MEMORANDUM

To: Susan Jones, Landowner

From: Collin Van Slyke, Northwest Ecological Services (NES)

Date: February 24, 2022 (Revised September 28, 2022)

RE: Wetland Delineation Update & Critical Areas Summary for The Woods at Viewcrest Project

BACKGROUND

Northwest Ecological Services, LLC (NES) was retained to provide an update to the 2010 Critical Areas Report for four parcels (#370212 030004; 370213 075542; -083499; - 113550) totaling approximately 34 acres, located in the Edgemoor neighborhood of Bellingham, Washington (Figure 1).

The parcels were reviewed for wetlands, streams, and other critical areas by Pacific Ecological Consultants in 2010. One wetland (Wetland A) was identified on site during the 2010 review. Since the critical areas report was prepared more than five years ago, an update is needed for projects involving critical area review.

Collin Van Slyke [Professional Wetland Scientist (PWS) #3129] and Michael Whitehurst, of NES, performed site visits June 22nd and 26th of 2020 and August 31st of 2021 to document the current site conditions. The NES site investigation was conducted in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps, 2010) and the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987). This methodology is consistent with the WDOE's requirements established in 2011 (WAC 173-22-035) and the City of Bellingham (COB) Critical Areas Ordinance (CAO).

Note: This memorandum updates and replaces the June 3, 2022 memo to incorporate the current lot configuration reflected in Figures 3 & 4. This is the sole revision; there are no changes to the critical areas information contained herein.

CURRENT CONDITIONS

The subject parcels are situated on a slope along the northwestern shore of the Chuckanut Bay Tidelands. The site generally exists in the same undeveloped and forested condition that was documented in the 2010 critical areas report. The exception to this is in a localized area in the central portion of the site where the forest understory was burned during a wildfire that occurred in 2019. In general, the site is vegetated with a mixed upland forest dominated by Douglas fir (*Pseudotsuga menziesii*), big leaf maple (*Acer macrophyllum*), salal (*Gaultheria shallon*), and sword fern (*Polystichum munitum*).

Wetlands

The 2010 report identified one slope wetland (Wetland A) in the northeastern corner of the site. NES observed Wetland A and also identified three additional slope wetlands (Wetlands B, C, and D) located in the nearby vicinity (Figure 2). NES collected data documenting wetland vegetation, soils, and hydrology indicators in each wetland (see attached data sheets). NES delineated and marked the wetland boundaries in the field with pink flagging. The flags were surveyed by Pacific Survey and Engineering, Inc. (PSE) to produce Figure 3.

The site wetlands are summarized in Table 1 and described below.

Table 1. Wetland Classification Summary

Wetland	Hydrogeomorphic Class	Cowardin Classification	Size (square feet)
A	Slope	PFO	12,358
B	Slope	PFO	9,476
C	Slope	PFO	991
D	Slope	PEM/PSS	1,813

PFO: Palustrine Forested, PEM: Palustrine Emergent, PSS: Palustrine Scrub Shrub

Wetland A

Wetland A is a palustrine forested (PFO) slope wetland located in the northeastern corner of review area. Vegetation within Wetland A includes: red alder (*Alnus rubra*), Cascara (*Frangula purshiana*), salmonberry (*Rubus spectabilis*), black twinberry (*Lonicera involucrata*), Scouler's willow (*Salix scouleriana*), snowberry (*Symphoricarpos albus*), American skunk cabbage (*Lysichiton americanus*), American brooklime (*Veronica americana*), lady fern (*Athyrium filix-femina*), giant horsetail (*Equisetum telmateia*), Cooley's hedge nettle (*Stachys cooleyae*), Watson's willowherb (*Epilobium ciliatum*), creeping buttercup (*Ranunculus repens*), small bedstraw (*gallium trifidum*), and bluegrass (*Poa sp*.). Invasive species, Himalayan blackberry (*Rubus armeniacus*) and Canada thistle (*Cirsium arvense*), were also present within Wetland A.

Hydrology to Wetland A appears to be driven by surface runoff and a groundwater seep. The wetland is seasonally saturated but also contains seasonal or occasional shallow water flowing-through above or just below the soil surface. Soil in the northern portion of the wetland was saturated to the surface at the time of the June site visit, but the remainder was dry due to the time of year. Water moves through the wetland from northwest to southeast. The wetland outlets to a ditch located between a residential driveway and the eastern wetland boundary. Water from the ditch flows east into a culvert under the driveway and is conveyed south towards Chuckanut Bay.

Wetland B

Wetland B is a PFO slope wetland located west of Wetland A. Wetland B is situated on an approximate seven-degree slope, grading down to the southeast. The area flagged as Wetland B is contains two small upland hummocks located within the central area. Only one larger upland island was flagged within the wetland (Figure 3).

Vegetation observed in the wetland included: black cottonwood (*Populus balsamifera*), western red cedar (*Thuja plicata*), red alder, and Scouler's willow, Himalayan blackberry, American brooklime, and American skunk cabbage. Much of the ground within the wetland was bare. The upland hummocks were vegetated with Douglas fir, salal, oceanspray (*Holodiscus discolor*), beaked hazelnut (*Corylus cornuta*), sword fern, and small bedstraw.

The wetland appears to be seasonally saturated only. Again, hydrology appears to be driven by surface runoff and a potentially a groundwater seep. Wetland B slopes down to the southeast to an old road grade, where water from the wetland appears to infiltrate.

Wetland C

Wetland C is a very small PFO slope wetland located between Wetlands A and B. The wetland contains almost no vegetation except for a few red alder, red-osier dogwood, Scouler's willow, and snowberry.

The wetland was dry at the time of the site visits but appears to be seasonally saturated only. The wetland is located on an approximate five percent grade. Water from the wetland appears to outlet to the south and infiltrate into the forested upland.

Wetland D

Wetland D is a palustrine emergent/scrub-shrub (PEM/PSS) slope wetland located in the southeastern portion of the review area. Dominant vegetation within Wetland D included Nootka rose (*Rosa nutkana*), hardhack (*Spirea douglasii*), Himalayan blackberry, and black twinberry, giant horsetail, water parsley (*Oenanthe sarmentosa*), and American skunk cabbage.

Hydrology within Wetland D is similar to the other site wetlands with inputs including surface runoff and groundwater surfacing along the hillside. Water within Wetland D flows downslope to a rock headwall/boulder formation towards the grade break near the southern boundary of the review area. No surface connection to Chuckanut Bay was observed.

WDOE Ratings

NES rated the site wetlands using the updated 2014 Washington Department of Ecology (WDOE) Wetland Rating System for Western Washington. Wetland rating sheets are attached and summarized below in Table 2.

Table 2. Wetland Rating and Functional Assessment

Wetland	Improving Water Quality	Hydrologic	Habitat	Total Score	WDOE Category
A	L/M/L (4)	M/M/L (5)	L/L/H (5)	**14**	**IV**
B	L/M/L (4)	L/M/L (4)	L/L/H (5)	**13**	**IV**
C	L/L/L (3)	L/L/L (3)	L/L/H (5)	**11**	**IV**
D	L/L/L (3)	L/L/L (3)	L/L/H (5)	**11**	**IV**

Site potential score /landscape potential score/ value score (total points for function)
L=Low; M=Moderate, H=High

Streams & Seeps

No streams were mapped on-site in 2010 and none were observed during the 2021 site visits.

Consistent with the 2010 report, a groundwater seep was observed in the central portion of the review area (Figure 3, Appendix B). Groundwater surfacing from a slight cut in topography flows downslope along an unvegetated trail. Water infiltrates into the ground without a surface connection to a downstream water or wetland. No defined channel exists, and the seep does not meet the criteria to be designated as a stream per BMC 16.55.470(A)(4) and WAC 222-16-031. Furthermore, as documented in SP 102 (data sheets attached) this area did not contain hydric soil indicators and therefore does not meet wetland criteria.

Shorelines

Chuckanut Bay is located along the southern boundary of the site. The ordinary high water mark (OHWM) along this shoreline is defined by exposed sandstone bedrock located at the toe of a moderately steep slope. The unvegetated bedrock wall is six to ten feet tall. The OHWM was not marked in the field (it would require spray painting the rock), but was mapped in Figure 2 using aerial imagery, LiDAR, and field notes. The beach and intertidal zone were unvegetated and the substrate consisted of a mix of cobble, gravel, and silt.

The COB Shoreline Management Program (SMP) designates this reach of shoreline (Marine 19) with a Natural designation**.**

The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapper indicates an estuarine and marine wetland habitat throughout the entirety of Chuckanut Bay. CityIQ mapping indicates a field-verified estuarine wetland at the northern end of the bay, however this is located approximately 1,000 ft northwest from the subject parcel. Within 1,000 ft of the project area, Chuckanut Bay is an unvegetated, intertidal zone and does not meet wetland criteria.

Fish and Wildlife Habitat Conservation Areas (HCAs)

The COB regulates Chuckanut Bay as an HCA. Chuckanut Bay is mapped by WDFW to contain hardshell clam and shorebird concentrations (Priority Species/ Habitats).

The COB 2014 Nearshore Connectivity Study ranks the on-site marine reach (EU 19) as one of the high functioning shoreline reaches in the City of Bellingham: "This unit includes a relatively undeveloped shoreline and marine riparian zone with a functional connection to the beach, an unimpeded connection to Chuckanut Creek, and a stream delta….this EU exhibits a high level of connectivity and intact habitat." As such, it appears the area qualifies as a Washington Department of Fish and Wildlife (WDFW) Priority Area (Biodiversity Area), which is regulated by the COB as an HCA.

Wetlands A and B contain large woody debris and snags meeting the definition of Priority habitat features. Pileated woodpecker (*Dryocopus pileatus)* excavations were observed within a snag in Wetland A. This species was removed from the WDFW PHS list in 2021.

Due to the slope and lack ponding, no amphibian breeding habitat is assumed to exist within the any of the site wetlands.

To other regulated HCAs were identified on site or the immediate vicinity. Further detail regarding potential site habitat is included in the Wildlife Habitat Assessment prepared by Raedeke and Associates in 2022.

DETERMINATION & REGULATORY SUMMARY

Table 3 summarizes agencies with regulatory authority over site critical areas and the anticipated buffers.

Table 3. Critical Areas Summary

Feature	WDOE Category/ Shoreline Designation	Regulatory Authority				Corps Hydrology Classification	Regulated Buffer (ft)*
		COB	Corps	WDOE	WDFW		
Wetland A	IV	X		X		Isolated	50
Wetland B	IV	X		X		Isolated	50
Wetland C	IV			X		Isolated	n/a
Wetland D	IV	X		X		Isolated	50
Chuckanut Bay	Natural	X	X	X	X	TNW	200

TNW= Traditional Navigable Water
* Buffer based on high intensity land use

City of Bellingham

The COB regulates all wetlands, regardless of size, with the exception of isolated Category III or IV wetlands smaller than 1,000 sq. ft. that do not provide suitably significant or unique characteristics as defined by the CAO (BMC 16.55.270). Wetlands A, B, and D are greater than 1,000 sq. ft. and are therefore expected to be regulated by the COB.

Wetland C is a Category IV wetland and is smaller than 1,000 sq. ft. **Therefore, Wetland C is not expected to be regulated by the COB and no buffer is required.**

The COB requires a buffer around regulated critical areas to protect functions. The buffer must remain naturally vegetated except where it can be enhanced to improve functions. It appears that a high intensity land use would apply to the proposed project based on housing density. Wetlands A and B are Category IV wetlands with low (four) habitat points. According to BMC 16.55.340(B), **Wetlands A, B, and D are expected to require 50-foot standard buffers (Figure 2).**

The COB CAO regulates Chuckanut Bay as an HCA. The COB Shoreline Management Program (SMP) designates this reach of shoreline (Marine 19) with a Natural designation. **The SMP requires a regulated buffer of 200 feet extending from the Chuckanut Bay OHWM.**

WDOE

WDOE has authority over discharge into all wetlands (including isolated wetlands) and streams and can impose buffers and compensatory mitigation for impacts (RCW 90.48).

Under Section 401 of the Clean Water Act (CWA), any activity involving a discharge into waters of the U.S. authorized under a Federal permit must receive a CWA Section 401 Water Quality Certification (WQC). WDOE is authorized to make WQC decisions on federal, public and privates lands in Washington, with a few exceptions (where EPA or Tribes have authority). WDOE reviews all CWA Section 404 permit applications received by the Corps for WQC. WDOE requires an "individual" review of all wetland disturbances greater than one-half acre, or for projects in tidal waters or where impacts to wetlands and streams are determined to require additional review.

WDFW

WDFW requires issuance of a Hydraulic Project Approval (HPA) prior to any activities that may directly or indirectly affect streams or associated wetlands. **WDFW is not expected to regulate the site wetlands due to lack of direct connectivity to a stream. None are proposed, but WDFW would regulate any activities below the OHWM of Chuckanut Bay.** Only WDFW has the authority to make this determination. Mitigation may be required for impacts.

U.S. Army Corps of Engineers

The Corps regulates the discharge of dredged or fill material into wetlands, streams, and other drainages that connect to Waters of the United States (WOTUS) under Section 404 of the CWA. The Corps regulates structures and/or work in or affecting the course, condition, or capacity of WOTUS under Section 10 of the Rivers and Harbors Act of 1899. The Corps requires notification for **all** disturbances to wetlands, streams, and potentially to other drainages (ditches). It is incumbent upon the landowner to disclose disturbances.

The Corps will automatically assert jurisdiction over some surface waters and will need to complete a "significant nexus" determination for others, depending on the degree of connection to other waters, the hydrologic classification of these associated waters, and their significance in the larger drainage basin. Wetland hydrologic classification and connectivity is described in this report as the "Corps hydrologic classification" (Table 3) using definitions provided in current Corps guidance documents.

The Corps hydrologic classification is based on whether a surface water meets the definition of or is connected to a waterbody that meets the definition of a Traditional Navigable Water (TNW) or a Relatively Permanent Water (RPW). A TNW is a navigable water protected under Section 10 of the Rivers and Harbors Act of 1899 or other waters currently or historically used or susceptible to use in interstate or foreign commerce. An RPW is a surface stream or river that exhibits continuous flow of more than three months out of the year.

Only the Corps has the authority to make jurisdictional determinations; however, the following is a description of the anticipated determinations. Water outflowing from Wetlands B, C, and D appears to infiltrate into downslope upland areas. No direct surface connections to Chuckanut Bay (a TNW) were observed. **Therefore, Wetlands B, C, and D are not anticipated to be regulated by the Corps.** Wetland A outlets water to a ditch which conveys water to a culvert, eventually outfalling to Chuckanut Bay. This ditch does not appear to meet the definition of a tributary or RPW and therefore**, the Corps may potentially not regulate**

Wetland A. However, a Jurisdictional Determination (JD) would need to be made by the Corps to confirm this if impacts to Wetland A were proposed.

Activities in Waters of the United States that require Corps authorization may qualify for authorization under one of the general Nationwide Permits (NWPs) if the activities meet the criteria. In the more commonly used NWPs, discharge (fill) is limited to under 1/2 acre of wetland, 300 linear feet of stream, and 1/3 acre of tidal waters. Discharge exceeding the NWP thresholds requires an Individual Permit from the Corps. Mitigation is required for most activities. The Corps also has discretion to disallow disturbance to high quality wetlands. As part of their permit review, the Corps must verify the project complies with Section 7 of the Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act, and Section 106 of the National Historic Preservation Act, (including archeological sites).

Site Plan

The preliminary plat (Attachment 4) depicts the proposed lot layout, roads, and future building sites. As depicted, the plat avoids impacts to all critical areas and buffers identified in this report.

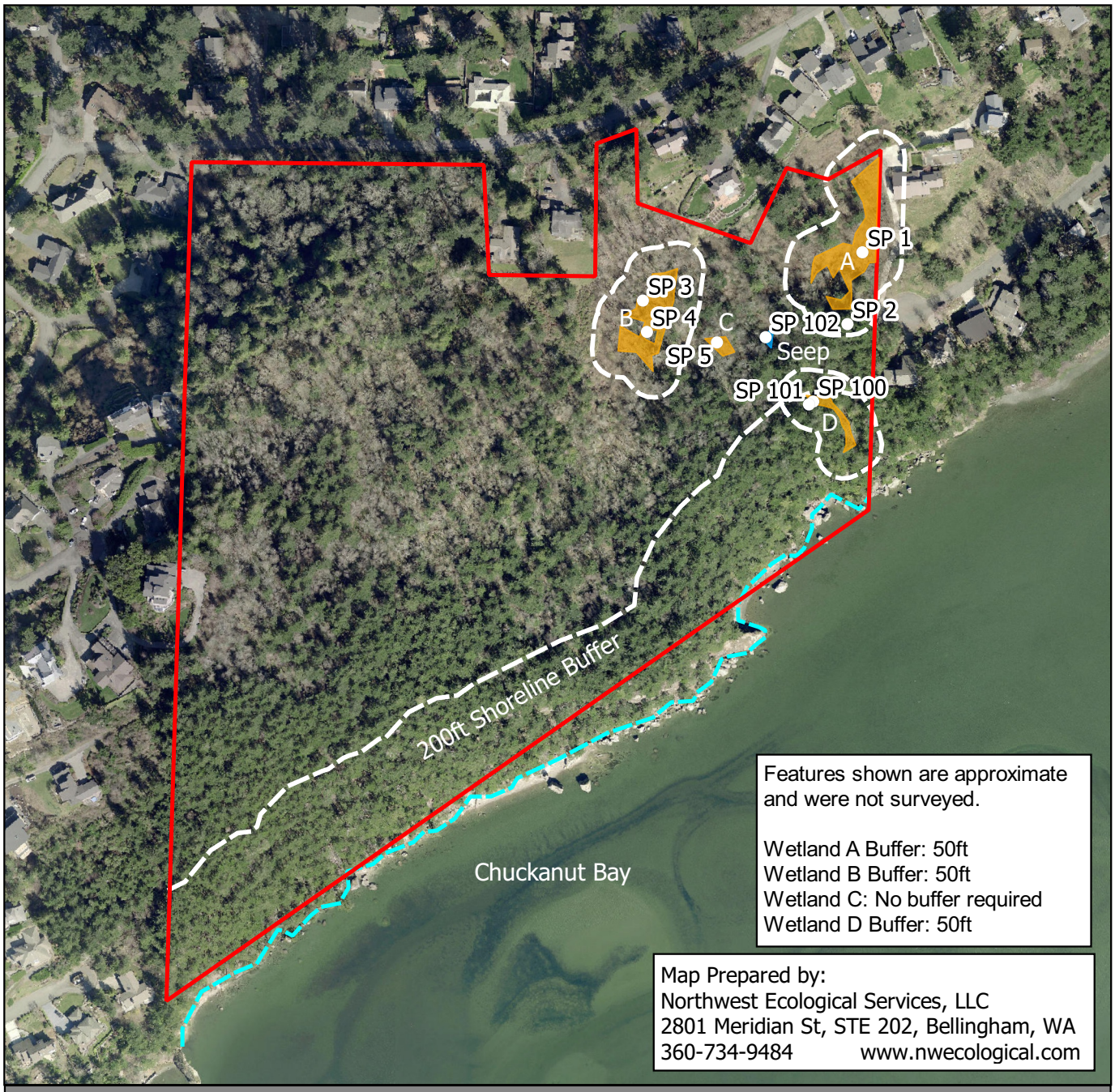
ATTACHMENTS

Figures:

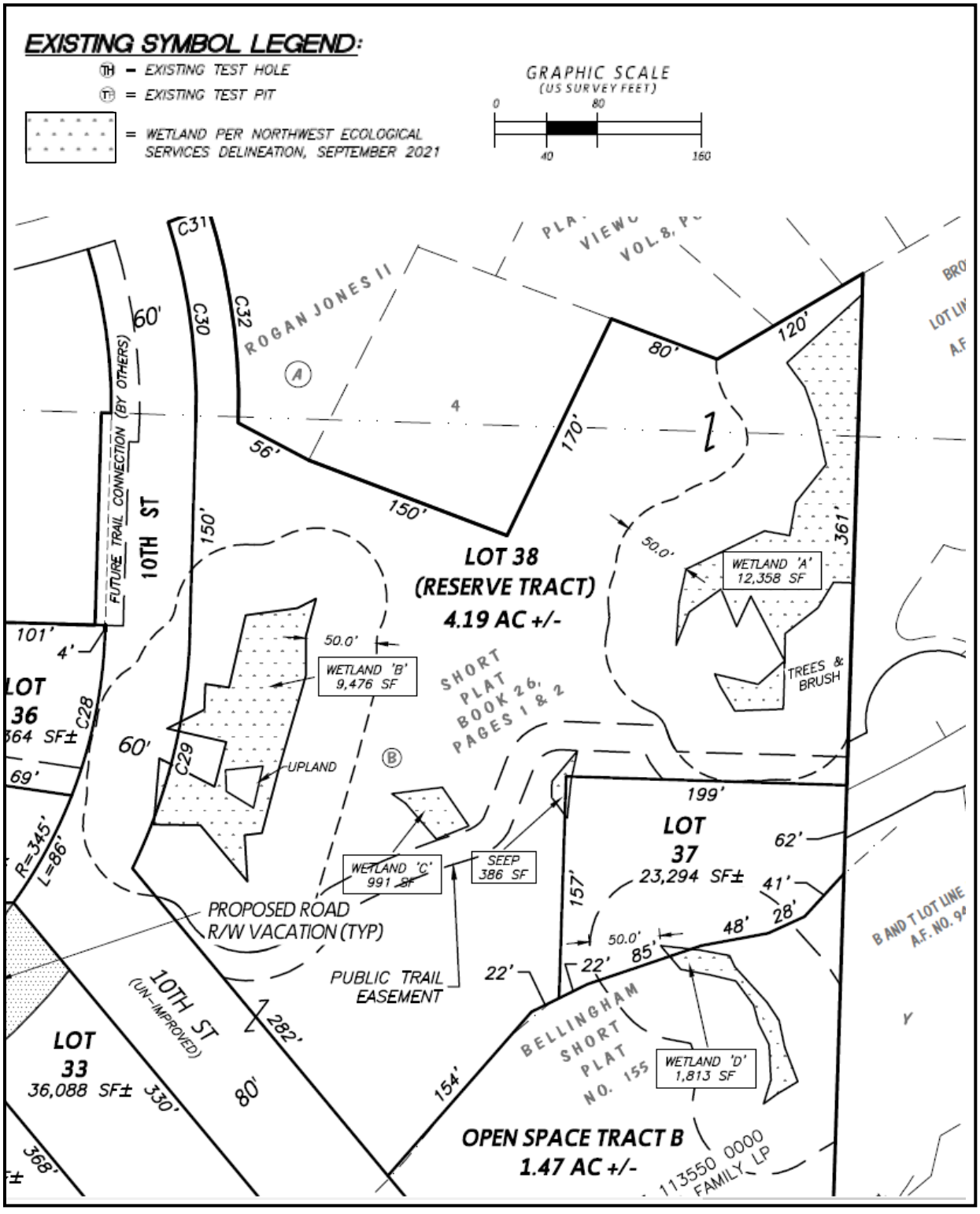
1. Vicinity Map
2. Critical Areas Overview Map
3. Wetlands Survey Map
4. Preliminary Plat

Photo Page
Data Sheets
Current WDOE Rating Forms

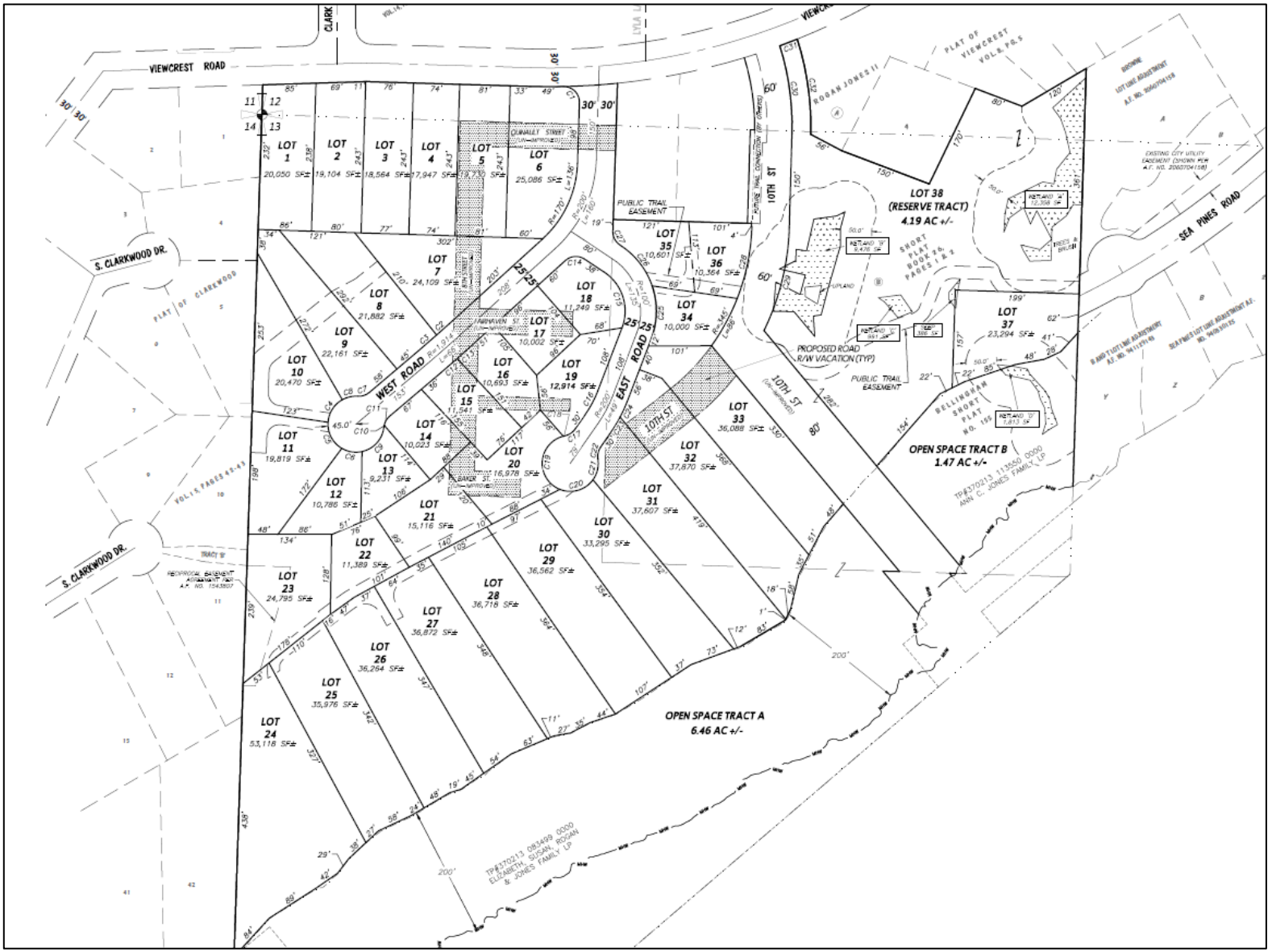
ECOLOGICAL NORTHWEST	**Vicinity Map (Google Maps)** **The Woods at Viewcrest Critical Areas Update**	**Figure 1** **SEPT 2022**



NORTHWEST ECOLOGICAL	**Critical Areas Overview Map** **The Woods at Viewcrest** **Critical Areas Update**	**Figure 2** **SEPT 2022**



ECOLOGICAL NORTHWEST	**Wetlands Survey Map (PSE)** **The Woods at Viewcrest Critical Areas Update**	**Figure 3** **SEPT 2022**



ECOLOGICAL NORTHWEST	**Preliminary Plat (PSE)** **The Woods at Viewcrest Critical Areas Update**	**Figure 4** **SEPT 2022**

Detail of typical upland forest dominating most of site

Detail of area affected by past forest fire

Overview of Wetland A, looking west

Overview of Wetland A, looking northwest

Detail of Wetland B

Detail of Wetland B

Overview of Wetland C

Overview of Mud Bay shoreline and OHWM

Overview of Wetland D

Detail of Wetland D outlet

Overview of seep

Seep from downslope

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Viewcrest	City/County: Bellingham	Sample Date: 06/22/20
Applicant/Owner: Jones	State: WA	Sample Point: 01
Investigator: Van Slyke; Whitehurst	Section/Township/Range: 13/37N/02E	
Landform (hillslope, terrace, etc): slope	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Everett-Urban land complex		NWI Classification: none

Are climatic/hydrologic conditions on the site typical of 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 ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**

Remarks: Wetland A. Positive indicators for all three parameters were observed at this location.

VEGETATION

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Indicator Status	Dominant Species?
Alnus rubra	90	FAC	☒
Rhamnus purshiana	5	FAC	☐
		-	☐
		-	☐
Total Cover:	95		
Sapling/Shrub Stratum (Plot size: 15 feet)			
Symphoricarpos albus	20	FACU	☒
Rubus spectabilis	15	FAC	☒
Lonicera involucrata	10	FAC	☒
		-	☐
		-	☐
Total Cover:	45		
Herb Stratum (Plot size: 5 feet)			
Poa sp.	60	-	☒
Lysitchiton americanus	20	OBL	☒
Equisetum telmateia	20	FACW	☒
Athyrium filix-femina	10	FAC	☐
Cirsium arvense	10	FAC	☐
Veronica americana	5	OBL	☐
Total Cover:	125		
Woody Vine Stratum (Plot size: 30 feet)			
Rubus armeniacus	5	FAC	☒
		-	☐
		-	☐
Total Cover:	5		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5+ (A)

Total number of dominant species across all strata: 8 (AB)

Percent of dominant species that or OBL, FACW, FAC: 62+ (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were hydrophytic. Poa species is undetermined.

Hydrophytic Vegetation Present?

Yes ☒ No ☐

SOIL

Sample Point: 01

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	95	10YR 4/6	5	C	M	silt loam	
8-16	2.5Y 4/2	60	10YR 5/6	40	C	M	sandy silt loam	
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soil at this location met NRCS hydric soil indicators A11, F3, and F6.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Frost-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

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

Water Table Present? Yes ☒ No ☐ Depth (inches): **-10**

Saturation Present? Yes ☒ No ☐ Depth (inches): **-10** (include capillary fringe)

Wetland Hydrology Present?

Yes ☒ No ☐

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

Remarks: Soil was saturated at -10 inches.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Viewcrest	City/County: Bellingham	Sample Date: 06/22/20
Applicant/Owner: Jones	State: WA	Sample Point: 02
Investigator: Van Slyke; Whitehurst	Section/Township/Range: 13/37N/02E	
Landform (hillslope, terrace, etc): slope	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Everett-Urban land complex		NWI Classification: none

Are climatic/hydrologic conditions on the site typical of 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 ☐ No ☒ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** **Yes ☐ No ☒**
Remarks: Upland adjacent to Wetland A. Positive indicators for all three parameters were not observed at this location.	

VEGETATION

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Indicator Status	Dominant Species?
Pseudotsuga menziesii	50	FACU	☒
Thuja plicata	20	FAC	☒
		-	☐
		-	☐
Total Cover:	70		
Sapling/Shrub Stratum (Plot size: 15 feet)			
Gaultheria shallon	65	FACU	☒
Oemleria cerasiformis	40	FACU	☒
Corylus cornuta	15	FACU	☐
Rosa gymnocarpa	10	FACU	☐
		-	☐
Total Cover:	130		
Herb Stratum (Plot size: 5 feet)			
Pteridium aquilinum	5	FACU	☒
		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	5		
Woody Vine Stratum (Plot size: 30 feet)			
		-	☐
		-	☐
		-	☐
Total Cover:	0		
% Bare Ground in Herb Stratum: 20			

Dominance Test worksheet
Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 5 (AB)

Percent of dominant species that or OBL, FACW, FAC: 20 (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☐ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were not hydrophytic.

Hydrophytic Vegetation Present?
Yes ☐ No ☒

SOIL

Sample Point: 02

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
+1					-	-		Duff
0-2	10YR 3/2	100			-	-	loam	
2-16	10YR 6/1	99	2.5Y 6/4	1	C	M	silt loam	
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)
- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:
- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil at this location does not meet NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)
- ☐ 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 Stresses Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ☐ Water-stained (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)
- ☐ Frost-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:
Surface Water Present? Yes ☐ No ☒ Depth (inches):
Water Table Present? Yes ☐ No ☒ Depth (inches):
Saturation Present? Yes ☐ No ☒ Depth (inches): (include capillary fringe)

Wetland Hydrology Present?
Yes ☐ No ☒

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

Remarks: Soils were dry, and no hydrology indicators were observed.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Viewcrest	City/County: Bellingham	Sample Date: 06/26/20
Applicant/Owner: Jones	State: WA	Sample Point: 03
Investigator: Van Slyke; Whitehurst	Section/Township/Range: 13/37N/02E	
Landform (hillslope, terrace, etc): slope	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Nati Loam		NWI Classification: none

Are climatic/hydrologic conditions on the site typical of 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 ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**
Remarks: Wetland B. Positive indicators for all three parameters were observed at this location.	

VEGETATION

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Indicator Status	Dominant Species?
Alnus rubra	30	FAC	☒
Acer macrophyllum	25	FACU	☒
		-	☐
		-	☐
Total Cover:	55		
Sapling/Shrub Stratum (Plot size: 15 feet)			
Symphoricarpos albus	10	FACU	☒
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	10		
Herb Stratum (Plot size: 5 feet)			
Veronica americana	20	OBL	☒
Rubus ursinus	5	FACU	☒
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	25		
Woody Vine Stratum (Plot size: 30 feet)			
Rubus armeniacus	15	FAC	☒
		-	☐
		-	☐
Total Cover:	15		
% Bare Ground in Herb Stratum: 80			

Dominance Test worksheet

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

Total number of dominant species across all strata: 6 (AB)

Percent of dominant species that or OBL, FACW, FAC: 50 (A/AB)

Prevalence Index worksheet

OBL species: 20	x 1= 20
FACW species: 0	x 2= 0
FAC species: 45	x 3= 135
FACU species: 40	x 4= 160
UPL species: 0	x 5= 0
Total: 105 (A)	315 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is > 50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were hydrophytic based on the prevalence index.

Hydrophytic Vegetation Present?
Yes ☒ No ☐

SOIL

Sample Point: 03

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	80	10YR 4/4	20	C	RC	fine sandy silt loam	
11-16	10YR 4/4	60	10YR 4/6	10	C	M	clayey silt loam	
	2.5Y 5/3	30			-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soil at this location met NRCS hydric soil indicator F6.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Frost-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):
Water Table Present? Yes ☐ No ☒ Depth (inches):
Saturation Present? Yes ☐ No ☒ Depth (inches): (include capillary fringe)

Wetland Hydrology Present?
Yes ☒ No ☐

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

Remarks: Soil was damp but not saturated. Primary indictor C3 observed.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Viewcrest	City/County: Bellingham	Sample Date: 06/26/20
Applicant/Owner: Jones	State: WA	Sample Point: 04
Investigator: Van Slyke; Whitehurst	Section/Township/Range: 13/37N/02E	
Landform (hillslope, terrace, etc): slope	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Nati Loam		NWI Classification: none

Are climatic/hydrologic conditions on the site typical of 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 ☐ No ☒	**Is the Sampled Area within a Wetland?**
Hydric Soil Present?	Yes ☐ No ☒	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: Upland island within Wetland B. Positive indicators for all three parameters were not observed at this location.

VEGETATION

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Indicator Status	Dominant Species?
Alnus rubra	40	FAC	☒
Pseudotsuga menziesii	20	FACU	☒
		-	☐
		-	☐
Total Cover:	60		
Sapling/Shrub Stratum (Plot size: 15 feet)			
Gaultheria shallon	60	FACU	☒
Oemleria cerasiformis	10	FACU	☐
Vaccinium parvifolium	5	FACU	☐
		-	☐
		-	☐
Total Cover:	75		
Herb Stratum (Plot size: 5 feet)			
Polystichum munitum	20	FACU	☒
Rubus ursinus	20	FACU	☒
Geranium robertainum	15	FACU	☒
		-	☐
		-	☐
		-	☐
Total Cover:	55		
Woody Vine Stratum (Plot size: 30 feet)			
		-	☐
		-	☐
		-	☐
Total Cover:	0		
% Bare Ground in Herb Stratum: 45			

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 6 (AB)

Percent of dominant species that or OBL, FACW, FAC: 17 (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were not hydrophytic.

Hydrophytic Vegetation Present?

Yes ☐ No ☒

SOIL

Sample Point: 04

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100			-	-	silt loam	
8-16	10YR 3/2	80			-	-	gravelly silt loam	mixed
	10YR 5/2	20			-	-	gravelly silt loam	mixed
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil at this location did not meet NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Frost-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present?	Yes ☐ No ☒	Depth (inches):
Water Table Present?	Yes ☐ No ☒	Depth (inches):
Saturation Present?	Yes ☐ No ☒	Depth (inches): (include capillary fringe)

Wetland Hydrology Present?

Yes ☐ No ☒

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

Remarks: Soils were dry, and no indicators of wetland hydrology were observed.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Viewcrest	City/County: Bellingham	Sample Date: 06/26/20
Applicant/Owner: Jones	State: WA	Sample Point: 05
Investigator: Van Slyke; Whitehurst	Section/Township/Range: 13/37N/02E	
Landform (hillslope, terrace, etc): slope	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Nati Loam		NWI Classification: none

Are climatic/hydrologic conditions on the site typical of 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 ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**
Remarks: Wetland C. Positive indicators for all three parameters were observed at this location.	

VEGETATION

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Indicator Status	Dominant Species?
Alnus rubra	75	FAC	☒
		-	☐
		-	☐
		-	☐
Total Cover:	75		
Sapling/Shrub Stratum (Plot size: 15 feet)			
Cornus alba	35	FACW	☒
Salix scouleriana	25	FAC	☒
		-	☐
		-	☐
		-	☐
Total Cover:	60		
Herb Stratum (Plot size: 5 feet)			
		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	0		
Woody Vine Stratum (Plot size: 30 feet)			
		-	☐
		-	☐
		-	☐
Total Cover:	0		

% Bare Ground in Herb Stratum: 100

Dominance Test worksheet

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

Total number of dominant species across all strata: 3 (AB)

Percent of dominant species that or OBL, FACW, FAC: 100 (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were hydrophytic.

Hydrophytic Vegetation Present?
Yes ☒ No ☐

SOIL

Sample Point: 05

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/1	60	7.5YR 4/6	40	C	M	silt loam with cobble	
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soil at this location met NRCS hydric soil indicator F3.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-stained (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)
- ☐ Frost-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):
Water Table Present? Yes ☐ No ☒ Depth (inches):
Saturation Present? Yes ☐ No ☒ Depth (inches): (include capillary fringe)

Wetland Hydrology Present?
Yes ☒ No ☐

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

Remarks: Soils were dry during the site visit, but oxidized rhizospheres and water-stained leaves were observed.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Viewcrest	City/County: Bellingham	Sample Date: 08/31/21
Applicant/Owner: Jones	State: WA	Sample Point: 100
Investigator: Van Slyke	Section/Township/Range: 13/37N/02E	
Landform (hillslope, terrace, etc): slope	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Nati Loam	NWI Classification: none	

Are climatic/hydrologic conditions on the site typical of 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 ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**

Remarks: Wetland D. Positive indicators for all three parameters were observed at this location.

VEGETATION

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Indicator Status	Dominant Species?
		-	☒
		-	☐
		-	☐
		-	☐
Total Cover:	0		
Sapling/Shrub Stratum (Plot size: 15 feet)			
		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	0		
Herb Stratum (Plot size: 5 feet)			
Equisetum telmateia	30	FACW	☒
Lysichiton americanus	25	OBL	☒
Oenanthe sarmentosa	10	OBL	☐
		-	☐
		-	☐
		-	☐
Total Cover:	65		
Woody Vine Stratum (Plot size: 30 feet)			
		-	☐
		-	☐
		-	☐
Total Cover:	0		
% Bare Ground in Herb Stratum: 35			

Dominance Test worksheet
Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total number of dominant species across all strata: 2 (AB)

Percent of dominant species that or OBL, FACW, FAC: 100 (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☒ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were hydrophytic.

Hydrophytic Vegetation Present?
Yes ☒ No ☐

SOIL

Sample Point: 100

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100			-	-	Gravelly Sandy Loam	
7-16	Gley 1 4/10GY	85	10YR 3/4	15	C	M	Loamy Clay	
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)
- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:
- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: loamy clay
Depth (inches): 7

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soil at this location met NRCS hydric soil indicators A11 and F3.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)
- ☐ 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 Stresses Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ☐ Water-stained (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)
- ☐ Frost-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:
Surface Water Present? Yes ☒ No ☐ Depth (inches): **0-7**
Water Table Present? Yes ☐ No ☒ Depth (inches):
Saturation Present? Yes ☐ No ☒ Depth (inches): (include capillary fringe)

Wetland Hydrology Present?
Yes ☒ No ☐

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

Remarks: Indicators of wetland hydrology were observed at this location.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Viewcrest	City/County: Bellingham	Sample Date: 06/26/20
Applicant/Owner: Jones	State: WA	Sample Point: 101
Investigator: Van Slyke; Whitehurst	Section/Township/Range: 13/37N/02E	
Landform (hillslope, terrace, etc): slope	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Nati Loam	NWI Classification: none	

Are climatic/hydrologic conditions on the site typical of 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 ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** **Yes ☐ No ☒**

Remarks: Upland adjacent to Wetland D. Positive indicators for all three parameters were not observed at this location.

VEGETATION

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Indicator Status	Dominant Species?
Pseudotsuga menziesii	95	FACU	☒
		-	☐
		-	☐
		-	☐
Total Cover:	95		
Sapling/Shrub Stratum (Plot size: 15 feet)			
Rosa gymnocarpa	15	FACU	☒
Symphoricarpos albus	5	FACU	☒
		-	☐
		-	☐
		-	☐
Total Cover:	20		
Herb Stratum (Plot size: 5 feet)			
Gaultheria shallon	95	FACU	☒
Rubus ursinus	5	FACU	☐
Pteridium aquilinum	5	FACU	☐
		-	☐
		-	☐
		-	☐
Total Cover:	105		
Woody Vine Stratum (Plot size: 30 feet)			
		-	☐
		-	☐
		-	☐
Total Cover:	0		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 4 (AB)

Percent of dominant species that or OBL, FACW, FAC: 0 (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The dominant species observed at this location were not hydrophytic.

Hydrophytic Vegetation Present?

Yes ☐ No ☒

SOIL

Sample Point: 101

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/2	100			-	-	Sandy Loam	
3-16	10YR 4/3	100			-	-	Silt Loam	
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil at this location did not meet NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Frost-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

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

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

Saturation Present? Yes ☐ No ☒ Depth (inches): (include capillary fringe)

Wetland Hydrology Present?

Yes ☐ No ☒

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

Remarks: Indicators of hydrology were not observed at this location.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Viewcrest	City/County: Bellingham	Sample Date: 06/26/20
Applicant/Owner: Jones	State: WA	Sample Point: 102
Investigator: Van Slyke; Whitehurst	Section/Township/Range: 13/37N/02E	
Landform (hillslope, terrace, etc): slope	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Nati Loam		NWI Classification: none

Are climatic/hydrologic conditions on the site typical of 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 ☒ No ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☐ No ☒**

Remarks: Seep. Positive indicators for hydric soil were not observed at this location and therefore do not meet wetland criteria.

VEGETATION

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Indicator Status	Dominant Species?
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	0		
Sapling/Shrub Stratum (Plot size: 15 feet)			
Lonicera involucrata	25	FAC	☒
Corylus cornuta	20	FACU	☒
Salix scouleriana	20	FAC	☒
Symphoricarpos albus	15	FACU	☐
		-	☐
Total Cover:	80		
Herb Stratum (Plot size: 5 feet)			
Athyrium filix-femina	30	FAC	☒
Gaultheria shallon	15	FACU	☒
Geum macrophyllum	5	FAC	☐
Geranium robertianum	5	FACU	☐
		-	☐
		-	☐
Total Cover:	55		
Woody Vine Stratum (Plot size: 30 feet)			
Rubus armeniacus	15	FAC	☒
		-	☐
		-	☐
Total Cover:	15		
% Bare Ground in Herb Stratum: 45			

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total number of dominant species across all strata: 6 (AB)

Percent of dominant species that or OBL, FACW, FAC: 66 (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were hydrophytic.

Hydrophytic Vegetation Present?

Yes ☒ No ☐

SOIL

Sample Point: 102

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100			-	-	Silt Loam	Cobble
16-20	10YR 4/2	40	10YR 4/4	10	C	M	Sandy Silt Loam	
	10YR 3/2	50			-	-	Silt Loam	
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil at this location did not meet NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Frost-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

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

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

Saturation Present? Yes ☐ No ☒ Depth (inches): (include capillary fringe)

Wetland Hydrology Present?

Yes ☒ No ☐

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

Remarks: Soils were dry during the August 2021 site visit but were suturated during the June 2020 visit.

Wetland name or number Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Viewcrest Wetland A Date of site visit: 6/26/20

Rated by C. Van Slyke Trained by Ecology? X Yes ___No Date of training 2014

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X N

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

Source of base aerial photo/map Whatcom County 2017

OVERALL WETLAND CATEGORY IV (based on functions X 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

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H○ M○ L⊙	H○ M⊙ L○	H○ M○ L⊙	
Landscape Potential	H○ M⊙ L○	H○ M⊙ L○	H○ M○ L⊙	
Value	H○ M○ L⊙	H○ M○ L⊙	H⊙ M○ L○	TOTAL
Score Based on Ratings	4	5	5	14

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	☒	

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 (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	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 undisturbed 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 *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	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 undisturbed 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 *(can be added to another figure)*	L 2.2	
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	
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	A
Hydroperiods	H 1.2	B
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	A
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	A
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	B
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	C
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	D
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	D

Wetland name or number Wetland A

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

   NO – go to 5 **YES –** The wetland class is **Slope**

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

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

NO – go to 6 **YES** – The wetland class is **Riverine**
NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

   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: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)* Slope is 1% or less — points = 3 Slope is > 1%-2% — points = 2 Slope is > 2%-5% — points = 1 Slope is greater than 5% — points = 0	0
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > 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	3
Total for S 1 — Add the points in the boxes above	3

Rating of Site Potential If score is: ___**12 = H** ___**6-11 = M** X **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 _____ Yes = 1 No = 0	0
Total for S 2 — Add the points in the boxes above	1

Rating of Landscape Potential If score is: X **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	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 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** X **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 > 1/8 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: X **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: X **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** X **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wetland A

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
_X_	Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

_X_ 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
_X_	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 ft^2.

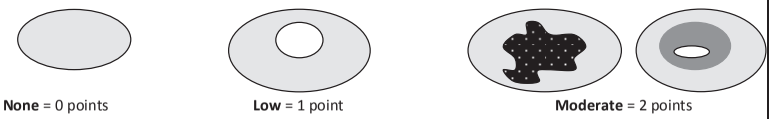
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	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

All three diagrams in this row are **HIGH** = 3points

0

Wetland name or number Wetland A

H 1.5. Special habitat features:

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

_X_ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).

_X_ Standing snags (dbh > 4 in) within the wetland

___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)

___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)*

____ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*

____ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

2

Total for H 1 — Add the points in the boxes above: 5

Rating of Site Potential If score is: ___**15-18 = H** ___**7-14 = M** _X_**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 that directly abuts wetland unit*).

Calculate: % undisturbed habitat 16 + [(% moderate and low intensity land uses)/2] 0 = 16 %

If 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

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat 46 + [(% moderate and low intensity land uses)/2] 1 = 47 %

Undisturbed habitat > 50% of Polygon	points = 3
Undisturbed habitat 10-50% and in 1-3 patches	points = 2
Undisturbed habitat 10-50% and > 3 patches	points = 1
Undisturbed habitat < 10% of 1 km Polygon	points = 0

1

H 2.3. Land use intensity in 1 km Polygon: If

> 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: 0

Rating of Landscape Potential If score is: ___**4-6 = H** ___**1-3 = M** _X_**< 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

_X_ It has 3 or more priority habitats within 100 m (see next page)

— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)

— It is mapped as a location for an individual WDFW priority species

— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources

_X_ 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: _X_**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).

X **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.

X **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.

X **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.

Wetland name or number Wetland B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Viewcrest Wetland B Date of site visit: 6/26/20

Rated by C. Van Slyke Trained by Ecology? X Yes ___No Date of training 2014

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X N

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

Source of base aerial photo/map Whatcom County 2017

OVERALL WETLAND CATEGORY IV (based on functions X 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

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H○ M○ L⊙	H○ M○ L⊙	H○ M○ L⊙	
Landscape Potential	H○ M⊙ L○	H○ M○ L⊙	H○ M○ L⊙	
Value	H○ M○ L⊙	H○ M○ L⊙	H⊙ M○ L○	TOTAL
Score Based on Ratings	4	3	5	12

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	☒	

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 (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	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 undisturbed 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 *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	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 undisturbed 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 *(can be added to another figure)*	L 2.2	
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	
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	A
Hydroperiods	H 1.2	B
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	A
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	A
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	B
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	C
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	D
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	D

Wetland name or number Wetland B

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

   NO – go to 5 **YES –** The wetland class is **Slope**

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

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

NO – go to 6 **YES** – The wetland class is **Riverine**
NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

   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: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)* Slope is 1% or less — points = 3 Slope is > 1%-2% — points = 2 Slope is > 2%-5% — points = 1 Slope is greater than 5% — points = 0	0
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > 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	2
Total for S 1 — Add the points in the boxes above	2

Rating of Site Potential If score is: ___**12 = H** ___**6-11 = M** X **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	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ upslope lawns and gardens — Yes = 1 No = 0	1
Total for S 2 — Add the points in the boxes above	1

Rating of Landscape Potential If score is: X **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	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 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** X **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. *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 — points = 1 All other conditions — points = 0	0

Rating of Site Potential If score is: ___**1 = M** X **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** X **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** X **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wetland B

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
_X_	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
_X_	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**

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

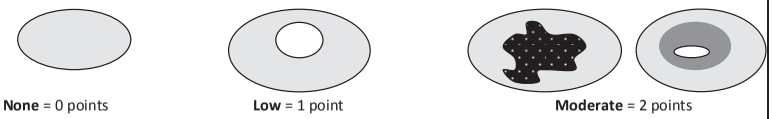
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	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

All three diagrams in this row are **HIGH** = 3points

0

Wetland name or number Wetland B

H 1.5. Special habitat features:

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- _X_ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).
- _X_ Standing snags (dbh > 4 in) within the wetland
- ____ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)*
- ____ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
- ____ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

2

Total for H 1 — Add the points in the boxes above: 3

Rating of Site Potential If score is: ___ **15-18 = H** ___ **7-14 = M** _X_ **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 that directly abuts wetland unit*).

Calculate: % undisturbed habitat 16 + [(% moderate and low intensity land uses)/2] 0 = 16 %

If 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

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat 46 + [(% moderate and low intensity land uses)/2] 1 = 47 %

Undisturbed habitat > 50% of Polygon	points = 3
Undisturbed habitat 10-50% and in 1-3 patches	points = 2
Undisturbed habitat 10-50% and > 3 patches	points = 1
Undisturbed habitat < 10% of 1 km Polygon	points = 0

1

H 2.3. Land use intensity in 1 km Polygon: If

> 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: 0

Rating of Landscape Potential If score is: ___ **4-6 = H** ___ **1-3 = M** _X_ **< 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

- _X_ It has 3 or more priority habitats within 100 m (see next page)
- — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- — It is mapped as a location for an individual WDFW priority species
- — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- _X_ 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: _X_ **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).

X **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.

X **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.

X **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.

Wetland name or number Wetland C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Viewcrest Wetland C Date of site visit: 6/26/20

Rated by C. Van Slyke Trained by Ecology? X Yes ___No Date of training 2014

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X N

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

Source of base aerial photo/map Whatcom County 2017

OVERALL WETLAND CATEGORY IV (based on functions X 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

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H○ M○ L⊙	H○ M○ L⊙	H○ M○ L⊙	
Landscape Potential	H○ M○ L⊙	H○ M○ L⊙	H○ M○ L⊙	
Value	H○ M○ L⊙	H○ M○ L⊙	H⊙ M○ L○	TOTAL
Score Based on Ratings	3	3	5	11

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	☒	

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 (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	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 undisturbed 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 *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	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 undisturbed 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 *(can be added to another figure)*	L 2.2	
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	
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	A
Hydroperiods	H 1.2	B
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	A
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	A
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	B
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	C
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	D
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	D

Wetland name or number Wetland C

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

   NO – go to 5 **YES –** The wetland class is **Slope**

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

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

NO – go to 6 **YES** – The wetland class is **Riverine**
NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

   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 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 drop in elevation for every 100 ft of horizontal distance)* Slope is 1% or less — points = 3 Slope is > 1%-2% — points = 2 Slope is > 2%-5% — points = 1 Slope is greater than 5% — points = 0	0
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > 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	0
Total for S 1 — Add the points in the boxes above	0

Rating of Site Potential If score is: ___**12 = H** ___**6-11 = M** X **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	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 — Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___**1-2 = M** X **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	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 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** X **0 = L** *Record the rating on the first page*

Wetland name or number Wetland 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?	
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 — points = 1 All other conditions — points = 0	0

Rating of Site Potential If score is: ___**1 = M** X **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** X **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** X **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wetland 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 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
_X_	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
_X_	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**

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

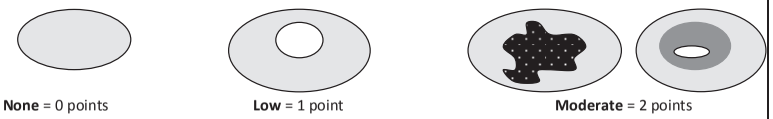
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	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

All three diagrams in this row are **HIGH** = 3points

0

Wetland name or number Wetland C

H 1.5. Special habitat features:

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ___ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).
- ____ Standing snags (dbh > 4 in) within the wetland
- ____ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)*
- ____ 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)*
- _X_ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

1

Total for H 1 — Add the points in the boxes above: 2

Rating of Site Potential If score is: ___ **15-18 = H** ___ **7-14 = M** _X_ **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 that directly abuts wetland unit*).

Calculate: % undisturbed habitat 16 + [(% moderate and low intensity land uses)/2] 0 = 16 %

If 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

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat 46 + [(% moderate and low intensity land uses)/2] 1 = 47 %

Undisturbed habitat > 50% of Polygon	points = 3
Undisturbed habitat 10-50% and in 1-3 patches	points = 2
Undisturbed habitat 10-50% and > 3 patches	points = 1
Undisturbed habitat < 10% of 1 km Polygon	points = 0

1

H 2.3. Land use intensity in 1 km Polygon: If

> 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: 0

Rating of Landscape Potential If score is: ___ **4-6 = H** ___ **1-3 = M** _X_ **< 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

- _X_ It has 3 or more priority habitats within 100 m (see next page)
- — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- — It is mapped as a location for an individual WDFW priority species
- — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- _X_ 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: _X_ **2 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number Wetland C

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).

X **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.

X **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.

X **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.

Wetland name or number Wetland D

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Viewcrest Wetland D Date of site visit: 6/26/20

Rated by C. Van Slyke Trained by Ecology? X Yes ___No Date of training 2014

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X N

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

Source of base aerial photo/map Whatcom County 2017

OVERALL WETLAND CATEGORY IV (based on functions X 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

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H○ M○ L⊙	H○ M○ L⊙	H○ M○ L⊙	
Landscape Potential	H○ M○ L⊙	H○ M○ L⊙	H○ M○ L⊙	
Value	H○ M○ L⊙	H○ M○ L⊙	H⊙ M○ L○	TOTAL
Score Based on Ratings	3	3	5	11

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	☒	

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 (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	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 undisturbed 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 *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	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 undisturbed 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 *(can be added to another figure)*	L 2.2	
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	
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	A
Hydroperiods	H 1.2	B
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	A
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	A
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	B
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	C
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	D
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	D

Wetland name or number Wetland D

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

   NO – go to 5 **YES –** The wetland class is **Slope**

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

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

NO – go to 6 **YES** – The wetland class is **Riverine**
NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

   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 D

SLOPE WETLANDS

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

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

Rating of Site Potential If score is: ___**12 = H** ___**6-11 = M** X **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	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 — Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___**1-2 = M** X **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	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 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** X **0 = L** *Record the rating on the first page*

Wetland name or number Wetland D

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 > 1/8 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	0

Rating of Site Potential If score is: ___**1 = M** X **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** X **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** X **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wetland D

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
_X_	Emergent	3 structures: points = 2
_X_	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
_X_	Seasonally flooded or inundated	3 types present: points = 2
____	Occasionally flooded or inundated	2 types present: points = 1
_X_	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 ft^2.

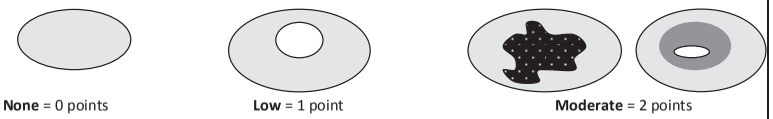
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	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

All three diagrams in this row are **HIGH** = 3points

1

Wetland name or number Wetland D

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.*

_X_ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).
____ Standing snags (dbh > 4 in) within the wetland
____ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)*
____ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*
____ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

1

Total for H 1 — Add the points in the boxes above: 5

Rating of Site Potential If score is: ___**15-18 = H** ___**7-14 = M** _X_**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 that directly abuts wetland unit*).

Calculate: % undisturbed habitat 16 + [(% moderate and low intensity land uses)/2] 0 = 16 %

If 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

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat 46 + [(% moderate and low intensity land uses)/2] 1 = 47 %

Undisturbed habitat > 50% of Polygon	points = 3
Undisturbed habitat 10-50% and in 1-3 patches	points = 2
Undisturbed habitat 10-50% and > 3 patches	points = 1
Undisturbed habitat < 10% of 1 km Polygon	points = 0

1

H 2.3. Land use intensity in 1 km Polygon: If

> 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: 0

Rating of Landscape Potential If score is: ___**4-6 = H** ___**1-3 = M** _X_**< 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

_X_ It has 3 or more priority habitats within 100 m (see next page)
__ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
__ It is mapped as a location for an individual WDFW priority species
__ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
_X_ 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: _X_**2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number Wetland D

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).

X **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.

X **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).*

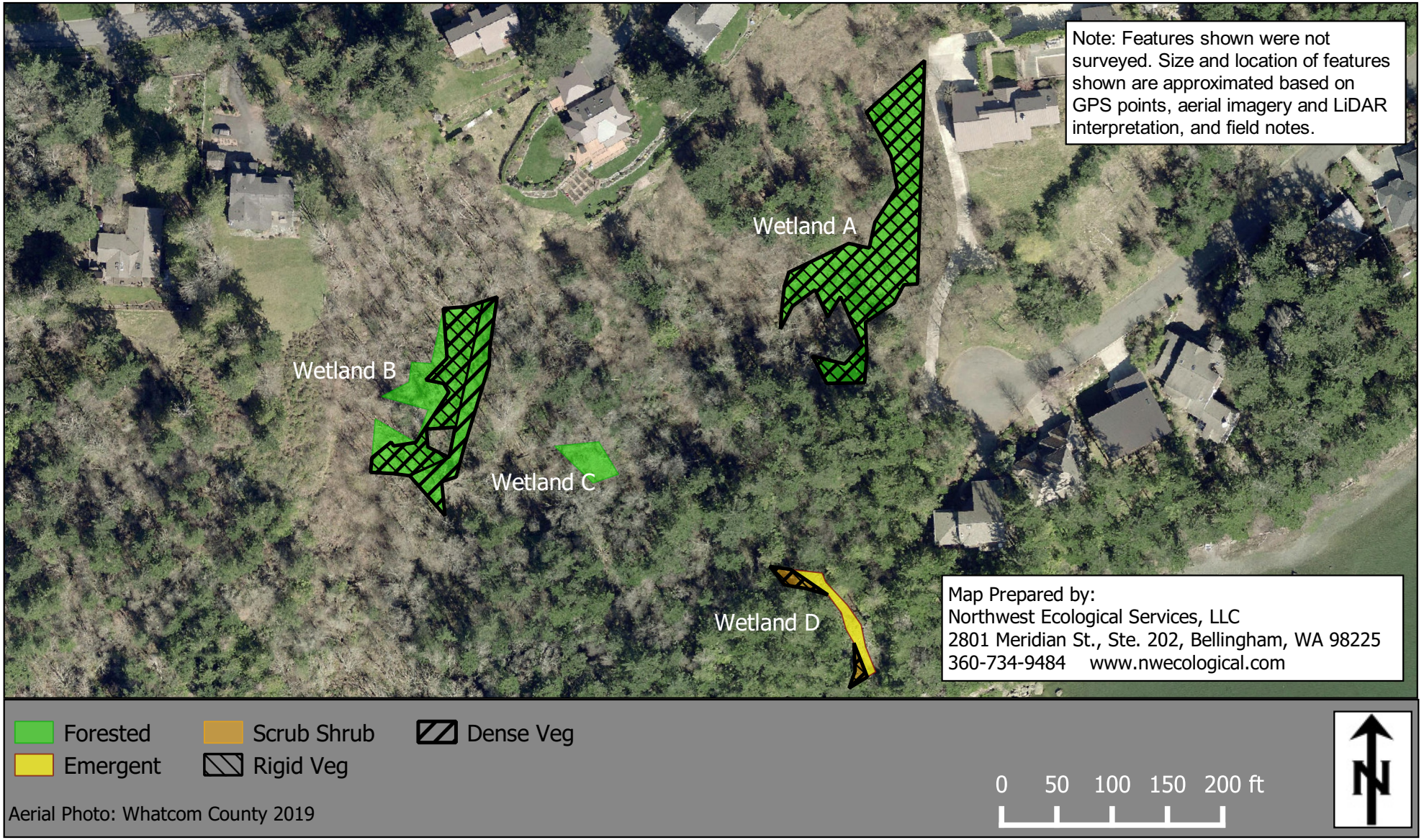
— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **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.

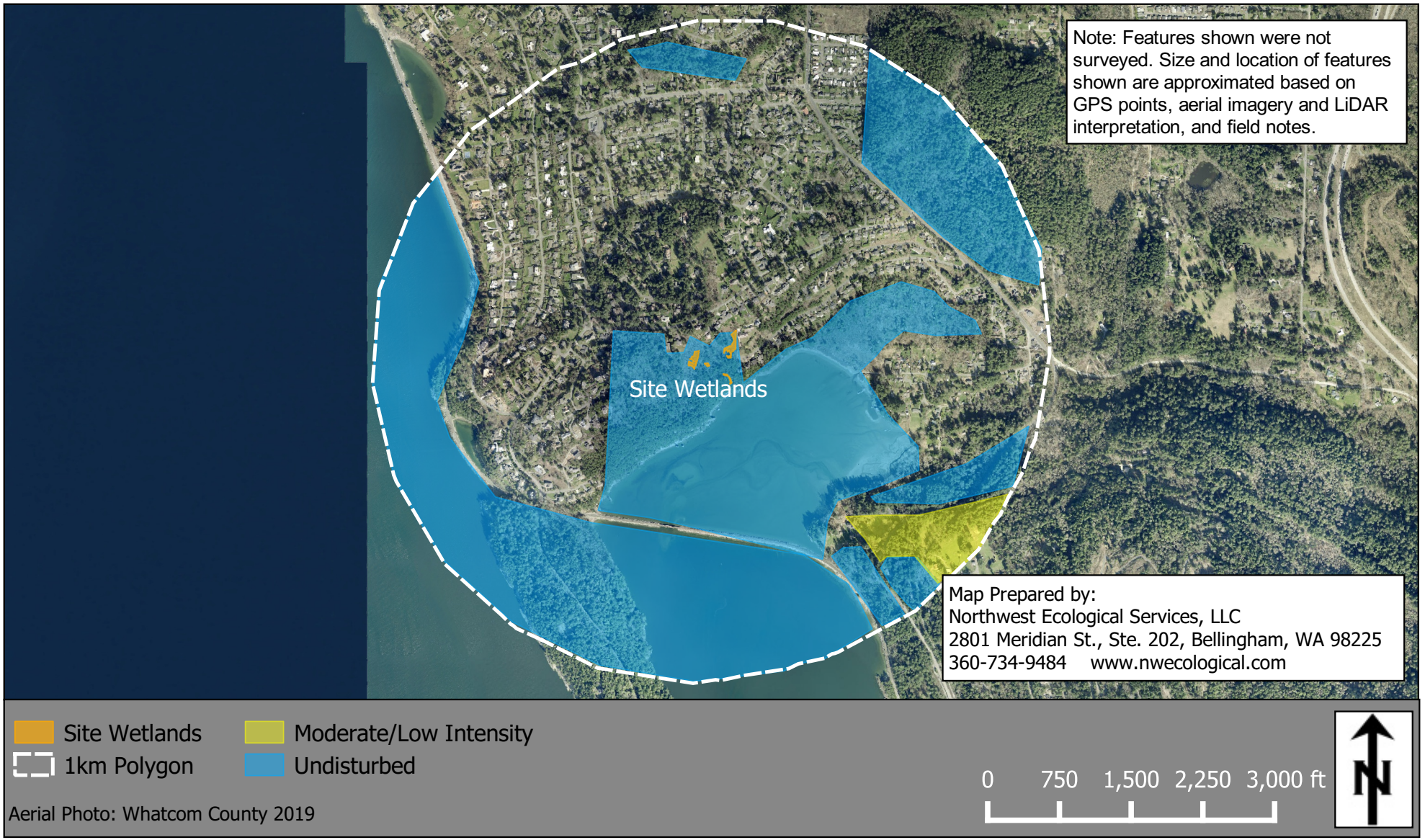
X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs 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.

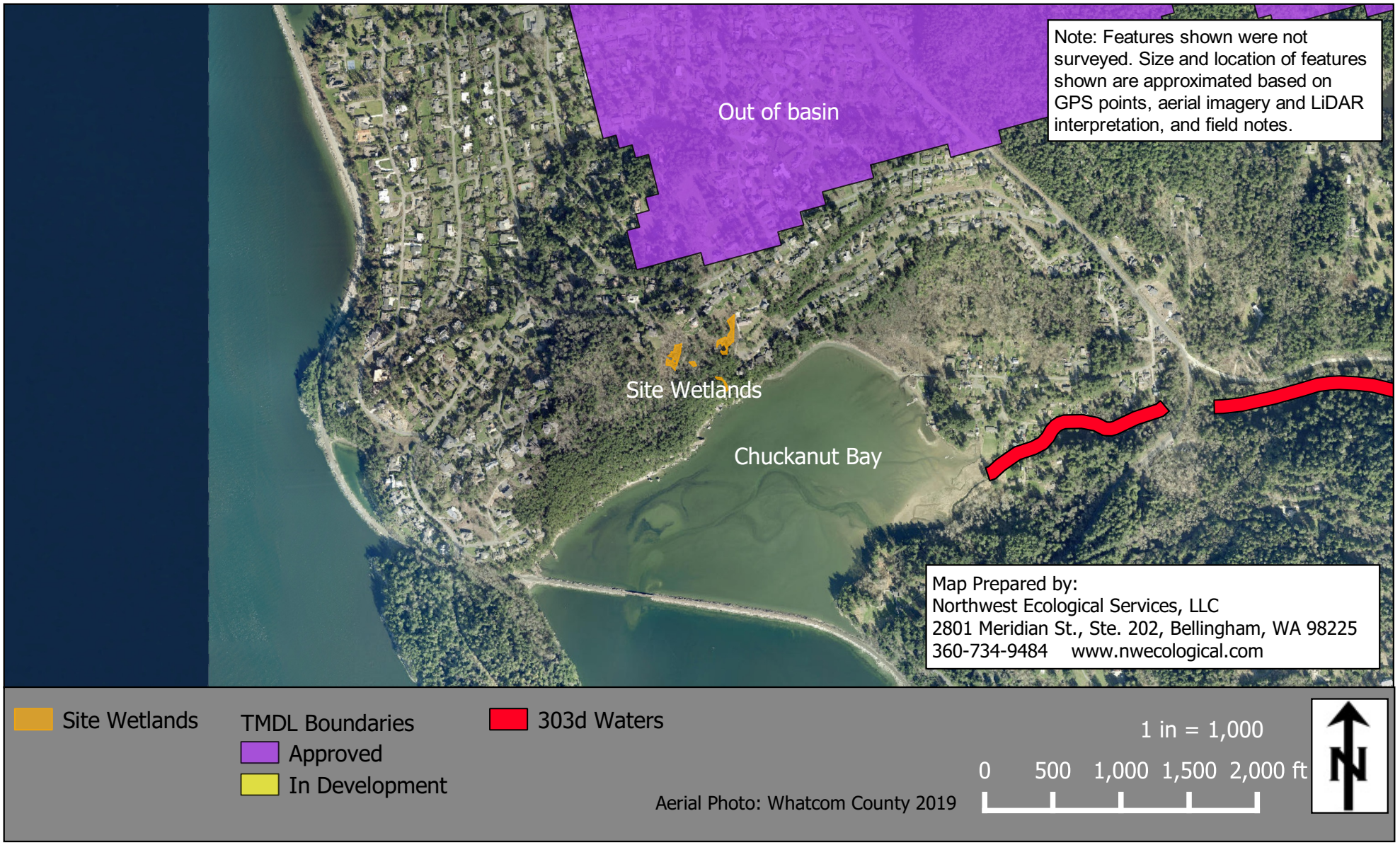


NORTHWEST ECOLOGICAL	**Wetland Rating Figure: Vegetation Map** **The Woods at Viewcrest Wetland Delineation Update**	**Attachment A** **FEB 2022**

NORTHWEST ECOLOGICAL	**Wetland Rating Figure: Hydrology Map** **The Woods at Viewcrest Wetland Delineation Update**	**Attachment B** **FEB 2022**



NORTHWEST ECOLOGICAL	**Wetland Rating Figure: Land Use Map** **The Woods at Viewcrest Wetland Delineation Update**	**Attachment C** **FEB 2022**



NORTHWEST ECOLOGICAL	**Wetland Rating Figure: Water Quality Map** **The Woods at Viewcrest Wetland Delineation Update**	**Attachment D** **FEB 2022**