland that cover at least 10 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, Canada 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 interspersions 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.



0

Wetland name or number C

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. The number of checks is the number of points. <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 type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extend at least 3.3 ft (1 m) over open water or 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 (cut shrubs or trees that have not yet weathered where wood is exposed) <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 (structures for egg-laying by amphibians) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 above for the list of strata and H 1.5 in the manual for the list of aggressive plant species)		2
Total for H 1	Add the points in the boxes above	4

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?		
H 2.1. Accessible habitat (include only habitat polygons accessible from the wetland.) <i>Calculate:</i> % relatively undisturbed habitat <u>7</u> + [(% moderate and low intensity land uses)/2] <u>2</u> = <u>8</u> % Total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0		0
H 2.2. Total habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % relatively undisturbed habitat <u>10</u> + [(% moderate and low intensity land uses)/2] <u>4</u> = <u>12</u> % Total habitat > 50% of Polygon points = 3 Total habitat 10-50% and in 1-3 patches points = 2 Total habitat 10-50% and > 3 patches points = 1 Total habitat < 10% of 1 km Polygon points = 0		1
H 2.3. Land use intensity in 1 km Polygon: > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1 km Polygon is high intensity points = 0		-2
Total for H 2	Add the points in the boxes above	-1

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

H 3.0. Is the habitat provided by the site valuable to society?		
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated. Site meets ANY of the following criteria: points = 2 <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 data <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 Site has 1 or 2 Priority Habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0		2
Rating of Value If score is: <input checked="" type="checkbox"/> <u>2 = H</u> <u>1 = M</u> <u>0 = L</u>		<i>Record the rating on the first page</i>

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WDFW Priority Habitats

See complete descriptions of Priority Habitats listed by WDFW, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008 (current year, as revised). [Priority Habitat and Species List](#).¹³³ This list was updated for consistency with guidance from WDFW.

This question is independent of the land use between the wetland unit and the Priority Habitat. All vegetated wetlands are by definition a Priority Habitat but are not included in this list because they are addressed by this rating system.

Count how many of the following Priority Habitats are within 330 ft (100 m) of the wetland unit:

- **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. This habitat automatically counts if mapped on the PHS online map within 100m of the wetland. If not mapped, a determination can be made in the field.
- **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.
- ✓ **Fresh Deepwater:** Lands permanently flooded with freshwater, including environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live. Substrate does not support emergent vegetation. Do not select if Instream habitat is also present, or if the entire Deepwater feature is included in the wetland unit being rated (such as a pond with a vegetated fringe).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **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. Do not select if Fresh Deepwater habitat is also present.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore.
- **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) diameter at breast height (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.

¹³³ <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf>
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- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important. For single oaks or oak stands <0.4 ha in urban areas, [WDFW's Management Recommendations for Oregon White Oak](#)¹³⁴ provides more detail for determining if they are Priority Habitats
- ✓ **Riparian:** The area adjacent to freshwater aquatic systems with flowing or standing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ✓ **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.
- **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.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie.

¹³⁴ <https://wdfw.wa.gov/publications/00030/wdfw00030.pdf>
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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> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p style="text-align: right;">Yes – Go to SC 1.1 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?</p> <p style="text-align: right;">Yes = Category I 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> <ul style="list-style-type: none"> — 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 chapter 4.8 in the manual. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?¹³⁵</p> <p style="text-align: right;">Yes = Category I No – Go to SC 2.2</p> <p>SC 2.2. Does the wetland have a rare plant species, rare ecosystem (e.g., plant community), or high-quality common ecosystem that may qualify the site as a WHCV? Contact WNHP for resources to help determine the presence of these elements.</p> <p>Yes – Submit data to WA Natural Heritage Program for determination,¹³⁶ Go to SC 2.3 No = Not a WHCV</p> <p>SC 2.3. Did WNHP review the site within 30 days and determine that it has a rare plant or ecosystem that meets their criteria?</p> <p style="text-align: right;">Yes = Category I 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?</p> <p style="text-align: right;">Yes – Go to SC 3.3 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?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No = 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?</p> <p style="text-align: right;">Yes = Category I bog No – Go to SC 3.4</p> <p>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?</p> <p style="text-align: right;">Yes = Category I bog No = Not a bog</p>	Cat. I

¹³⁵ <https://www.dnr.wa.gov/NHPdata>

¹³⁶ https://www.dnr.wa.gov/Publications/amp_nh_sighting_form.pdf

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<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> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in. (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in. (53 cm). <p style="text-align: right;">Yes = Category I <u>No = Not a forested wetland for this section</u></p>	Cat. I
<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> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) — The lagoon retains some of its surface water at low tide during spring tides <p>Yes – Go to SC 5.1 <u>No = Not a wetland in a coastal lagoon</u></p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — 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 in H 1.5 in the manual). — At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p>Yes = Category I No = Category II</p>	Cat. I Cat. II
<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> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 and Ocean Shores Blvd SW, including lands west of E. Oceans Shores Blvd SW. <p style="text-align: right;">Yes – Go to SC 6.1 <u>No = Not an interdunal wetland for rating</u></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)? Yes = Category I 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? Yes = Category II 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? Yes = Category III No = Category IV</p>	Cat I Cat. II Cat. III Cat. IV
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	N/A