
CAPITOL LAND TRUST INSPIRING KIDS PRESERVE REASONABLE USE CRITICAL AREAS REPORT THURSTON COUNTY, WASHINGTON

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Title-page image: Wetland area, Capitol Land Trust Inspiring Kids Preserve

The information contained in this report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state, and federal regulatory authorities. No other warranty, expressed or implied, is made.

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1 Introduction

This Critical Areas Report (CAR) has been prepared to document proper mitigation sequencing, no net loss of critical area and buffer functions, and the requirements for a Reasonable Use Exception (RUE) in accordance with Thurston County Code (TCC). This CAR is intended to support the construction of an entrance drive and parking area for the Capitol Land Trust Inspiring Kids Preserve along Henderson Inlet in unincorporated Thurston County. Due to the extent of wetlands and buffers throughout the eastern portion of the property, it is not feasible to construct these improvements under the strict application of the Thurston County Critical Areas Regulations. Therefore, the applicant is pursuing the RUE to achieve the project goals.

2 Existing Conditions

The study area for this project is depicted in Figure 1, below, and is defined as the area on parcels 11928230100, 11928230200, 11928320500, and 11928320000 between the existing north and south dirt access drives. The study area extends approximately 500 feet west from Johnson Point Road NE.

The subject properties are within the Woodland Creek-Frontal Henderson Inlet sub-basin (HUC 171100190502) of the Deschutes Water Resource Inventory Area (WRIA 13); Section 28 of Township 19 North, Range 01 West of the Public Land Survey System. The study area is located directly east of the southern end of Henderson Inlet. The site slopes gently down to the southwest towards Henderson Inlet. There is variable topography within the study area, and many depressions and swales are situated throughout the site.

The subject area is part of a large, undeveloped forested nature preserve. Prevalent native vegetation includes second-growth and third-growth western red cedar (*Thuja plicata*), Oregon ash (*Fraxinus latifolia*), bigleaf maple (*Acer circinatum*), and Douglas-fir (*Pseudotsuga menziesii*), with an understory of beaked hazelnut (*Corylus cornuta*), salmonberry (*Rubus spectabilis*), and sword fern (*Polystichum munitum*). Portions of the understory are also dominated by non-native Himalayan blackberry (*Rubus armeniacus*) and reed canarygrass (*Phalaris arundinacea*). Some areas within the preserve lack significant tree and shrub cover and are dominated by non-native, naturalized fescue (*Festuca* spp.) and bentgrass (*Agrostis* spp.).

A total of 15 wetlands and one stream were identified in the study area. Wetlands and streams are generally summarized in Table 1, below. Wetlands that are germane to the project, including those that may be impacted by the proposed development or may be used for compensatory mitigation (including their buffers), are summarized in further detail in Section

2.1 2.4. Wetlands were delineated in May, August, and September 2019. Delineated wetland boundaries within the specific project were verified and revised, where necessary, in February 2020.

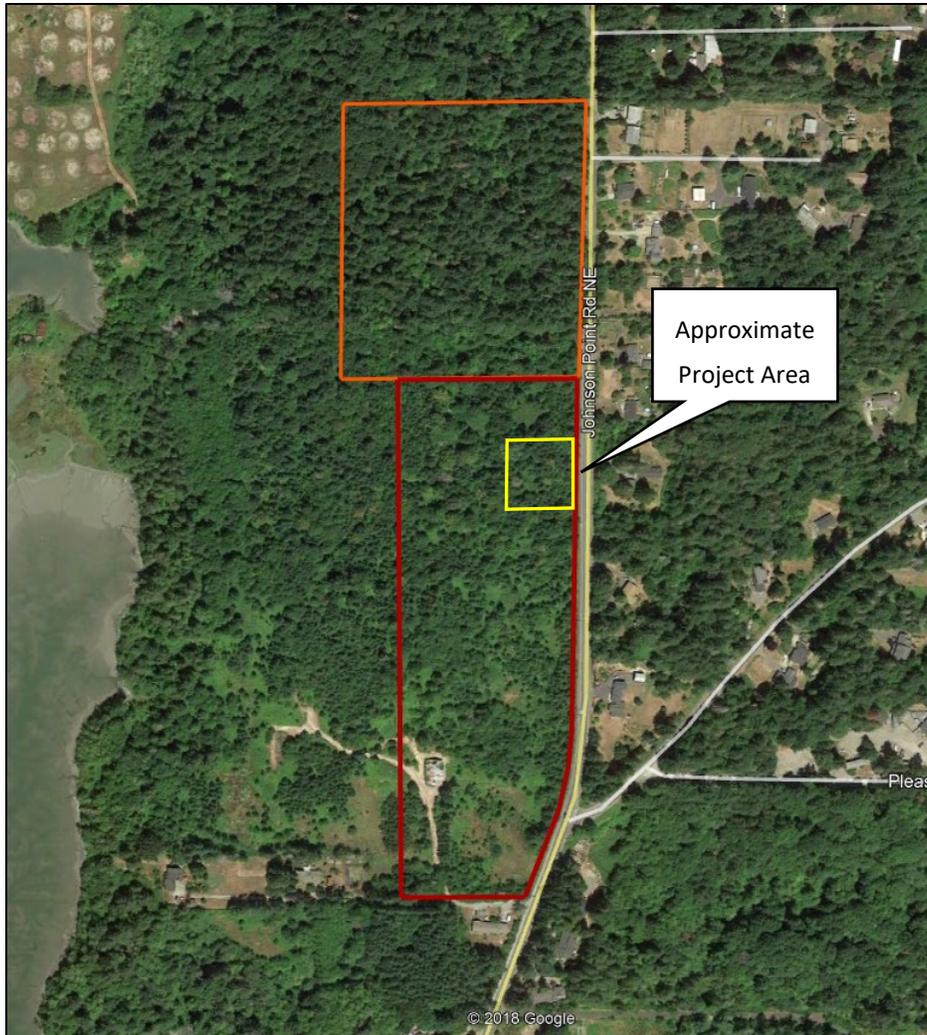


Figure 1. Project Study Area - includes both outlined areas. Wetlands in the north area (orange polygon) were delineated in May 2019; wetlands in the south area (red polygon) were delineated in August and September 2019. Wetland boundaries in the vicinity of the proposed project location were verified and modified, as necessary, in February 2020.

Table 1. Wetland and Streams Delineated within the Study Area

Feature	Category	Habitat Score	Standard Buffer (ft.)	Type
Wetland A	IV	6	220	Slope
Wetland B	III	6	220	Depressional

Wetland C	III	7	240	Depressional
Wetland D	IV	6	220	Slope
Wetland E	III	6	220	Slope
Wetland F	IV	6	220	Slope
Wetland G	IV	6	220	Slope
Wetland H	III	6	220	Depressional
Wetland I	III	7	240	Depressional
Wetland J	III	6	220	Slope
Wetland K	IV	6	220	Slope
Wetland L	IV	6	220	Slope
Wetland M	III	6	220	Slope
Wetland P	III	6	220	Depressional
Stream A	Ns	-	100	-

* Buffers are based on the requirements under TCC 24.30.045.

Project Area Wetlands and Streams

The wetlands described below are in or adjacent to the proposed project area. These wetlands and/or their regulatory buffers would be impacted or enhanced as part of the project construction and mitigation. All wetlands within the study area are considered isolated under the Clean Water Act, as there are no streams or tributaries connecting any of the wetlands to regulated waters of the state. A man-made stormwater conveyance ditch is present along the west side of Johnson Point Road NE that is partially connected to Wetland M, but no natural stream channels that flow permanently or seasonally are located in the project area. Stream A is an ephemeral stream channel that is the outlet for Wetland A outside of the project area. Stream A infiltrates to subsurface without connecting to any other wetlands or streams.

Table 2. Wetland G assessment summary

 WETLAND G – Assessment Summary										
Location:	Southeast quadrant of study area.									
WRIA / Sub-basin:	Deschutes (WRIA 13) / Puget Sound sub-basin									
	2014 Western WA Ecology Rating:	Category IV								
	Standard buffer:	220 feet								
	Wetland Size:	Approximately 7,000 ft ²								
	Cowardin Classification:	Palustrine scrub-shrub, Palustrine emergent								
	HGM Classification:	Slope								
	Wetland Data Sheet:	DP-13								
	Upland Data Sheet:	DP-14								
	Flag Color:	Pink- and black-striped								
	Flag Numbers:	G-1 to G-26								
Vegetation	Tree stratum: Shrub stratum: Herb stratum:	Western red cedar, Sitka spruce, red alder Himalayan blackberry Soft rush, reed canarygrass, creeping buttercup, fringed willowherb								
Soils	Soil survey: Field data:	Kapowsin silt loam, 3 to 15 percent slopes Depleted matrix (F3)								
Hydrology	Source: Field data:	High groundwater table, hillslope runoff Geomorphic position (D2), FAC-Neutral Test (D5)								
Wetland Functions										
	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	M	<u>L</u>	H	<u>M</u>	L	H	M	<u>L</u>	
Landscape Potential	H	M	<u>L</u>	H	M	<u>L</u>	<u>H</u>	M	L	
Value	<u>H</u>	M	L	H	M	<u>L</u>	H	<u>M</u>	L	TOTAL
Score Based on Ratings	5			4			6			15
Description and Comments										
Wetland G is a swale located northwest of the previously-existing barn structure. The wetland is bordered at its downslope boundary by a gravel road.										

Table 3. Wetland H assessment summary.

 WETLAND H – Assessment Summary				
Location:	Southwest corner of study area.			
WRIA / Sub-basin:	Deschutes (WRIA 13) / Puget Sound sub-basin			
	2014 Western WA Ecology Rating:	Category III		
	Standard buffer:	220 feet		
	Wetland Size:	Approximately 0.5 acres		
	Cowardin Classification:	Palustrine scrub-shrub, Palustrine emergent		
	HGM Classification:	Depressional, Slope		
	Wetland Data Sheet:	DP-15		
	Upland Data Sheet:	DP-16		
	Flag Color:	Pink- and black-striped		
	Flag Numbers:	H-0 to H-12		
Vegetation	Tree stratum: Shrub stratum: Herb stratum:	Sitka spruce, western red cedar, red alder Himalayan blackberry, one-seed hawthorn, hardhack Grasses, soft rush, Canada thistle		
Soils	Soil survey: Field data:	Kapowsin silt loam, 3 to 15 percent slopes Redox Dark Surface (F6)		
Hydrology	Source: Field data:	High groundwater table, hillslope runoff Oxidized rhizospheres along living roots (C3)		
Wetland Functions				
	Improving Water Quality	Hydrologic	Habitat	
Site Potential	H <u>M</u> L	H <u>M</u> L	H M <u>L</u>	
Landscape Potential	H <u>M</u> L	H <u>M</u> L	<u>H</u> M L	
Value	<u>H</u> M L	H M <u>L</u>	H <u>M</u> L	TOTAL
Score Based on Ratings	7	5	6	18
Description and Comments				
Wetland H is a slope and depressional wetland located in the southwest corner of the center of the study area. The wetland appears to continue to the west. Only the wetland boundaries within the study area were flagged and GPS-located.				

Table 4. Wetland I assessment summary.

		WETLAND I – Assessment Summary								
Location:	Southeast corner of study area.									
WRIA / Sub-basin:	Deschutes (WRIA 13) / Puget Sound sub-basin									
	2014 Western WA Ecology Rating:	Category III								
	Standard buffer:	240 feet								
	Wetland Size:	Approximately 0.9 acres								
	Cowardin Classification:	Palustrine scrub-shrub, Palustrine emergent								
	HGM Classification:	Depressional, Slope								
	Wetland Data Sheet:	DP-17								
	Upland Data Sheet:	DP-18								
	Flag Color:	Pink- and black-striped								
	Flag Numbers:	I-1 to I-33								
Vegetation	Tree stratum:	Red alder, western red cedar, cascara								
	Shrub stratum:	Himalayan blackberry, one-seed hawthorn, black twinberry								
	Herb stratum:	Soft rush, grasses, fringed willowherb								
Soils	Soil survey:	Kapowsin silt loam, 3 to 15 percent slopes; Skipopa silt loam, 3 to 15 percent slopes								
	Field data:	Redox dark surface (F6)								
Hydrology	Source:	High groundwater table, hillslope runoff								
	Field data:	FAC-Neutral Test (D5), Frost-Heave Hummocks								
Wetland Functions										
	Improving Water Quality			Hydrologic		Habitat				
Site Potential	H	<u>M</u>	L	H	<u>M</u>	L	H	<u>M</u>	L	
Landscape Potential	H	<u>M</u>	L	H	<u>M</u>	L	<u>H</u>	M	L	
Value	<u>H</u>	M	L	H	M	<u>L</u>	H	<u>M</u>	L	TOTAL
Score Based on Ratings	7			5		7		19		
Description and Comments										
Wetland I is a slope and depressional wetland located in the southeast corner of the study area. Wetland I and its buffer are proposed for enhancement as part of the project mitigation.										

Table 5. Wetland J assessment summary.

 THE WATERSHED COMPANY		WETLAND J – Assessment Summary								
Location:	Central study area.									
WRIA / Sub-basin:	Deschutes (WRIA 13) / Puget Sound sub-basin									
	2014 Western WA Ecology Rating:	Category III								
	Standard buffer:	220 feet								
	Wetland Size:	Approximately 0.2 acres								
	Cowardin Classification:	Palustrine scrub-shrub, Palustrine emergent								
	HGM Classification:	Slope								
	Wetland Data Sheet:	DP-19								
	Upland Data Sheet:	DP-20								
	Flag Color:	Pink- and black-striped								
	Flag Numbers:	J-1 to J-20								
Vegetation	Tree stratum:	Red alder, Douglas-fir								
	Shrub stratum:	Himalayan blackberry, cluster rose								
	Herb stratum:	Soft rush, reed canarygrass, fringed willowherb, curlydock								
Soils	Soil survey:	Skipopa silt loam, 3 to 15 percent slopes								
	Field data:	Depleted matrix (F3), Redox Dark Surface (F6)								
Hydrology	Source:	High groundwater table, hillslope runoff								
	Field data:	Oxidized rhizospheres along living roots (C3), FAC-Neutral Test (D5)								
Wetland Functions										
	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	<u>M</u>	L	H	<u>M</u>	L	H	M	<u>L</u>	
Landscape Potential	H	M	<u>L</u>	H	M	<u>L</u>	<u>H</u>	M	L	
Value	<u>H</u>	M	L	H	M	<u>L</u>	H	<u>M</u>	L	TOTAL
Score Based on Ratings	6			4			6			16
Description and Comments										
Wetland J is a slope wetland located near the center of the study area.										

Table 6. Wetland K assessment summary.

		WETLAND K – Assessment Summary								
Location:	Central study area.									
WRIA / Sub-basin:	Deschutes (WRIA 13) / Puget Sound sub-basin									
	2014 Western WA Ecology Rating:	Category IV								
	Standard buffer:	220 feet								
	Wetland Size:	Approximately 450 ft ²								
	Cowardin Classification:	Palustrine emergent								
	HGM Classification:	Slope								
	Wetland Data Sheet:	DP-21								
	Upland Data Sheet:	DP-22								
	Flag Color:	Pink- and black-striped								
Flag Numbers:	K-1 to K-6									
Vegetation	Tree stratum:	N/A								
	Shrub stratum:	Himalayan blackberry								
	Herb stratum:	Soft rush, reed canarygrass, fringed willowherb, largeleaf avens								
Soils	Soil survey:	Alderwood gravelly sandy loam, 15 to 30 percent slopes								
	Field data:	Redox Dark Surface (F6)								
Hydrology	Source:	High groundwater table, hillslope runoff								
	Field data:	Oxidized rhizospheres along living roots (C3), FAC-Neutral Test (D5)								
Wetland Functions										
	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	M	<u>L</u>	H	M	<u>L</u>	H	M	<u>L</u>	
Landscape Potential	H	M	<u>L</u>	H	M	<u>L</u>	<u>H</u>	M	L	
Value	<u>H</u>	M	L	H	M	<u>L</u>	H	<u>M</u>	L	TOTAL
Score Based on Ratings	5			3			6			14
Description and Comments										
Wetland K is a small slope wetland north of Wetland J. The two wetlands are separated by a dense area of snowberry.										

Table 7. Wetland M assessment summary.

		WETLAND M – Assessment Summary								
Location:	Central study area; immediately west of Johnson Point Road NE.									
WRIA / Sub-basin:	Deschutes (WRIA 13) / Puget Sound sub-basin									
	2014 Western WA Ecology Rating:	Category III								
	Standard buffer:	220 feet								
	Wetland Size:	14,761 ft ²								
	Cowardin Classification:	Palustrine scrub-shrub								
	HGM Classification:	Slope								
	Wetland Data Sheet:	DP-25								
	Upland Data Sheet:	DP-26								
	Flag Color:	Pink- and black-striped								
	Flag Numbers:	M-1 to M-7, MM-1 to MM-31								
Vegetation	Tree stratum:	Red alder, Oregon ash								
	Shrub stratum:	Black twinberry, snowberry, cluster rose								
	Herb stratum:	Soft rush, water parsley								
Soils	Soil survey:	Kapowsin silt loam, 3 to 15 percent slopes								
	Field data:	Redox Dark Surface (F6)								
Hydrology	Source:	High groundwater table, hillslope runoff								
	Field data:	Geomorphic Position (D2), FAC-Neutral Test (D5)								
Wetland Functions										
	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	M	<u>L</u>	H	<u>M</u>	L	H	M	<u>L</u>	
Landscape Potential	H	<u>M</u>	L	H	<u>M</u>	L	<u>H</u>	M	L	
Value	<u>H</u>	M	L	H	M	<u>L</u>	H	<u>M</u>	L	TOTAL
Score Based on Ratings	6			5			6			17
Description and Comments										
Wetland M is a slope wetland located near the center of the study area, immediately west of Johnson Point Road NE. A portion of Wetland M would be filled to allow construction of the new entry drive.										

Table 8. Wetland P assessment summary.

		WETLAND P – Assessment Summary								
Location:	Central study area; immediately west of Johnson Point Road NE.									
WRIA / Sub-basin:	Deschutes (WRIA 13) / Puget Sound sub-basin									
	2014 Western WA Ecology Rating:	Category III								
	Standard buffer:	220 feet								
	Wetland Size:	Approximately 400 ft ²								
	Cowardin Classification:	Palustrine emergent								
	HGM Classification:	Depressional								
	Wetland Data Sheet:	DP-27								
	Upland Data Sheet:	DP-28								
	Flag Color:	Pink- and black-striped								
	Flag Numbers:	P-1 to P-4								
Vegetation	Tree stratum:	N/a								
	Shrub stratum:	Oregon ash, serviceberry								
	Herb stratum:	Soft rush, creeping buttercup								
Soils	Soil survey:	Kapowsin silt loam, 3 to 15 percent slopes								
	Field data:	Depleted matrix (F3)								
Hydrology	Source:	High groundwater table, stormwater runoff								
	Field data:	Surface water (A1), algal mat (B4)								
Wetland Functions										
	Improving Water Quality			Hydrologic		Habitat				
Site Potential	H	<u>M</u>	L	H	M	<u>L</u>	H	M	<u>L</u>	
Landscape Potential	H	<u>M</u>	L	H	<u>M</u>	L	<u>H</u>	M	L	
Value	<u>H</u>	M	L	H	M	<u>L</u>	H	<u>M</u>	L	TOTAL
Score Based on Ratings	7			4		6		17		
Description and Comments										
Wetland P is a small depressional wetland located near the center of the study area, immediately west of Johnson Point Road NE. A portion of Wetland P would be filled to allow construction of the entry drive.										

3 Project Description

The proposed project includes the construction of a new access drive and parking lot that can accommodate buses. In addition to land preservation and restoration activities, the Inspiring Kids Preserve is intended to provide educational opportunities for children to learn about the preserve, its natural environment, role in the ecosystem, and restoration activities undertaken by the Capitol Land Trust. As such, the access drive and parking area must be of suitable size to allow access from multiple school buses, which may transport school classes and summer camps. In total, the proposed driveway and parking lot will be 39,717 square feet. An ADU-accessible loop trail is also proposed. The trail will account for 11,499 square feet of permanent buffer impacts. Since the entire eastern portion of the study area is encumbered by wetlands and buffers, all of the development will be considered a new, permanent impact. Grading activities necessary for construction will account for an additional 18,296 square feet of buffer impacts, which will be restored with a native pollinator seed mix. While the temporary buffer impacts will be restored to a vegetated condition, the impacts will represent a conversion of forest and shrub areas to a native herbaceous community. An additional 20,163 square feet of wetland will be indirectly impacted through this development due to the loss of buffer areas.

4 Passive Recreation Criteria

The project includes an 11,499-square-foot, six-foot-wide, crushed gravel, ADU-accessible trail. Given the existing wetland and buffer encumbrances, the entire trail will be located in wetland buffer. Trails and trail-related facilities may be allowed in wetland buffers under TCC 24.30.260.A:

1. *Location*

- a. *Trails and related facilities shall, to the extent feasible, be placed on existing levees, road grades, abandoned railroad lines, utility corridors, or other previously disturbed areas.*

There are no existing levees, abandoned railroad lines, utility corridors, or other previously disturbed areas on which the trail can be constructed.

- b. *When trails cannot be located outside of the wetland buffers or on existing disturbed corridors within the buffers, they shall be located as far from the wetland as possible, except for access points for wildlife viewing, fishing, and recreational use authorized pursuant to this chapter.*

The trail is located away from the wetland areas, except where necessary to avoid steeper grades, access the pavilion hub, and provide for the trail loop.

- c. *Trails and related facilities (e.g., viewing platforms and benches) allowed in wetland buffers shall be located, aligned and constructed to minimize disturbance to wetland functions, avoid the most sensitive and productive wildlife habitat (e.g., documented breeding, nesting, and rearing areas), and minimize removal of trees, shrubs, snags, and other significant wildlife habitat.*

Trail-related facilities (viewing decks, bird blinds, etc.) have been removed from the revised plans.

- d. *Parking areas and other facilities associated with these trails, not specifically provided for in this section and Table 24.30-4, shall be located outside of the wetland and/or wetland buffer.*

The entire eastern half of the property is encumbered by wetlands and buffers. It is not feasible to construct the parking areas and other facilities outside the buffer areas.

2. *Stair Tower, Stairway, and Mechanical Lift. See Chapter 24.25 TCC, Fish and Wildlife Conservation Areas; and Chapter 24.15 TCC, Geologic Hazards and the Shoreline Master Program, as amended.*

There are no stairs or mechanical lift associated with the proposed trail.

3. *Protect Water Quality. Trails and related facilities shall incorporate measures (e.g., check dams or devices to induce sheet flow of stormwater runoff) as needed to assure that runoff from such trails/facilities does not create channels in the buffer or directly discharge to wetlands or streams.*

Grading of the site breaks up the runoff areas into multiple small areas to eliminate sizable, concentrated flow volumes, minimizing if not eliminating the possibility of erosion-causing volumes of stormwater. The Drainage Plan incorporates quarry spall splash pads and collects runoff into swales at culvert outfalls and areas where runoff cannot sheet flow off the impervious surface edge.

4. *Trail Width. The width of trails extending through a wetland buffer shall be minimized consistent with any applicable state or federal standards. Access paths extending through the wetland buffer to the water's edge shall be no more than three feet in width unless they are designated for public access and designed to accommodate handicapped persons. In that case, the trail and associated clearing shall be the minimum width that complies with the Americans with Disabilities Act (ADA). Clearing shall be done with hand tools unless the approval authority determines that the scale of the project necessitates mechanized equipment, and its use will not harm the wetland or buffer beyond the trail corridor.*

The proposed trail width is six feet. This is necessary to comply with ADA requirements.

5. *Impervious Surfaces. Trails shall not be paved unless they are specifically designed to be accessible by handicapped persons. Trails shall be designed for nonmotorized use, with the exception of motorized wheelchairs. The approval authority may allow regional trails on former road or railroad beds to be paved when they extend through wetland buffers. Where impervious surfaces are used, they shall be minimized consistent with applicable standards (e.g., ADA and Washington Department of Transportation standards.)*

The trail is not paved but is compact gravel, as necessary to provide ADA access. The trail is designed for pedestrian use only.

5 Reasonable Use Criteria

Summary of Project Need

Capitol Land Trust and North Thurston Public Schools are in a growing partnership with the goal of having all 13 elementary schools (about 1,200 third grade students) visit Inspiring Kids Preserve for outdoor learning. This field experience is part of a district-wide initiative to provide every student, pre-K- 8th grade, with an outdoor learning experience. The school district would like to provide this third-grade experience to all 1,200 students at Inspiring Kids Preserve as soon as possible but is limited by bus entrance, exit, and parking. Currently, third graders from three schools have visited the preserve and had to be dropped off and picked up on Johnson Point Road at an existing entrance that is below the crest of a hill with a speed limit of 50 miles per hour. This presents a high public safety hazard. With the proposed development, the new entrance will meet county site distance safety standards, students will be able to safely offload and load the bus and the bus will be able to remain on site.

Additionally, Capitol Land Trust has interviewed more than 20 community organizations that have expressed a high level of interest in using the preserve for their outdoor programming should the planned development be implemented. Organizations include Olympia Mountaineers, Arbutus Folk School, Exceptional Families Network, Wa-Ya Outdoor School, Black Hills Audubon Society, Puget Sound Estuarium, and school groups for other school districts. Over 700 youth have visited the preserve during the last five years despite the pandemic and site limitations. However, this is only a fraction of the number of students who would visit the preserve if there was safe access and adequate parking. With adequate facilities, the average number of youths served per year is expected to increase by 900 percent or more per year.

Enumerated Reasonable Use Criteria

Reasonable use review criteria are provided under TCC 24.45.030, including the following provisions:

1. *No other reasonable use of the property as a whole is permitted by this title;*

The general use of the property is as a preserve with passive recreation activities. However, given the intent for the preserve to also provide educational opportunities, safe access and parking for cars and buses is necessary. Under TCC 24.30.280.D, private access roads may be constructed in wetlands and/or buffers if the applicant can demonstrate that it is essential (e.g. to provide access to property where no other access is physically possible with less impact to the wetland); that no alternative location would have less impact on wetland and buffer functions; and that it meets the requirements for existing lots in TCC 24.50. There is no such provision for allowing parking areas in buffers. Similarly, under TCC 24.30.260, passive recreation uses, including trails and trail-related passive recreation facilities, may be allowed if there is no alternative outside the wetland buffer. Trails and related facilities shall be located as far from the wetland as possible. However, parking areas and other facilities associated with these trails shall be located outside of the wetland buffer.

2. *No reasonable use with less impact on the critical area or buffer is possible. At a minimum, the alternatives reviewed shall include a change in use, reduction in the size of the use, a change in the timing of the activity, a revision in the project design. This may include a variance for yard and setback standards required pursuant to Titles 20, 21, 22, and 23 TCC;*

Nearly the entire study area is encumbered by critical areas and buffers. There is no feasible alternative location that can satisfy the required dimensions, sight lines, traffic flow, and private property screening that can accommodate the ingress/egress needs for school buses to access the parking area.

Alternative location options for the site entrance and hub area were considered at the north and south ends of the property. Neither of the two locations would have accommodated a hub facility without impacting wetland buffers, and the south location would put the development closer to wetlands in the area, including a Category III wetland.

The selected hub location is central to the property, thereby making it more suitable for its purpose as the trail network's hub. From this location, trails can radiate to various points of interest. Locating the hub at either the north or south end of the property would result in a half mile walk one way to get to some of the project's interest points. This could be problematic for many younger visitors.

A sight distance study determined an entrance location near the mid-point of the property line along Johnson Point Road NE would provide safer vehicle entry and exit than the north or south options. The south end option would require widening of an existing driveway which currently serves three residences. This driveway passes just 50 feet in front of the first house off Johnson Point Road NE. Also, the hub at the south option would be visible from two of the adjacent residences. The north end option would put the hub within 100 feet of the neighboring property to the north and would require a longer driveway from a safe access location on Johnson Point Road NE.

The plan strives to keep impacts as far as is reasonably possible from the major wetland to the north without placing the hub on topography that will require a greater area of disturbance. The entrance and hub area will be entirely within wetland buffers. Some wetland disturbance will occur where the driveway comes off Johnson Point Road. Because of a limited safe sight distance area along the road, there is little leeway for the entrance location, making some wetland disturbance in the ditch parallel to the road unavoidable.

The hub and driveway are designed to be compact, while also providing adequate, but not excessive vehicle and pedestrian space. The roadway at the hub area is designed with large turn radii and road widths that facilitate access by large vehicles such as buses and fire trucks as required by code. Parking spaces for two buses and sixteen standard vehicle parking stalls are provided. Closer to the project entrance, a lower parking area with eight stalls is provided from which users will walk along a gravel trail to the hub area. The roadway connecting the lower lot to the hub is reduced to a single 13-foot-wide lane with a seven-foot gravel passing shoulder. The roadway is reduced in length by 270 feet, or 40%, from an original plan which maintained a 24-foot-wide two-lane driveway all the way to the hub.

Additionally, in the proposed location, the hub will be completely screened from neighboring properties.

- 3. The requested use or activity will not result in any damage to other property and will not threaten the public health, safety, or welfare on or off the development proposal site, or increase public safety risks on or off the subject property;*

The proposed activity will not result in damage to other properties or threaten public health, safety, or welfare. The project location has been selected specifically to minimize exposure and encroachment on neighboring properties, as well as provide safe ingress/egress off of Johnson Point Road NE, which often has vehicles traveling at high speeds with poor site lines.

- 4. The proposed reasonable use is limited to the minimum encroachment into the critical area and/or buffer necessary to prevent the denial of all reasonable use of the property;*

The proposal is the minimum necessary to provide access suitable and safe for car and bus ingress/egress to the property. The parking area is intended to provide enough area to accommodate two buses and sixteen standard vehicles with suitable turnaround space. During the summer season, it is anticipated that this many buses may need to access the site simultaneously.

5. *The proposed reasonable use shall result in minimal alteration of the critical area including but not limited to impacts on vegetation, fish and wildlife resources, hydrological conditions, and geologic conditions;*

The proposed alteration has the minimum feasible alterations to critical areas and buffers. Since the site is entirely encumbered by buffers, there is no location that would have less buffer impact. Of the suitable locations that would allow for safe traffic sight lines, would not encroach onto neighboring private properties, and would not require excessive grading due to variable topography, the selected location is the only area that can avoid directly crossing the interior of Wetland M, which is a long, linear wetland that parallels Johnson Point Road NE for most of the study area. Most of the proposed access road will be in a narrow break between Wetland M and Wetland P, thus avoiding more substantial direct wetland impacts, and the parking area will be entirely outside of wetlands. However, grading activities for the road will fill all of Wetland P and a portion of the northern tip of Wetland M, for a combined permanent impact of 707 square feet. The Wetland M impact area is the least impactful location feasible, as it leaves the remainder of the wetland intact. Bisecting the feature farther south could potentially result in substantial hydrologic effects that could have unanticipated effects on other portions of the wetland.

6. *A proposal for a reasonable use exception shall ensure no net loss of critical area functions and values. The proposal shall include a mitigation plan consistent with this title and best available science. Mitigation measures shall address unavoidable impacts and shall occur on-site first, or if necessary, off-site;*

The project will ensure no net loss of wetland and buffer function (See Section 6). Project mitigation design has been prepared in accordance with the mitigation ratios under TCC 24.30.080 and the ratios and guidance provided in *Wetland Mitigation in Washington State Versions 1 and 2* (Ecology Publications #06-06-011a and 06-06-011b. 2006) (Ecology Mitigation Guidance). Direct impacts to Wetlands M and P will be mitigated through wetland enhancement at a ratio of 8:1. Permanent buffer impacts will be mitigated through buffer enhancement at a ratio of 1:1. Permanent buffer conversion impacts will be mitigated through buffer enhancement at a ratio 1:1.

Ecology Guidance recommends mitigating indirect wetland impacts at one-half the standard ratio (4:1 enhancement for Category III wetlands). The proposed mitigation has maximized all on-site wetland enhancement opportunities, and a wetland enhancement ratio of 3.65:1 will be achieved. To ensure no net loss of wetland functions, additional wetland buffer mitigation is proposed. A 22.8:1 ratio of buffer enhancement is proposed to make up for the remaining indirect wetland impacts that cannot be mitigated through wetland enhancement.

7. *The reasonable use shall not result in the unmitigated adverse impacts to species of concern;*

The project will not result in unmitigated adverse impact to species of concern. There are no state or federal endangered, threatened, or species of concern documented in the project area (PHS Data). The project will not impact any streams or old-growth/mature forests that could support listed fish or wildlife species. All potential project impacts will be mitigated on-site in otherwise degraded habitat areas.

8. *The location and scale of existing development on surrounding properties shall not be the sole basis for granting or determining a reasonable use exception.*

The existing development of the surrounding properties is not the basis for the reasonable use application. The subject property is unique from the surrounding properties, in that it is a land preserve that will preserve natural habitats in perpetuity and restore degraded areas over time. The surrounding land uses are mostly rural residential. The proposed development is necessary to allow access to cars and buses for educational opportunities, a condition not typical of the surrounding land uses.

6 Mitigation Sequencing

This section describes relevant avoidance, minimization, and mitigation sequencing in accordance with TCC 24.35.014:

A. *Avoiding the impact altogether by not taking a certain action or parts of an action;*

The project has been designed to avoid direct wetland impacts to the greatest extent feasible by selecting an entrance location between two wetland units. By selecting the proposed access drive location, the project avoids bisecting a wetland, which could potentially lead to unanticipated hydrology impacts that might dewater wetland areas away from the proposed crossing. Buffer impacts have been avoided to the extent feasible by eliminating certain project elements that were previously proposed. These include removal of the proposed well, septic field, bird blind, viewing platforms, and the shed at the northern entrance. However, given the

extent of wetland and buffer encumbrance on the property, sight line limitations, and topography, it is not feasible to avoid all wetland and buffer impacts.

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;

The location chosen for the access drive minimizes wetland impacts by crossing between two wetlands. Due to the required grading activities, direct wetland impacts are unavoidable. The proposed impacts will occur to a small, isolated Category III wetland, Wetland P, and a small portion of Wetland M, also a Category III wetland. There is no other feasible location for the access that could avoid wetland impacts while achieving the necessary dimensions and sight lines required for ingress/egress of buses. The chosen location avoids bisecting Wetland M, which could otherwise lead to unanticipated hydrology impacts. Buffer impacts have been minimized by removing the proposed well, septic field, bird blind, viewing platforms, and the shed at the northern entrance.

C. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

Project grading activities will result in permanent and temporary wetland buffer impacts. All buffer impacts from project grading will be restored in place, thus repairing and rehabilitating much of the project impacts. Additional compensatory mitigation for grading activities that result in a conversion of the buffer from forest and shrub communities to an herbaceous community will be provided through additional buffer enhancement at a ratio of 1:1. All permanent impacts will be mitigated through wetland/buffer enhancement.

D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

Areas where temporary impacts will be restored shall be monitored for ten years to ensure successful establishment of the restoration plantings. Beyond the immediate project area, the site is a nature preserve that will be preserved in perpetuity. Future restoration of degraded habitats is likely to occur over time, although they are not part of the current proposal.

E. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;

All unavoidable wetland and buffer impacts will be mitigated through enhancement of degraded wetland and buffer areas elsewhere on site, including Wetlands G, H, I, J, K and L and the associated buffers of Wetlands G, H, and I. Impacts to Wetlands M and P will be mitigated through enhancement of degraded wetland areas at a ratio of 8:1, in accordance with

the requirements of TCC 24.30.080. Indirect impacts on wetlands will be addressed by enhancing wetland areas at a 3.65:1 ratio, alongside buffer improvement at a 22.8:1 ratio. This aims to satisfy the required 4:1 wetland improvement ratio, which is infeasible based on the wetland area and quality of wetlands present on-site. Permanent impacts to buffer areas will be mitigated at a minimum ratio of 1:1. Per the recommendations in the Ecology Mitigation Guidance, conversion of a forested or shrub community to an herbaceous community should be mitigated at one-half the standard mitigation ratios. The temporary buffer impacts along the proposed roadway will be restored with a native pollinator mix that will represent a conversion of forested and shrub buffer to a native herbaceous buffer. While Ecology Guidance recommends mitigation for this kind of conversion at one-half the standard mitigation ratio, these impacts will be mitigated at the full 1:1 buffer enhancement ratio required by Thurston County for permanent buffer impacts.

F. Monitoring the impact and taking appropriate corrective measures.

Compensatory mitigation areas will be monitored for ten years or until performance standards are satisfied. The proposed mitigation plan includes a ten-year monitoring and maintenance plan and a contingency plan.

7 Proposed Mitigation Approach

The project will result in 707 square feet of direct impacts and 20,163 square feet of indirect impacts to Category III wetlands. Assuming the standard 8:1 ratio for direct impacts and a 4:1 ratio for indirect impacts, a total of 86,308 SF of wetland enhancement is required (5,656 SF for direct impacts and 80,652 SF for indirect impacts). Only 81,849 SF of wetland enhancement opportunity is available on-site, which accounts for approximately 95 percent of the required total enhancement area. The proposed wetland enhancement area will mitigate for all 707 SF of direct wetland impacts (5,656 SF of wetland enhancement). Once the mitigation area for direct wetland impacts is applied, 76,193 SF of available wetland enhancement area will remain (81,849 SF – 5,656 SF = 76,193 SF). The remaining 76,193 SF of wetland enhancement area is sufficient to mitigate 19,048 SF of indirect impacts at a 4:1 ratio, which leaves a shortfall of 1,115 SF of indirect impacts unaccounted for. Since there is no more suitable wetland enhancement area on-site, additional wetland buffer enhancement is proposed to ensure adequate mitigation for all indirect impacts unaccounted for through wetland enhancement. The project proposes 31,241 SF of wetland buffer mitigation as mitigation for the 1,115 SF of indirect wetland impacts not mitigated through wetland enhancement. This represents an approximately 28:1 mitigation ratio for wetland buffer enhancement to indirect wetland impacts. Since indirect wetland impacts occur as a result of buffer loss, the scale of the proposed buffer enhancement compared

to the area of indirect wetland impacts not mitigated through wetland enhancement will sufficiently mitigate for all project impacts.

All permanent buffer impacts and buffer conversion will be mitigated through 69,152 SF of buffer enhancement, a ratio of 1:1.

Table 9. Project impacts and proposed mitigation.

Impact Type	Impact Area	Required Mitigation Ratio (Enhancement)	Mitigation Ratio Applied
Direct Wetland	707 SF	8:1 Wetland (5,656 SF)	8:1 Wetland (5,656 SF)
Indirect Wetland	20,163 SF	4:1 Wetland (80,652 SF)	4:1 Wetland (76,193 SF mitigates for 19,048 SF of indirect wetland impacts)
			28:1 Buffer (31,241 SF mitigates for remaining 1,115 SF of indirect impacts) ¹
Direct Buffer	50,856 SF	1:1 Buffer (50,856 SF)	1:1 (50,856 SF mitigates for all direct buffer impacts)
Buffer Conversion	18,296 SF	1:1 Buffer (18,296 SF)	1:1 (18,296 SF mitigates for all buffer conversion)
Total	70,219	155,460 SF (86,308 wetland; 69,152 buffer)	182,424 SF (81,849 SF wetland; 100,393 SF buffer)

¹ 31,241 SF of buffer enhancement will be applied as mitigation for 1,115 SF of indirect wetland impacts that cannot be mitigated through wetland enhancement due to a lack of sufficient degraded wetland area on-site. This represents a ratio of 28:1 for buffer enhancement to indirect wetland impacts.

8 Impact Assessment

Project mitigation is designed to achieve no net loss of critical area and buffer functions. The project will result in the loss of 707 square feet of Category III wetland and 50,856 square feet of buffer (39,717 SF for driveway and parking lot; 11,499 SF for ADA trail). An additional 18,296 square feet of buffer will be converted from forest and shrub communities to a native herbaceous community. As mitigation for these impacts, the project will include 81,849 square feet of wetland mitigation and 100,393 square feet of buffer mitigation. This mitigation plan is providing significantly more enhancement than required and will ensure that the future condition will represent an overall improvement in ecological functions.

In general, the potential of the project area wetlands and buffers to provide water quality, hydrologic, and wildlife habitat functions is relatively low, primarily due to a lack of dense, woody vegetation and/or dense, native, woody vegetation. The project impacts will primarily

occur in areas dominated by shrub vegetation, including salmonberry, snowberry, and Himalayan blackberry.

Direct wetland impacts include the entirety of Wetland P and the northernmost tip of Wetland M. Wetland P is a small depressional wetland with no outlet, and is densely vegetated with trees and scrub-shrub strata. This wetland provides water retention and water quality functions, but only to a limited capacity due to its small size in relation to the overall contributing basin. Habitat structure and function is also provided in this wetland; however, these functions are also limited by its small size and location directly next to a busy road. The portion of Wetland M that will be lost is at the northernmost tip of the wetland. Wetland M is a slope wetland that slopes down to the south. Water quality and hydrologic functions provided by this wetland are moderate, and functions lost due to proposed impacts will not heavily impact the overall function of the wetland. Habitat structure in this portion of the wetland is dominated by Himalayan blackberry and does not provide a significant amount of cover from the busy road directly adjacent to the wetland. Therefore, function lost due to direct wetland impacts will be very limited and will include limited water retention, water quality, and limited habitat structure losses.

Indirect impacts to project area wetlands results from severing portions of the wetland buffers with the construction of the access road and bus parking area. Indirect impacts have been quantified by applying the standard wetland buffers from the edge of pavement. Areas within that area are considered indirect impacts, as these wetland areas will function, in part, as buffer for the remaining wetland areas. This is a conservative approach to present the maximum extent of potential indirect impacts and, accordingly, required mitigation. The effect of the access road and parking area on wetland functions is variable by location. Since the development is primarily for the use of buses for school and camp groups, vehicular traffic will be sporadic. The access road, in particular, will not function as a wildlife impassible feature that creates full habitat fragmentation in the buffers in ways that a commuter road would. Wildlife will be able to freely cross the access road, except during the rare times when a bus is actually entering or leaving the site. Hydrology effects will be realized as runoff from impervious areas will exceed the forested condition. Water quality functions may be affected through runoff, although the infrequent use of the area by vehicles will help to minimize that effect. Hydrology and water quality effects will not be realized in buffer areas on the opposite side of the access road from the respective wetlands, as these areas will remain fully forested. In summary, the indirect impacts are conservatively calculated as if the entirety of the buffer areas will be lost beyond the edge of proposed development, despite some buffer functions remaining on the opposite sides of the access road.

Project mitigation is targeted in those wetland and buffer areas in which native woody vegetation is lacking. By improving structural complexity and species diversity and improving the vertical structure near surface level, the proposed condition will improve the ability of the wetlands and buffers to trap and filter pollutants, slow runoff velocities, and increase forage and cover opportunities for area wildlife.

Table 10, below, summarizes how the proposed mitigation will achieve improved ecological functions on-site.

Table 10. Summary of Project Impact Assessment

Critical Area Buffer Function	Existing Conditions	Proposed Conditions	Determination
Water Quality	The potential for project area critical area buffers to provide water quality functions is limited by sparsely vegetated buffer areas.	Vegetated buffer areas will be converted to pavement in the project area. Runoff from pollutant-generating impervious surfaces has the potential to degrade water quality. Vegetative density to be substantially increased in degraded critical area buffers through planting of native trees, shrubs, and groundcovers.	Increasing amount of dense, rigid vegetation to slow surface water flowing towards wetlands will help filter and capture nutrients and sediments that might otherwise enter the waterbody. The scale of proposed mitigation far exceeds the scale of the proposed impacts.
Hydrology	The current hydrologic function of the critical area buffers is limited by sparsely vegetated areas.	Vegetated buffer areas will be converted to pavement in the project area. Runoff from impervious surfaces will exceed runoff volumes from forested areas. Vegetative density to be substantially increased in critical area buffers through planting of native trees, shrubs, and groundcovers.	The addition of trees, shrubs, groundcover plants in degraded wetlands and buffers will help attenuate flood flows during heavy rain events. The scale of proposed mitigation far exceeds the scale of the proposed impacts.
Habitat	The function of the wetland/stream buffer is limited by a lack of structural diversity, prevalence of non-native plant species.	Vegetated buffer areas will be converted to pavement in the project area. This will partially fragment wildlife habitat and migration corridors, although the infrequent use of these areas will minimize this effect. Non-native plant species to be removed. Vegetative	Installation of a native plant community composed of trees, shrubs, and groundcovers will increase vegetative density and structural diversity, improving cover and forage opportunities for wildlife. Non-native plant species removed or significantly reduced. The scale of proposed mitigation far exceeds the scale of the proposed impacts.

Critical Area Buffer Function	Existing Conditions	Proposed Conditions	Determination
		density to be substantially increased in wetland/stream buffer through planting of native trees, shrubs, and groundcovers.	
Overall	Moderate to low functioning critical area buffers in the Project area. Existing vegetated areas have significant amounts of non-native plant species and are characterized by relatively open or sparsely vegetated areas.	Removal of non-native plant species structures. Planting of trees, shrubs, and groundcovers in existing vegetated wetland/stream buffer areas.	The proposed Project is expected to improve ecological functions over existing conditions. This includes habitat, hydrology, and water quality functions of the critical area buffers. Overall, no net loss of functions is expected.

9 Mitigation Notes

9.1 Overview

A comprehensive ten-year maintenance and monitoring plan is included as part of the wetland/buffer enhancement. The plan details methods of invasive species removal, specifies appropriate species for planting and planting techniques, describes proper maintenance activities, and sets forth performance standards to be met yearly during monitoring. This will ensure that mitigation plantings will be maintained, monitored, and successfully established within the first ten years following implementation.

Proposed mitigation begins with removal of invasive weeds such as Himalayan blackberry, and reed canarygrass in the planting areas. This will be followed by installation of native tree, shrub, and groundcover species suitable to the site. Four native tree species, six native shrub species, and three native groundcover species are proposed in the planting area. Plant densities are recommended at nine feet on-center for trees, six feet on-center for shrubs, four feet on-center for live stakes, and three feet on-center for groundcover species. Native plantings are intended to increase native plant cover, improve native species diversity, increase vegetative structure, and provide food and other habitat resources for wildlife.

9.2 Goals

1. Improve wetland habitat functions.
 - a. Remove and control all invasive species in the restoration and mitigation areas including but not limited to Himalayan blackberry, Scotch broom, and reed canarygrass.
 - b. Establish dense and diverse native tree, shrub, and groundcover vegetation throughout planting areas.
2. Improve wetland buffer habitat and water quality functions.
 - a. Remove and control all invasive woody species in the restoration and mitigation areas including but not limited to Himalayan blackberry and reed canarygrass.
 - b. Establish dense and diverse native tree, shrub, and groundcover vegetation throughout the planting areas.

9.3 Performance Standards

The standards listed below will be used to judge the success of the plan over time. If the standards are met at the end of the ten-year monitoring period, the County shall issue release of the performance bond.

1. Survival:
 - a. 100% survival of all trees and shrubs at the end of Year-1. This standard may be met through establishment of installed plants or by replanting as necessary to achieve the required numbers. Native volunteers may count towards this standard.
 - b. 80% survival of all trees and shrubs at the end of Year-2. This standard may be met through establishment of installed plants or by replanting as necessary to achieve the required numbers. Native volunteers may count towards this standard.
 - c. Survival beyond Year-2 is difficult to track. Therefore, a diversity standard is proposed in place of survival for Years 5-10. Establish at least three native tree species, four native shrub species, and two native groundcover species throughout the wetland and buffer area by Year-5 and maintain throughout Year-10. Volunteer species may count towards this standard.

2. Native vegetation cover in planted areas:
 - a. Achieve at least 50% cover of native plants by the end of Year-5. Volunteer species may count towards this standard. Total native plant cover must include a minimum of 30% tree and shrub cover.
 - b. Achieve at least 70% cover of native plants by the end of Year-10. Volunteer species may count towards this standard. Total native plant cover must include a minimum of 50% tree and shrub cover.
 - c. Areas seeded with native pollinator mix will achieve 80% cover by the end of Year-1 and 90% cover in Years 3-10.
3. Species diversity in planted areas:
 - a. At least three native tree species shall be present in the planting areas at the end of Year-10. Native volunteers may count towards this standard.
 - b. At least six native shrub species shall be present in the planting area at the end of Year-10. Native volunteers may count towards this standard.
 - c. At least two native groundcover species shall be present in the planting area at the end of Year-10. Native volunteers may count towards this standard.

Species presence is defined as any species with at least five percent cover.
4. Invasive species standard: No more than 10% cover of invasive species in the planting area, in any monitoring year, with the exception of reed canarygrass. Reed canarygrass monocultures shall not be allowed to persist. A monoculture is defined as a reed canarygrass-dominated area greater than 100 square feet devoid of native woody vegetation. Invasive species are defined as any weed listed on Thurston County's noxious weed list, along with those listed under species of concern.

9.4 Monitoring Methods

This monitoring program is designed to track the success of the mitigation site over time by measuring the degree to which the performance standards listed above are being met. An as-built plan will be prepared within 30 days of substantially complete construction of the mitigation areas. The as-built plan will document conformance with these plans and will disclose any substitutions or other non-critical departures. The as-built plan will establish baseline plant installation quantities, photo-points, and monitoring transects to be used throughout the monitoring period to measure the performance standards. A minimum of four 100-foot transects will be established in the mitigation area. Established transects will be utilized both to estimate native and invasive cover using the point-intercept method, and overall survival using the belt transect method. The belt transect method involves counting all installed plants that are within five feet of the transect on either side.

Monitoring will occur twice annually in Years 1, 2, 3, 5, 7, and 10 after installation. The first monitoring visit will take place in the spring. This visit will record necessary weeding, invasive control, and other maintenance needs. The **restoration specialist** will then notify the owner and/or maintenance crews of necessary early season maintenance. The late-season visit will occur in late summer or fall and will record the following and be submitted in an annual report to the City:

1. General summary of the spring visit.
2. First- and second-year counts of surviving and dead/dying plants by species within the transect area. A 10-foot belt monitoring method will be utilized.
3. Estimates of native species cover using the line-intercept method along the monitoring transects.
4. Estimates of invasive species cover using the line-intercept method along the monitoring transects.
5. Counts of established native species to determine species richness.
6. Photographic documentation at permanent photo-points.
7. Intrusions into the planting areas, erosion, vandalism, trash, and other actions detrimental to the overall health of the mitigation areas.
8. Recommendations for maintenance in the mitigation areas.
9. Recommendations for replacement of all dead or dying plant material with same or like species and number as on the approved plan.

9.5 Construction Notes and Specifications

Specifications for items in **bold** can be found under "Material Specifications and Definitions."

1. Clear the planting area of all invasive vegetation including but not limited to Himalayan blackberry, Scotch broom, and reed canarygrass.
2. Manually or mechanically grub all invasive vegetation from roots. If it is likely that hand removal will not be completely effective or will damage desirable species, then application of an herbicide approved for use in aquatic areas may be used. Herbicide applications must be conducted only by a state-licensed applicator with aquatic endorsement and in accordance with local regulations. Applications should be done between mid-spring and mid-summer to maximize uptake by plants. Application should be a targeted method such as spot spray or wick.
3. All plant installation will take place during the dormant season (October 15 to March 1).
4. Lay out vegetation to be installed per the planting plan and plant schedule.
5. Prepare a planting pit for each plant and install per the planting details.

6. Apply native pollinator seed mix to temporary buffer impact areas in accordance with the product label application rates.
7. Apply a blanket application of course **woodchip mulch** four inches thick to planting areas in the buffer only. Do not mulch in the wetlands or the native pollinator seed mix areas.
8. Broadcast spread river lupine (*Lupinus rivularis*) over mulched areas.

9.6 Maintenance

This site will be maintained for ten years following completion of the plant installation.

Specifications in **bold** can be found under "Material Specifications and Definitions."

1. Replace each plant found dead in the summer monitoring visit during the upcoming fall dormant season (October 15 to March 1).
2. Follow the recommendations noted in the spring monitoring site visit.
3. Invasive species maintenance plan:
 - a) Himalayan blackberry, Scotch broom, reed canarygrass, and other invasive woody vegetation will be grubbed out by hand on an ongoing basis, with care taken to grub out roots except where such work will jeopardize the roots of installed or volunteer native plants.
 - b) If it is likely that hand removal will not be completely effective or will damage desirable species, then application of an herbicide approved for use in aquatic areas may be used. Herbicide applications must be conducted only by a state-licensed applicator with aquatic endorsement and in accordance with local regulations. Applications should be done between mid-spring and mid-summer to maximize uptake by plants. Application should be a targeted method such as spot spray or wick.
4. At least twice yearly, remove by hand all competing weeds and weed roots from beneath each installed plant and any desirable volunteer vegetation to a distance of 18 inches from the main plant stem. Weeding should occur as needed during the spring and summer. Frequent weeding will result in lower mortality and lower plant replacement costs.
5. Do not weed the area near the plant bases with string trimmer (weed whacker). Native plants are easily damaged or killed, and weeds easily recover after trimming.
6. Refresh **wood chip mulch** as necessary to maintain a minimum 4-inch-thick blanket application.

9.7 Plant Species, Densities, and Sizing

Wetland I Mitigation Area

- Tree species – 9 feet on-center. Trees shall be minimum 1-gallon container plants or bare root.
 - Oregon ash (*Fraxinus latifolia*)
 - Sitka spruce (*Picea sitchensis*)
- Shrub species – 6 feet on-center. Shrubs shall be 1-gallon container plants or bare root.
 - Black twinberry (*Lonicera involucrata*)
 - Douglas spirea (*Spiraea douglasii*)
 - Pacific ninebark (*Physocarpus capitatus*)
 - Nootka rose (*Rosa nutkana*)
- Live stakes – 4 feet on-center
 - Sitka willow (*Salix sitchensis*)
 - Pacific willow (*Salix lucida*)

Buffer Mitigation Area

- Tree species – 9 feet on-center. Trees shall be 1-gallon container plants or bare root.
 - Big leaf maple (*Acer macrophyllum*)
 - Bitter cherry (*Prunus emarginata*)
- Shrub species – 6 feet on-center. Shrubs shall be 1-gallon container plants or bare root.
 - Beaked hazelnut (*Corylus cornuta*)
 - Oceanspray (*Holodiscus discolor*)
 - Snowberry (*Symphoricarpos albus*)
 - Red-flowering currant (*Ribes sanguineum*)
 - Nootka rose (*Rosa nutkana*)
- Groundcover species – 3 feet on-center. Groundcover plants shall be 4-inch pots or bare root.
 - Sword fern (*Polystichum munitum*)
 - Coast strawberry (*Fragaria chiloensis*)
 - Riverbank lupine (*Lupinus rivularis*) – apply as seed mix 5oz/1,000 SF.

Material Specifications and Definitions

1. **Restoration specialist:** DCG/Watershed [(425) 822-5242] personnel or other person qualified to evaluate environmental restoration projects.

2. **Wood chip mulch:** Chipped woody material approximately one inch minimum to three inches in maximum dimension (not sawdust or coarse hog fuel). Mulch shall not contain appreciable quantities of garbage, plastic, metal, soil, and dimensional lumber or construction/ demolition debris. Pacific Topsoil sells suitable woodchip mulch called “Wood Chip Mulch” at many of their locations. Pacific Topsoil: (800) 884-7645. Note: Arborist woodchips generally contain weed seeds and are not a reliable alternative.

Contingency Plan

If all or portions of the mitigation area fail, a contingency plan will be implemented.

Contingency measures may include plant species substitutions, soil amendments, herbicide applications, supplemental irrigation, and herbivore exclusion fencing.

Appendix A

MITIGATION PLAN



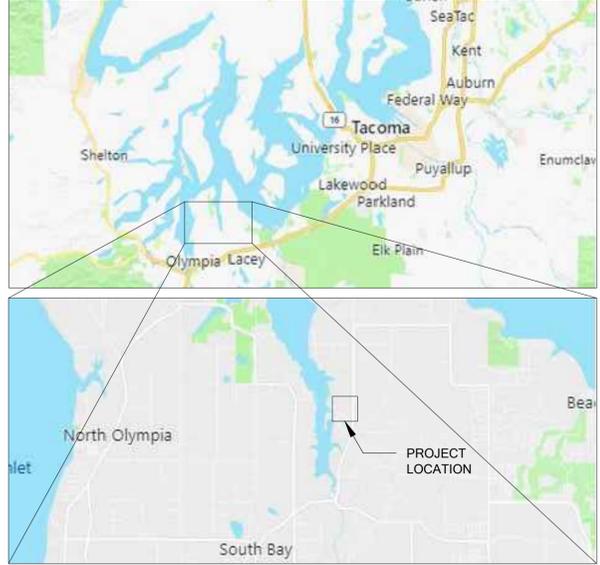
MATCHLINE: SEE W2

EXISTING CONDITIONS (1 OF 3)

SCALE 1" = 40'



VICINITY MAPS



SHEET INDEX

- 1 EXISTING CONDITIONS (1 OF 3)
- 2 EXISTING CONDITIONS (2 OF 3)
- 3 EXISTING CONDITIONS (3 OF 3)
- 4 IMPACTS AND MITIGATION PLAN (1 OF 3)
- 5 IMPACTS AND MITIGATION PLAN (2 OF 3)
- 6 IMPACTS AND MITIGATION PLAN (3 OF 3)
- 7 PLANTING PLAN
- 8 PLANT INSTALLATION DETAILS AND NOTES
- 9 MITIGATION PLAN NOTES

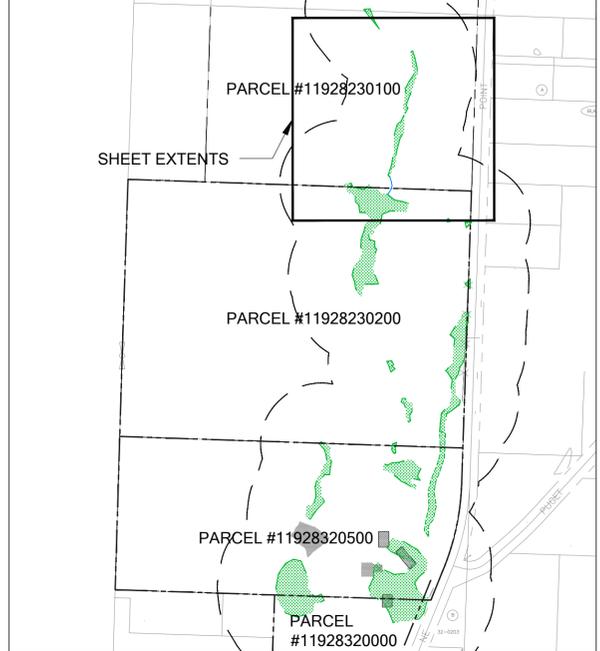
LEGEND

- PARCEL BOUNDARY
- STREAM OHWM
- DELINEATED WETLAND BOUNDARY
- APPROXIMATE WETLAND BOUNDARY
- WETLAND BUFFER
- PREVIOUSLY RESTORED AREAS

NOTES

1. CRITICAL AREAS DELINEATED BY THE WATERSHED COMPANY ON 2/26/2020. SURVEY DATED 6/10/2020 RECEIVED FROM KPFF.
2. SURVEY EXTENTS FOR EXISTING TREES AND TOPOGRAPHY ARE AS SHOWN. THE ENTIRETY OF THE SITE WAS NOT INCLUDED.

PROJECT EXTENTS



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750 Sixth Street South
Kirkland WA 98033
p 425.822.5242
www.watershedco.com

Science & Design

INSPIRING KIDS PRESERVE

MITIGATION PLAN

PARCEL # 11928230200, -320500, -320000
CAPITOL LAND TRUST
OLYMPIA, WA

PERMIT SET - NOT FOR CONSTRUCTION

SUBMITTALS & REVISIONS		BY	AK	RH/FH	FH
NO.	DATE	DESCRIPTION	PERMIT SET	REVISED IMPACTS / SITE PLAN UPDATE	RESPONSE TO COMMENTS
1	08/22/20	PERMIT SET			
2	05/05/23	REVISED IMPACTS / SITE PLAN UPDATE			
3	8/18/2023	RESPONSE TO COMMENTS			

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: RK
DESIGNED: LV, AK
DRAFTED: AK
CHECKED: LV/RH

JOB NUMBER:
180842

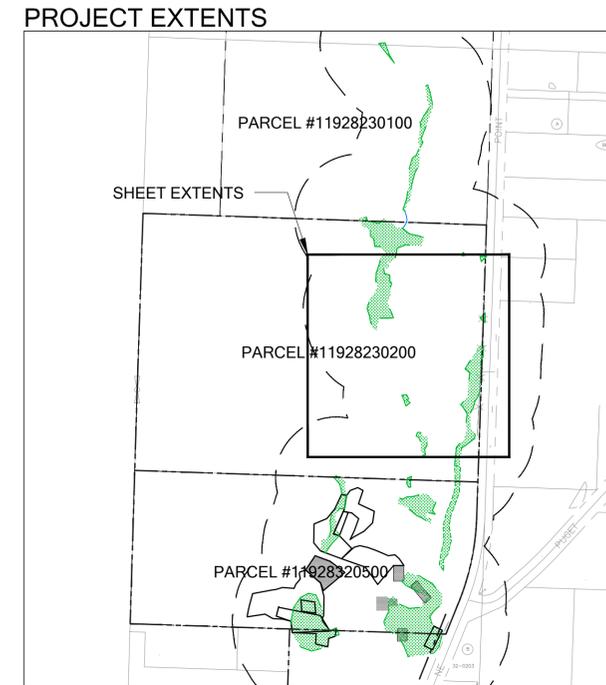
SHEET NUMBER:
W1 OF 7

DATE PRINTED BY FILENAME

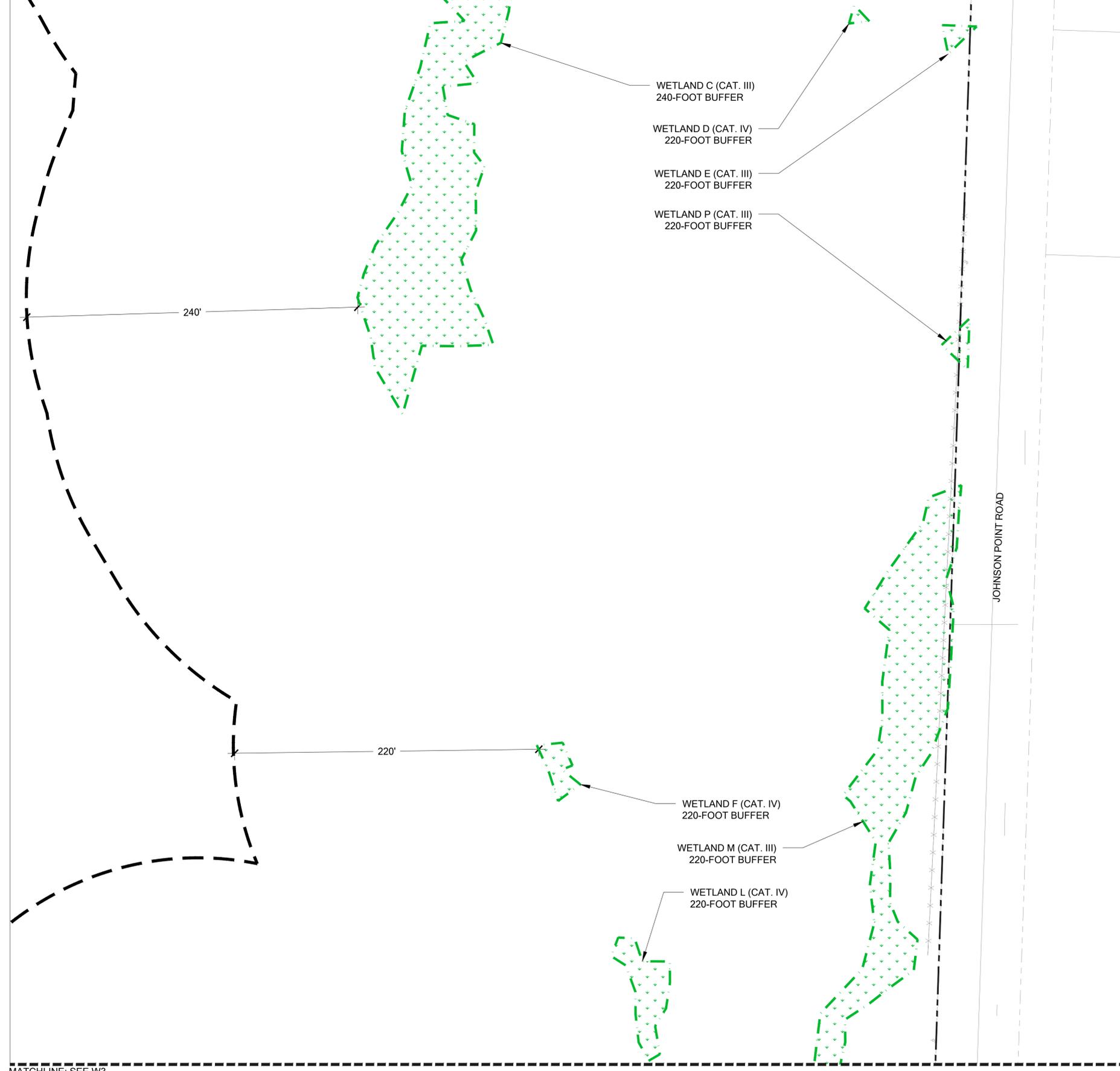
**INSPIRING KIDS PRESERVE
MITIGATION PLAN**

PARCEL # 11928230200, -320500, -320000
CAPITOL LAND TRUST
OLYMPIA, WA

- LEGEND**
- PARCEL BOUNDARY
 - STREAM OHWM
 - DELINEATED WETLAND BOUNDARY
 - APPROXIMATE WETLAND BOUNDARY
 - WETLAND BUFFER
 - PREVIOUSLY RESTORED AREAS



MATCHLINE: SEE W1



MATCHLINE: SEE W3

EXISTING CONDITIONS (2 OF 3)

SCALE 1" = 40'



PERMIT SET - NOT FOR CONSTRUCTION

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY	AK
1	08/22/20	PERMIT SET	AK	
2	06/05/23	REVISED IMPACTS / SITE PLAN UPDATE	RH/FH	
3	8/18/2023	RESPONSE TO COMMENTS	FH	

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SCALE ACCORDINGLY.

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CHECKED: LV/RH

JOB NUMBER:
180842

SHEET NUMBER:
W2 OF 7

**INSPIRING KIDS PRESERVE
MITIGATION PLAN**

PARCEL # 11928230200, -320500, -320000
CAPITOL LAND TRUST
OLYMPIA, WA

PERMIT SET - NOT FOR CONSTRUCTION

MATCHLINE: SEE W2



EXISTING CONDITIONS (3 OF 3)

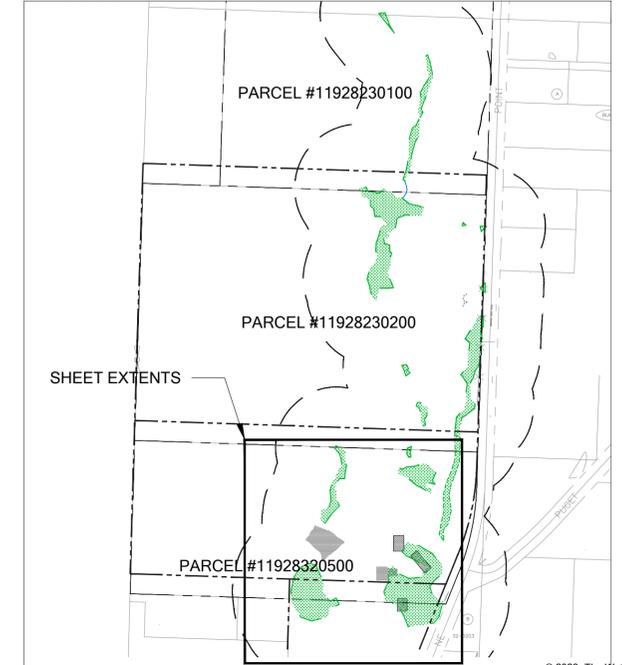
SCALE 1" = 40'



LEGEND

- PARCEL BOUNDARY
- STREAM OHWM
- DELINEATED WETLAND BOUNDARY
- APPROXIMATE WETLAND BOUNDARY
- WETLAND BUFFER
- PREVIOUSLY RESTORED AREAS

PROJECT EXTENTS



SUBMITTALS & REVISIONS		BY	DATE
1	PERMIT SET	AK	08/22/20
2	REVISED IMPACTS / SITE PLAN UPDATE	RH/FH	05/05/23
3	RESPONSE TO COMMENTS	FH	8/18/2023

SHEET SIZE:
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SCALE ACCORDINGLY.

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DESIGNED: LV, AK
DRAFTED: AK
CHECKED: LV/RH

JOB NUMBER:
180842

SHEET NUMBER:
W3 OF 7

**INSPIRING KIDS PRESERVE
MITIGATION PLAN**

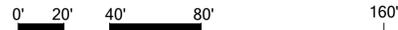
PARCEL # 11928230200, -320500, -320000
CAPITOL LAND TRUST
OLYMPIA, WA



MATCHLINE: SEE W5

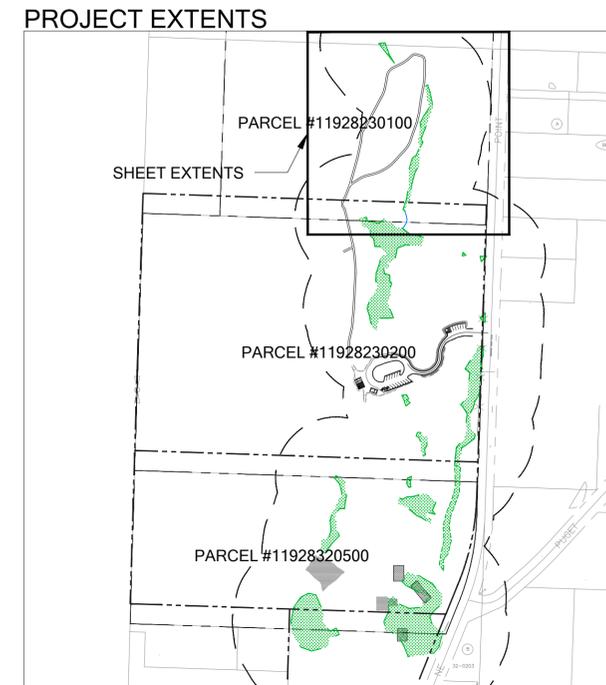
IMPACTS ASSESSMENT AND MITIGATION PLAN (1 OF 3)

SCALE 1" = 40'



LEGEND

- PARCEL BOUNDARY
- STREAM OHWM
- DELINEATED WETLAND BOUNDARY
- APPROXIMATE WETLAND BOUNDARY
- WETLAND BUFFER
- INDIRECT WETLAND IMPACT (20,163 SF)
- PREVIOUSLY RESTORED AREAS
- PERMANENT WETLAND IMPACT (707 SF)
- PERMANENT BUFFER RUE IMPACT (39,717 SF)
- PERMANENT BUFFER TRAIL IMPACT (11,499 SF)
- BUFFER CONVERSION (18,296 SF)
- WETLAND MITIGATION AREA (81,849 SF)
- BUFFER MITIGATION AREA (100,393 SF)



PERMIT SET - NOT FOR CONSTRUCTION

SUBMITTALS & REVISIONS

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1	08/22/20	PERMIT SET	RH/FH	FH
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3	8/18/2023	RESPONSE TO COMMENTS	RH/FH	FH

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ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: RK
DESIGNED: LV, AK
DRAFTED: AK
CHECKED: LV/RH

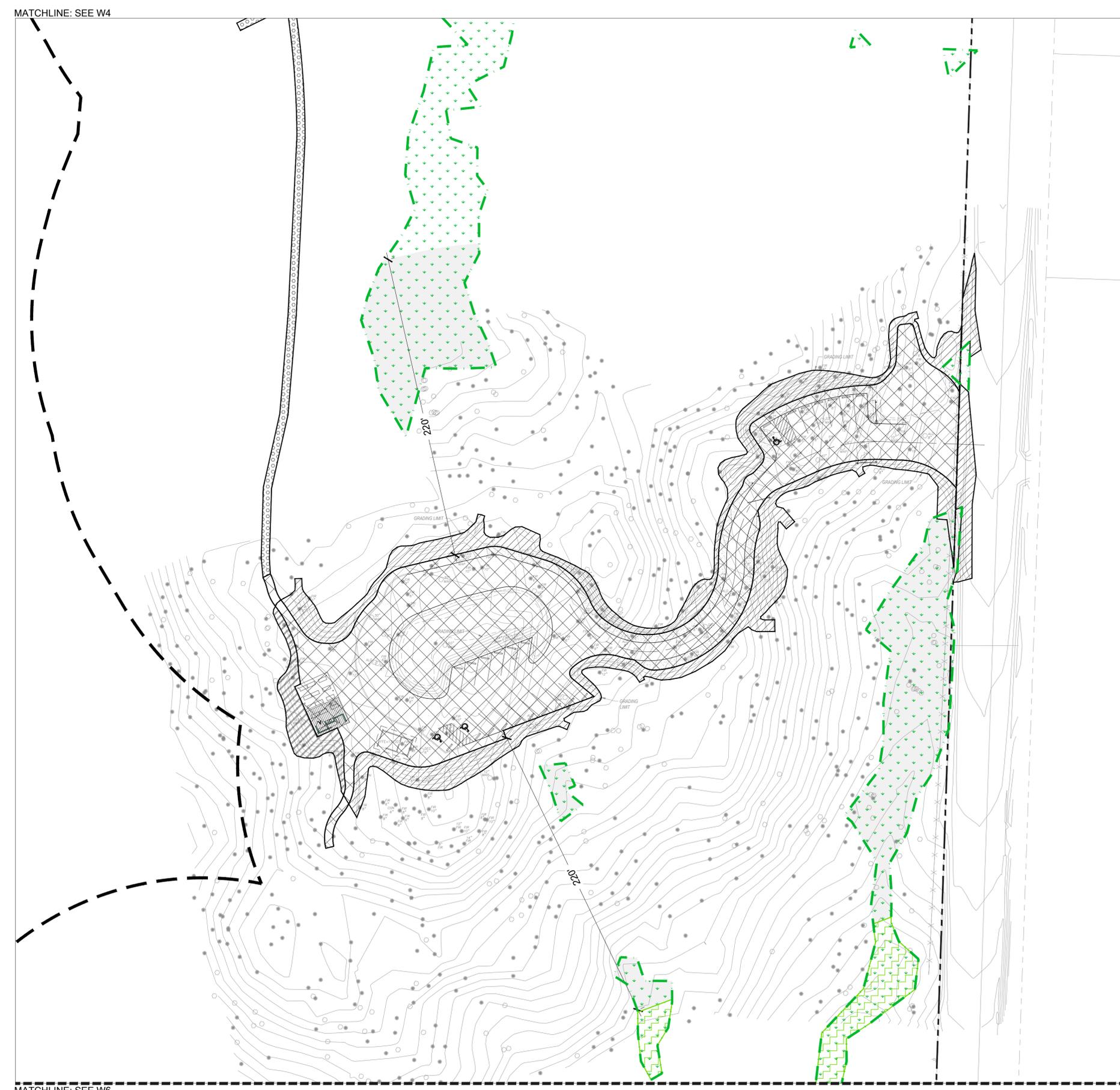
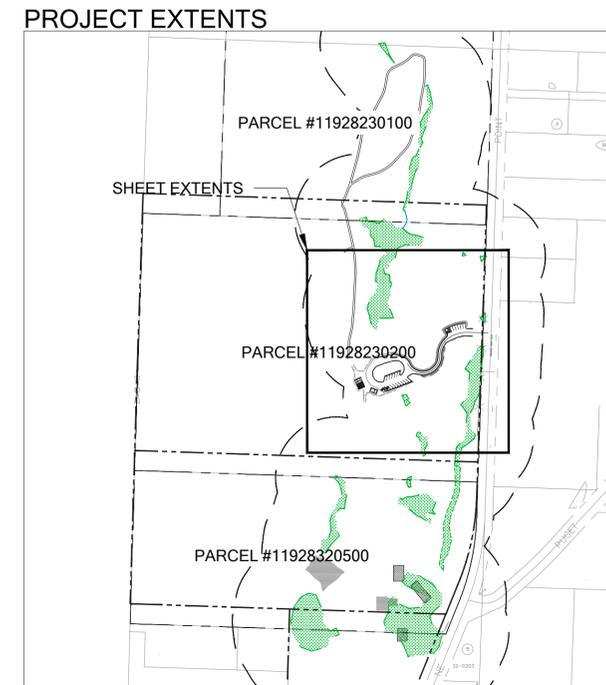
JOB NUMBER:
180842

SHEET NUMBER:
W4 OF 7

**INSPIRING KIDS PRESERVE
MITIGATION PLAN**

PARCEL # 11928230200, -320500, -320000
CAPITOL LAND TRUST
OLYMPIA, WA

- LEGEND**
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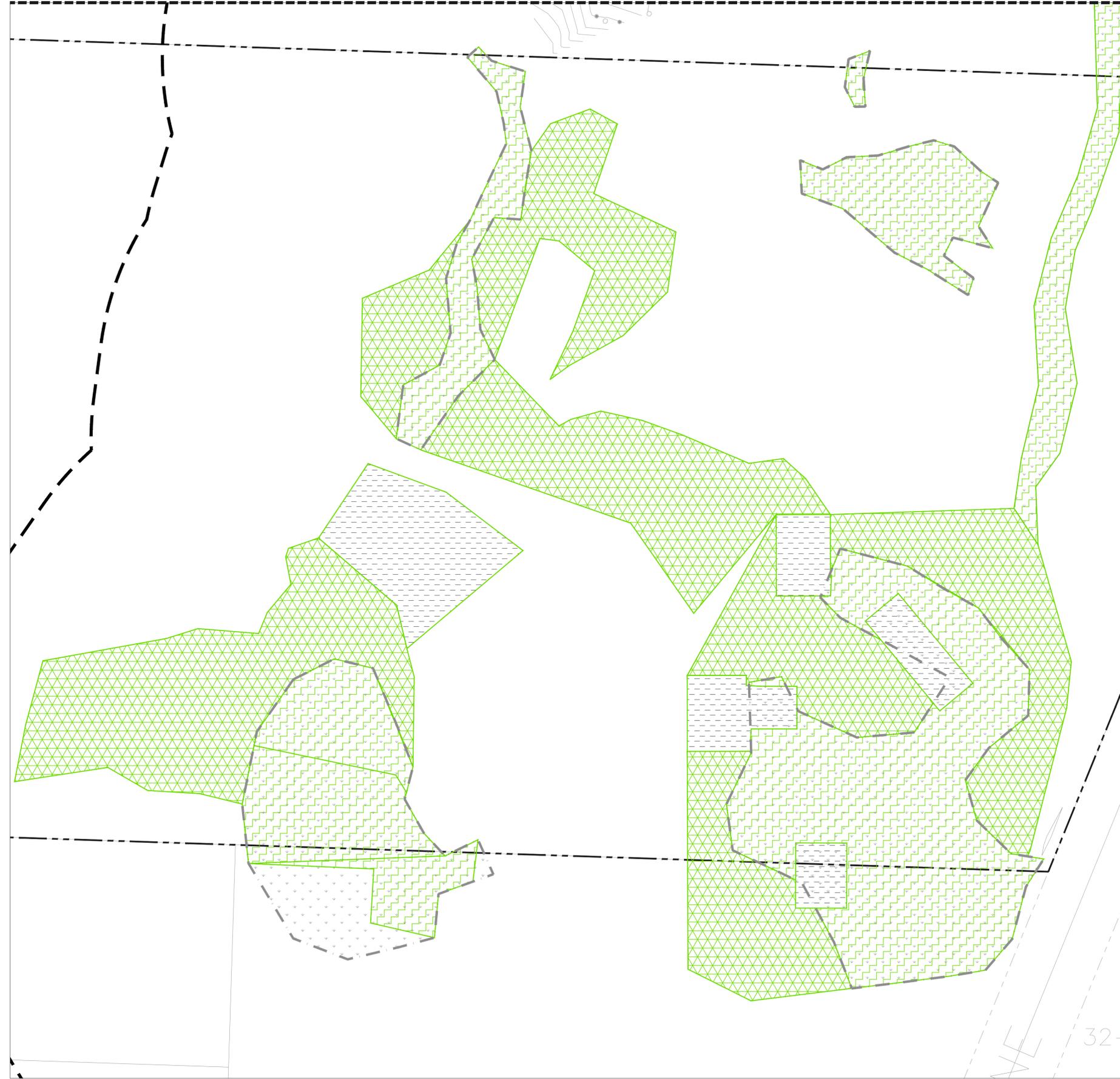
JOB NUMBER:
180842

SHEET NUMBER:
W5 OF 7

**INSPIRING KIDS PRESERVE
MITIGATION PLAN**

PARCEL # 11928230200, -320500, -320000
CAPITOL LAND TRUST
OLYMPIA, WA

MATCHLINE: SEE W5



IMPACTS ASSESSMENT AND MITIGATION PLAN (3 OF 3)

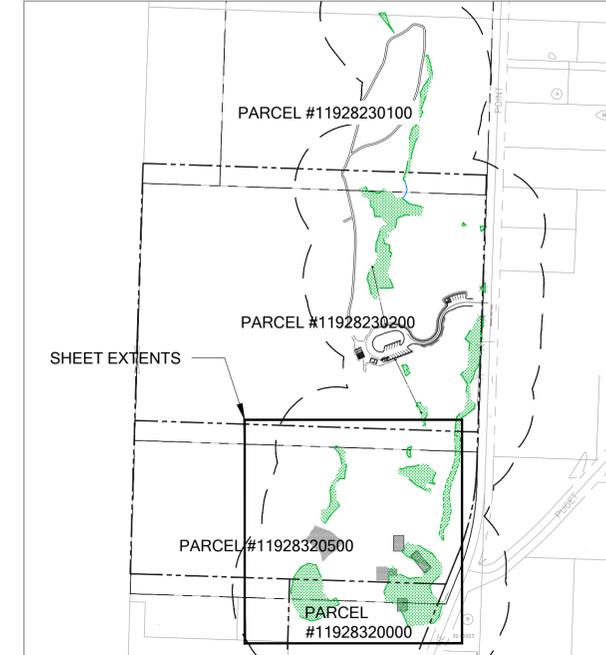
SCALE 1" = 40'



LEGEND

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PROJECT EXTENTS



PERMIT SET - NOT FOR CONSTRUCTION

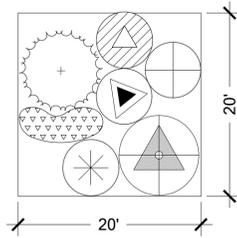
SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
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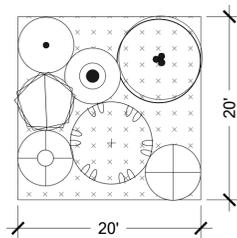
PROJECT MANAGER: RK
DESIGNED: LV, AK
DRAFTED: AK
CHECKED: LV/RH

JOB NUMBER: 180842
SHEET NUMBER: W6 OF 7



TREES	QTY	SPACING	SIZE
FRAXINUS LATIFOLIA / OREGON ASH	491	ALL TREES TO BE PLACED 9' O. C.	1 GAL.
PICEA SITCHENSIS / SITKA SPRUCE	491		1 GAL.
SHRUBS			
LONICERA INVOLUCRATA / BLACK TWINBERRY	573		1 GAL.
SPIREA DOUGLASII / SPIREA	573	ALL SHRUBS TO BE PLACED 6' O. C.	1 GAL.
PHYSOCARPUS CAPITATUS / PACIFIC NINEBARK	573		1 GAL.
ROSA NUTKANA / NOOTKA ROSE	573		1 GAL.
LIVE STAKES TO BE PLACED IN GROUPS OF 5-7			
SALIX LASIANDRA / PACIFIC WILLOW	2,967	4' O.C.	LIVE STAKE
SALIX SITCHENSIS / SITKA WILLOW	2,967	4' O.C.	LIVE STAKE

1 WETLAND MITIGATION PLANTING TYPICAL



TREES	QTY	SPACING	SIZE
ACER MACROPHYLUM / BIG LEAF MAPLE	602	ALL TREES TO BE SPACED 9' O.C.	1 GAL.
PRUNUS EMARGINATA / BITTER CHERRY	602		1 GAL.
SHRUBS			
CORYLUS CORNUTA / BEAKED HAZLENUT	562		1 GAL.
OEMLERIA CERASIFORMIS / OSOBERRY	562	ALL SHRUBS TO BE SPACED 6' O.C.	1 GAL.
SYMPHORICARPOS ALBUS / SNOWBERRY	562		1 GAL.
RIBES SANGUINEUM / RED-FLOWERING CURRANT	562		1 GAL.
ROSA NUTKANA / NOOTKA ROSE	562		1 GAL.
GROUNDCOVERS			
POLYSTICHUM MUNITUM / SWORD FERN	1,631	3' O.C.	4-IN
FRAGARIA CHILOENSIS / COASTAL STRAWBERRY	1,631	3' O.C.	4-IN
LUPINUS RIVULARIS / RIVERBANK LUPINE	100 OZ	5 OZ/1000 SF	SEED

2 BUFFER MITIGATION PLANTING TYPICAL

MIX TOTAL = 5.4 LBS (86 OZ). APPLY AT RATE OF 5 OZ PER 1000 SF.

3 BUFFER CONVERSION MIX

TEMPORARY MIX AVAILABLE FROM NORTHWEST MEADOWSCAPES AS NATIVE POLLINATOR SEED MIX, OR APPROVED EQUAL

PLANTING PLAN
SCALE 1" = 10'



PERMIT SET - NOT FOR CONSTRUCTION

**INSPIRING KIDS PRESERVE
MITIGATION PLAN**

PARCEL # 11928230200, -320500, -320000
CAPITOL LAND TRUST
OLYMPIA, WA

SUBMITTALS & REVISIONS		BY	DATE
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SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: RK
DESIGNED: LV, AK
DRAFTED: AK
CHECKED: LV/RH

JOB NUMBER:
180842

SHEET NUMBER:
W5 OF 7

PLANT INSTALLATION SPECIFICATIONS

GENERAL NOTES

QUALITY ASSURANCE

- PLANTS SHALL MEET OR EXCEED THE SPECIFICATIONS OF FEDERAL, STATE, AND LOCAL LAWS REQUIRING INSPECTION FOR PLANT DISEASE AND INSECT CONTROL.
- PLANTS SHALL BE HEALTHY, VIGOROUS, AND WELL-FORMED, WITH WELL DEVELOPED, FIBROUS ROOT SYSTEMS, FREE FROM DEAD BRANCHES OR ROOTS. PLANTS SHALL BE FREE FROM DAMAGE CAUSED BY TEMPERATURE EXTREMES, LACK OR EXCESS OF MOISTURE, INSECTS, DISEASE, AND MECHANICAL INJURY. PLANTS IN LEAF SHALL BE WELL FOLIATED AND OF GOOD COLOR. PLANTS SHALL BE HABITUATED TO THE OUTDOOR ENVIRONMENTAL CONDITIONS INTO WHICH THEY WILL BE PLANTED (HARDENED-OFF).
- TREES WITH DAMAGED, CROOKED, MULTIPLE OR BROKEN LEADERS WILL BE REJECTED. WOODY PLANTS WITH ABRASIONS OF THE BARK OR SUN SCALD WILL BE REJECTED.
- NOMENCLATURE: PLANT NAMES SHALL CONFORM TO FLORA OF THE PACIFIC NORTHWEST BY HITCHCOCK AND CRONQUIST, UNIVERSITY OF WASHINGTON PRESS, 2018 AND/OR TO A FIELD GUIDE TO THE COMMON WETLAND PLANTS OF WESTERN WASHINGTON & NORTHWESTERN OREGON, ED. SARAH SPEAR COOKE, SEATTLE AUDUBON SOCIETY, 1997.

DEFINITIONS

- PLANTS/PLANT MATERIALS. PLANTS AND PLANT MATERIALS SHALL INCLUDE ANY LIVE PLANT MATERIAL USED ON THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CONTAINER GROWN, B&B OR BAREROOT PLANTS; LIVE STAKES AND FASCINES (WATTLES); TUBERS, CORMS, BULBS, ETC...; SPRIGS, PLUGS, AND LINERS.
- CONTAINER GROWN. CONTAINER GROWN PLANTS ARE THOSE WHOSE ROOTBALLS ARE ENCLOSED IN A POT OR BAG IN WHICH THAT PLANT GREW.

SUBSTITUTIONS

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SPECIFIED MATERIALS IN ADVANCE IF SPECIAL GROWING, MARKETING OR OTHER ARRANGEMENTS MUST BE MADE IN ORDER TO SUPPLY SPECIFIED MATERIALS.
- SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE RESTORATION CONSULTANT.
- IF PROOF IS SUBMITTED THAT ANY PLANT MATERIAL SPECIFIED IS NOT OBTAINABLE, A PROPOSAL WILL BE CONSIDERED FOR USE OF THE NEAREST EQUIVALENT SIZE OR ALTERNATIVE SPECIES, WITH CORRESPONDING ADJUSTMENT OF CONTRACT PRICE.
- SUCH PROOF WILL BE SUBSTANTIATED AND SUBMITTED IN WRITING TO THE CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION.

INSPECTION

- PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE RESTORATION CONSULTANT FOR CONFORMANCE TO SPECIFICATIONS, EITHER AT TIME OF DELIVERY ON-SITE OR AT THE GROWER'S NURSERY. APPROVAL OF PLANT MATERIALS AT ANY TIME SHALL NOT IMPAIR THE SUBSEQUENT RIGHT OF INSPECTION AND REJECTION DURING PROGRESS OF THE WORK.
- PLANTS INSPECTED ON SITE AND REJECTED FOR NOT MEETING SPECIFICATIONS MUST BE REMOVED IMMEDIATELY FROM SITE OR RED-TAGGED AND REMOVED AS SOON AS POSSIBLE.
- THE RESTORATION CONSULTANT MAY ELECT TO INSPECT PLANT MATERIALS AT THE PLACE OF GROWTH. AFTER INSPECTION AND ACCEPTANCE, THE RESTORATION CONSULTANT MAY REQUIRE THE INSPECTED PLANTS BE LABELED AND RESERVED FOR PROJECT. SUBSTITUTION OF THESE PLANTS WITH OTHER INDIVIDUALS, EVEN OF THE SAME SPECIES AND SIZE, IS UNACCEPTABLE.

MEASUREMENT OF PLANTS

- PLANTS SHALL CONFORM TO SIZES SPECIFIED UNLESS SUBSTITUTIONS ARE MADE AS OUTLINED IN THIS CONTRACT.
- HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO MAIN BODY OF PLANT AND NOT BRANCH OR ROOT TIP TO TIP. PLANT DIMENSIONS SHALL BE MEASURED WHEN THEIR BRANCHES OR ROOTS ARE IN THEIR NORMAL POSITION.
- WHERE A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND AT LEAST 50% OF THE PLANTS SHALL BE AS LARGE AS THE MEDIAN OF THE SIZE RANGE. (EXAMPLE: IF THE SIZE RANGE IS 12" TO 18", AT LEAST 50% OF PLANTS MUST BE 15" TALL.)

SUBMITTALS

PROPOSED PLANT SOURCES

- WITHIN 45 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT A

COMPLETE LIST OF PLANT MATERIALS PROPOSED TO BE PROVIDED DEMONSTRATING CONFORMANCE WITH THE REQUIREMENTS SPECIFIED. INCLUDE THE NAMES AND ADDRESSES OF ALL GROWERS AND NURSERIES.

PRODUCT CERTIFICATES

- PLANT MATERIALS LIST - SUBMIT DOCUMENTATION TO CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION THAT PLANT MATERIALS HAVE BEEN ORDERED. ARRANGE PROCEDURE FOR INSPECTION OF PLANT MATERIAL WITH CONSULTANT AT TIME OF SUBMISSION.
- HAVE COPIES OF VENDOR'S OR GROWERS' INVOICES OR PACKING SLIPS FOR ALL PLANTS ON SITE DURING INSTALLATION. INVOICE OR PACKING SLIP SHOULD LIST SPECIES BY SCIENTIFIC NAME, QUANTITY, AND DATE DELIVERED (AND GENETIC ORIGIN IF THAT INFORMATION WAS PREVIOUSLY REQUESTED).

DELIVERY, HANDLING, & STORAGE

NOTIFICATION

CONTRACTOR MUST NOTIFY CONSULTANT 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTANT MAY ARRANGE FOR INSPECTION.

PLANT MATERIALS

- TRANSPORTATION - DURING SHIPPING, PLANTS SHALL BE PACKED TO PROVIDE PROTECTION AGAINST CLIMATE EXTREMES, BREAKAGE AND DRYING. PROPER VENTILATION AND PREVENTION OF DAMAGE TO BARK, BRANCHES, AND ROOT SYSTEMS MUST BE ENSURED.
- SCHEDULING AND STORAGE - PLANTS SHALL BE DELIVERED AS CLOSE TO PLANTING AS POSSIBLE. PLANTS IN STORAGE MUST BE PROTECTED AGAINST ANY CONDITION THAT IS DETRIMENTAL TO THEIR CONTINUED HEALTH AND VIGOR.
- HANDLING - PLANT MATERIALS SHALL NOT BE HANDLED BY THE TRUNK, LIMBS, OR FOLIAGE BUT ONLY BY THE CONTAINER, BALL, BOX, OR OTHER PROTECTIVE STRUCTURE, EXCEPT BAREROOT PLANTS SHALL BE KEPT IN BUNDLES UNTIL PLANTING AND THEN HANDLED CAREFULLY BY THE TRUNK OR STEM.
- LABELS - PLANTS SHALL HAVE DURABLE, LEGIBLE LABELS STATING CORRECT SCIENTIFIC NAME AND SIZE. TEN PERCENT OF CONTAINER GROWN PLANTS IN INDIVIDUAL POTS SHALL BE LABELED. PLANTS SUPPLIED IN FLATS, RACKS, BOXES, BAGS, OR BUNDLES SHALL HAVE ONE LABEL PER GROUP.

WARRANTY

PLANT WARRANTY

PLANTS MUST BE GUARANTEED TO BE TRUE TO SCIENTIFIC NAME AND SPECIFIED SIZE, AND TO BE HEALTHY AND CAPABLE OF VIGOROUS GROWTH.

REPLACEMENT

- PLANTS NOT FOUND MEETING ALL OF THE REQUIRED CONDITIONS AT THE CONSULTANT'S DISCRETION MUST BE REMOVED FROM SITE AND REPLACED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- PLANTS NOT SURVIVING AFTER ONE YEAR TO BE REPLACED AT THE CONTRACTOR'S EXPENSE.

PLANT MATERIAL

GENERAL

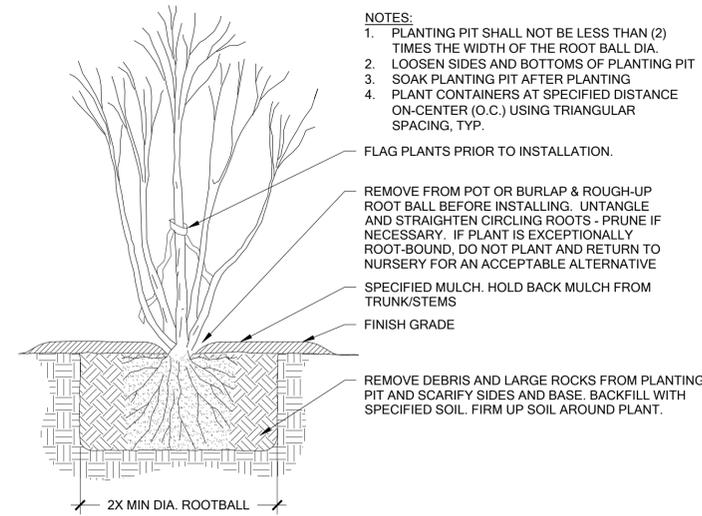
- PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO OR MORE SEVERE THAN THOSE OF THE PROJECT SITE.
- PLANTS SHALL BE TRUE TO SPECIES AND VARIETY OR SUBSPECIES. NO CULTIVARS OR NAMED VARIETIES SHALL BE USED UNLESS SPECIFIED AS SUCH.

QUANTITIES

SEE PLANT LIST ON ACCOMPANYING PLANS AND PLANT SCHEDULES.

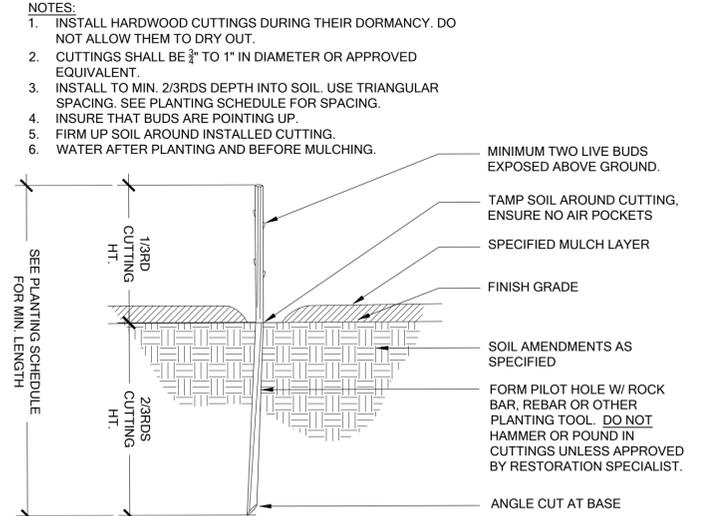
ROOT TREATMENT

- CONTAINER GROWN PLANTS (INCLUDES PLUGS): PLANT ROOT BALLS MUST HOLD TOGETHER WHEN THE PLANT IS REMOVED FROM THE POT, EXCEPT THAT A SMALL AMOUNT OF LOOSE SOIL MAY BE ON THE TOP OF THE ROOTBALL.
- PLANTS MUST NOT BE ROOT-BOUND; THERE MUST BE NO CIRCLING ROOTS PRESENT IN ANY PLANT INSPECTED.
- ROOTBALLS THAT HAVE CRACKED OR BROKEN WHEN REMOVED FROM THE CONTAINER SHALL BE REJECTED.



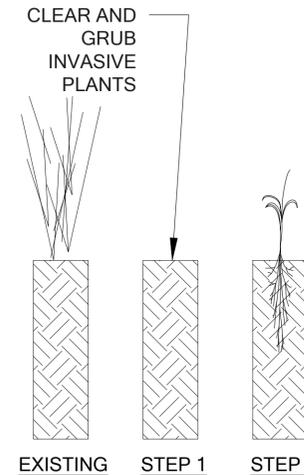
1 CONTAINER PLANTING DETAIL

Scale: NTS



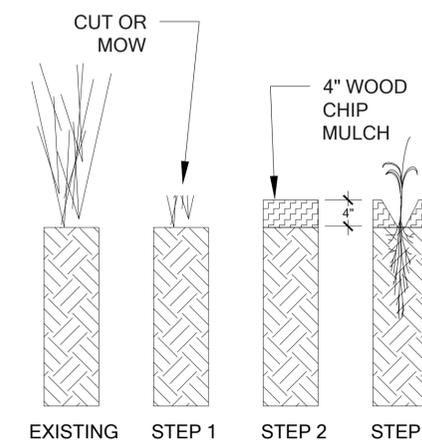
2 LIVE STAKE PLANTING DETAIL

Scale: NTS



3 SOIL PREPARATION - WETLAND AREAS

Scale: NTS



4 SOIL PREPARATION - BUFFER AREAS

Scale: NTS

WETLAND PLANTING AREA PREP

STEP 1
CLEAR AND GRUB INVASIVE PLANTS PER STANDARD BMPS AND DISPOSE OF OFF-SITE.

STEP 2
INSTALL PLANTS.
(SEE PLANTING DETAIL.)

BUFFER PLANTING AREA PREP

STEP 1
CLEAR AND GRUB INVASIVE PLANTS PER STANDARD BMPS AND DISPOSE OF OFF-SITE.

STEP 2
INSTALL WOOD CHIP MULCH 4" DEEP. (SEE PLANTING DETAIL.)

STEP 3
INSTALL PLANTS.
(SEE PLANTING DETAIL.)

PLANT INSTALLATION DETAILS AND NOTES

SCALE AS NOTED

PERMIT SET - NOT FOR CONSTRUCTION

SUBMITTALS & REVISIONS		BY	AK	RH/FH	FH
NO.	DATE	DESCRIPTION	PERMIT SET	REVISED IMPACTS / SITE PLAN UPDATE	RESPONSE TO COMMENTS
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3	8/18/2023				

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

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DRAFTED: AK
CHECKED: LV/RH

JOB NUMBER:
180842

SHEET NUMBER:
W8 OF 7

MITIGATION PLAN NOTES

THE INSPIRING YOUTH PRESERVE IS PROPOSED NOT ONLY TO PRESERVE LAND AND OFFER RESTORATION OPPORTUNITIES, BUT ALSO TO PROVIDE VALUABLE EDUCATIONAL OPPORTUNITIES FOR CHILDREN TO LEARN ABOUT THE PRESERVE, ITS NATURAL ENVIRONMENT, ROLE IN THE ECOSYSTEM, AND RESTORATION ACTIVITIES UNDERTAKEN BY THE CAPITOL LAND TRUST. THE PROPOSED PROJECT INCLUDES THE CONSTRUCTION OF A NEW ACCESS DRIVE AND PARKING LOT THAT CAN ACCOMMODATE BUSES, A CENTRAL ACCESS HUB, AND SOME TRAILS. THE STUDY AREA FOR THIS IS DEFINED AS THE AREA ON PARCELS 11928230100, 11928230200, 11928320500, AND 11928320000 BETWEEN THE EXISTING NORTH AND SOUTH DIRT ACCESS DRIVES. THE STUDY AREA EXTENDS APPROXIMATELY 500 FEET WEST FROM JOHNSON POINT ROAD NE. MANY WETLANDS WERE IDENTIFIED AND DELINEATED WITHIN THE SUBJECT AREA, AND AS SUCH THE ENTIRE PROPERTY IS ENCUMBERED BY WETLANDS AND THEIR BUFFERS.

OVERVIEW

A COMPREHENSIVE TEN-YEAR MAINTENANCE AND MONITORING PLAN IS INCLUDED AS PART OF THE WETLAND/BUFFER ENHANCEMENT. THE PLAN DETAILS METHODS OF INVASIVE SPECIES REMOVAL, SPECIFICS APPROPRIATE SPECIES FOR PLANTING AND PLANTING TECHNIQUES, DESCRIBES PROPER MAINTENANCE ACTIVITIES, AND SETS FORTH PERFORMANCE STANDARDS TO BE MET YEARLY DURING MONITORING. THIS WILL ENSURE THAT MITIGATION PLANTINGS WILL BE MAINTAINED, MONITORED, AND SUCCESSFULLY ESTABLISHED WITHIN THE FIRST TEN YEARS FOLLOWING IMPLEMENTATION.

PROPOSED MITIGATION BEGINS WITH REMOVAL OF INVASIVE WEEDS SUCH AS HIMALAYAN BLACKBERRY, AND REED CANARYGRASS IN THE PLANTING AREAS. THIS WILL BE FOLLOWED BY INSTALLATION OF NATIVE TREE, SHRUB, AND GROUNDCOVER SPECIES SUITABLE TO THE SITE. FOUR NATIVE TREE SPECIES, EIGHT NATIVE SHRUB SPECIES, AND TWO NATIVE GROUNDCOVER SPECIES ARE PROPOSED IN THE PLANTING AREA. PLANT DENSITIES ARE RECOMMENDED AT NINE FEET ON-CENTER FOR TREES, SIX FEET ON-CENTER FOR SHRUBS, AND THIRTY INCHES ON-CENTER FOR GROUNDCOVER SPECIES. NATIVE PLANTINGS AND ARE INTENDED TO INCREASE NATIVE PLANT COVER, IMPROVE NATIVE SPECIES DIVERSITY, INCREASE VEGETATIVE STRUCTURE, AND PROVIDE FOOD AND OTHER HABITAT RESOURCES FOR WILDLIFE.

GOALS

1. IMPROVE WETLAND HABITAT FUNCTIONS.
 - a. REMOVE AND CONTROL ALL INVASIVE SPECIES IN THE RESTORATION AND MITIGATION AREAS INCLUDING BUT NOT LIMITED TO HIMALAYAN BLACKBERRY, SCOTCH BROOM, AND REED CANARYGRASS.
 - b. ESTABLISH DENSE AND DIVERSE NATIVE TREE, SHRUB, AND GROUNDCOVER VEGETATION THROUGHOUT PLANTING AREAS.
2. IMPROVE WETLAND BUFFER HABITAT AND WATER QUALITY FUNCTIONS.
 - a. REMOVE AND CONTROL ALL INVASIVE WOODY SPECIES IN THE RESTORATION AND MITIGATION AREAS INCLUDING BUT NOT LIMITED TO HIMALAYAN BLACKBERRY AND REED CANARYGRASS.
 - b. ESTABLISH DENSE AND DIVERSE NATIVE TREE, SHRUB, AND GROUNDCOVER VEGETATION THROUGHOUT THE PLANTING AREAS.

PERFORMANCE STANDARDS

THE STANDARDS LISTED BELOW WILL BE USED TO JUDGE THE SUCCESS OF THE PLAN OVER TIME. IF THE STANDARDS ARE MET AT THE END OF THE TEN-YEAR MONITORING PERIOD, THE COUNTY SHALL ISSUE RELEASE OF THE PERFORMANCE BOND.

1. SURVIVAL:
 - a. 100% SURVIVAL OF ALL TREES AND SHRUBS AT THE END OF YEAR-1. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
 - b. 80% SURVIVAL OF ALL TREES AND SHRUBS AT THE END OF YEAR-2. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
 - c. SURVIVAL BEYOND YEAR-2 IS DIFFICULT TO TRACK. THEREFORE, A DIVERSITY STANDARD IS PROPOSED IN PLACE OF SURVIVAL FOR YEARS 5-10. ESTABLISH AT LEAST THREE NATIVE TREE SPECIES, FOUR NATIVE SHRUB SPECIES, AND TWO NATIVE GROUNDCOVER SPECIES THROUGHOUT THE WETLAND AND BUFFER AREA BY YEAR-10. VOLUNTEER SPECIES MAY COUNT TOWARDS THIS STANDARD.
2. NATIVE VEGETATION COVER IN PLANTED AREAS:
 - a. ACHIEVE AT LEAST 50% COVER OF NATIVE PLANTS BY THE END OF YEAR-5. VOLUNTEER SPECIES MAY COUNT TOWARDS THIS STANDARD. TOTAL NATIVE PLANT COVER MUST INCLUDE A MINIMUM OF 30% TREE AND SHRUB COVER.
 - b. ACHIEVE AT LEAST 70% COVER OF NATIVE PLANTS BY THE END OF YEAR-10. VOLUNTEER SPECIES MAY COUNT TOWARDS THIS STANDARD. TOTAL NATIVE PLANT COVER MUST INCLUDE A MINIMUM OF 50% TREE AND SHRUB COVER.
 - c. AREAS SEEDED WITH NATIVE POLLINATOR MIX WILL ACHIEVE 80% COVER BY THE END OF YEAR-1 AND 90% COVER IN YEARS 3-10.
3. SPECIES DIVERSITY IN PLANTED AREAS:
 - a. AT LEAST THREE NATIVE TREE SPECIES SHALL BE PRESENT IN THE PLANTING AREAS AT THE END OF YEAR-10. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
 - b. AT LEAST SIX NATIVE SHRUB SPECIES SHALL BE PRESENT IN THE PLANTING AREA AT THE END OF YEAR-10. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
 - c. AT LEAST TWO NATIVE GROUNDCOVER SPECIES SHALL BE PRESENT IN THE PLANTING AREA AT THE END OF YEAR-10. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD. SPECIES PRESENCE IS DEFINED AS ANY SPECIES WITH AT LEAST FIVE PERCENT COVER.
4. INVASIVE SPECIES STANDARD: NO MORE THAN 10% COVER OF INVASIVE SPECIES IN THE PLANTING AREA, IN ANY MONITORING YEAR, WITH THE EXCEPTION OF REED CANARYGRASS. REED CANARYGRASS MONOCULTURES SHALL NOT BE ALLOWED TO PERSIST. A MONOCULTURE IS DEFINED AS A REED CANARYGRASS-DOMINATED AREA GREATER THAN 100 SQUARE FEET DEVOID OF NATIVE WOODY VEGETATION. INVASIVE SPECIES ARE DEFINED AS ANY WEED LISTED ON THURSTON COUNTY'S NOXIOUS WEED LIST, ALONG WITH THOSE LISTED UNDER SPECIES OF CONCERN.

MITIGATION PLAN NOTES

MONITORING METHODS

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME BY MEASURING THE DEGREE TO WHICH THE PERFORMANCE STANDARDS LISTED ABOVE ARE BEING MET. AN AS-BUILT PLAN WILL BE PREPARED WITHIN 30 DAYS OF SUBSTANTIALLY COMPLETE CONSTRUCTION OF THE MITIGATION AREAS. THE AS-BUILT PLAN WILL DOCUMENT CONFORMANCE WITH THESE PLANS AND WILL DISCLOSE ANY SUBSTITUTIONS OR OTHER NON-CRITICAL DEPARTURES. THE AS-BUILT PLAN WILL ESTABLISH BASELINE PLANT INSTALLATION QUANTITIES, PHOTO-POINTS, AND MONITORING TRANSECTS TO BE USED THROUGHOUT THE MONITORING PERIOD TO MEASURE THE PERFORMANCE STANDARDS. A MINIMUM OF FOUR 100-FOOT TRANSECTS WILL BE ESTABLISHED IN THE MITIGATION AREA. ESTABLISHED TRANSECTS WILL BE UTILIZED BOTH TO ESTIMATE NATIVE AND INVASIVE COVER USING THE POINT-INTERCEPT METHOD, AND OVERALL SURVIVAL USING THE BELT TRANSECT METHOD. THE BELT TRANSECT METHOD INVOLVES COUNTING ALL INSTALLED PLANTS THAT ARE WITHIN FIVE FEET OF THE TRANSECT ON EITHER SIDE.

MONITORING WILL OCCUR TWICE ANNUALLY IN YEARS 1, 2, 3, 5, 7 AND 10. THE FIRST MONITORING VISIT WILL TAKE PLACE IN THE SPRING. THIS VISIT WILL RECORD NECESSARY WEEDING, INVASIVE CONTROL, AND OTHER MAINTENANCE NEEDS. THE RESTORATION SPECIALIST WILL THEN NOTIFY THE OWNER AND/OR MAINTENANCE CREWS OF NECESSARY EARLY SEASON MAINTENANCE. THE LATE-SEASON VISIT WILL OCCUR IN LATE SUMMER OR FALL AND WILL RECORD THE FOLLOWING AND BE SUBMITTED IN AN ANNUAL REPORT TO THE CITY:

1. GENERAL SUMMARY OF THE SPRING VISIT.
2. FIRST- AND SECOND-YEAR COUNTS OF SURVIVING AND DEAD/DYING PLANTS BY SPECIES IN WITHIN THE TRANSECT AREA. A 10-FOOT BELT MONITORING METHOD WILL BE UTILIZED.
3. ESTIMATES OF NATIVE SPECIES COVER USING THE LINE-INTERCEPT METHOD ALONG THE MONITORING TRANSECTS.
4. ESTIMATES OF INVASIVE SPECIES COVER USING THE LINE-INTERCEPT METHOD ALONG THE MONITORING TRANSECTS.
5. COUNTS OF ESTABLISHED NATIVE SPECIES TO DETERMINE SPECIES RICHNESS.
6. PHOTOGRAPHIC DOCUMENTATION AT PERMANENT PHOTO-POINTS.
7. INTRUSIONS INTO THE PLANTING AREAS, EROSION, VANDALISM, TRASH, AND OTHER ACTIONS DETRIMENTAL TO THE OVERALL HEALTH OF THE MITIGATION AREAS.
8. RECOMMENDATIONS FOR MAINTENANCE IN THE MITIGATION AREAS.
9. RECOMMENDATIONS FOR REPLACEMENT OF ALL DEAD OR DYING PLANT MATERIAL WITH SAME OR LIKE SPECIES AND NUMBER AS ON THE APPROVED PLAN.

CONSTRUCTION NOTES AND SPECIFICATIONS

SPECIFICATIONS FOR ITEMS IN **BOLD** CAN BE FOUND UNDER "MATERIAL SPECIFICATIONS AND DEFINITIONS."

1. CLEAR THE PLANTING AREA OF ALL INVASIVE WOODY VEGETATION INCLUDING BUT NOT LIMITED TO HIMALAYAN BLACKBERRY, SCOTCH BROOM, AND REED CANARYGRASS.
2. MANUALLY OR MECHANICALLY REMOVE ALL INVASIVE VEGETATION FROM ROOTS.
3. ALL PLANT INSTALLATION WILL TAKE PLACE DURING THE DORMANT SEASON (OCTOBER 15 TO MARCH 1).
4. LAY OUT VEGETATION TO BE INSTALLED PER THE PLANTING PLAN AND PLANT SCHEDULE.
5. PREPARE A PLANTING PIT FOR EACH PLANT AND INSTALL PER THE PLANTING DETAILS.
6. APPLY NATIVE POLLINATOR SEED MIX TO TEMPORARY BUFFER IMPACT AREAS IN ACCORDANCE WITH THE PRODUCT LABEL APPLICATION RATES.
7. APPLY A BLANKET APPLICATION OF COURSE WOODCHIP MULCH FOUR INCHES THICK TO PLANTING AREAS IN THE BUFFER ONLY. DO NOT MULCH IN WETLANDS OR THE NATIVE POLLINATOR SEED MIX AREAS.
8. BROADCAST SPREAD RIVER LUPINE (*LUPINUS RIVULARIS*) OVER MULCHED AREAS.

MAINTENANCE

THIS SITE WILL BE MAINTAINED FOR TEN YEARS FOLLOWING COMPLETION OF THE PLANT INSTALLATION.

SPECIFICATIONS IN **BOLD** CAN BE FOUND UNDER "MATERIAL SPECIFICATIONS AND DEFINITIONS."

1. REPLACE EACH PLANT FOUND DEAD IN THE SUMMER MONITORING VISIT DURING THE UPCOMING FALL DORMANT SEASON (OCTOBER 15 TO MARCH 1).
2. FOLLOW THE RECOMMENDATIONS NOTED IN THE SPRING MONITORING SITE VISIT.
3. INVASIVE SPECIES MAINTENANCE PLAN:
 - a) HIMALAYAN BLACKBERRY, SCOTCH BROOM, REED CANARYGRASS, AND OTHER INVASIVE WOODY VEGETATION WILL BE GRUBBED OUT BY HAND ON AN ONGOING BASIS, WITH CARE TAKEN TO GRUB OUT ROOTS EXCEPT WHERE SUCH WORK WILL JEOPARDIZE THE ROOTS OF INSTALLED OR VOLUNTEER NATIVE PLANTS.
 - b) IF IT IS LIKELY THAT HAND REMOVAL WILL NOT BE COMPLETELY EFFECTIVE OR WILL DAMAGE DESIRABLE SPECIES, THEN APPLICATION OF AN HERBICIDE APPROVED FOR USE IN AQUATIC AREAS MAY BE USED. HERBICIDE APPLICATIONS MUST BE CONDUCTED ONLY BY A STATE-LICENSED APPLICATOR AND IN ACCORDANCE WITH LOCAL REGULATIONS. APPLICATIONS SHOULD BE DONE BETWEEN MID-SPRING AND MID-SUMMER TO MAXIMIZE UPTAKE BY PLANTS. APPLICATION SHOULD BE A TARGETED METHOD SUCH AS SPOT SPRAY OR WICK.
4. AT LEAST TWICE YEARLY, REMOVE BY HAND ALL COMPETING WEEDS AND WEED ROOTS FROM BENEATH EACH INSTALLED PLANT AND ANY DESIRABLE VOLUNTEER VEGETATION TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. WEEDING SHOULD OCCUR AS NEEDED DURING THE SPRING AND SUMMER. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY AND LOWER PLANT REPLACEMENT COSTS.
5. DO NOT WEED THE AREA NEAR THE PLANT BASES WITH STRING TRIMMER (WEED WHACKER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING.
6. REFRESH **WOOD CHIP MULCH** AS NECESSARY TO MAINTAIN A MINIMUM 4-INCH-THICK BLANKET APPLICATION.

PLANT SPECIES, DENSITIES, AND SIZING

WETLAND I MITIGATION AREA

- TREE SPECIES - 9 FEET ON-CENTER. TREES SHALL BE MINIMUM 1-GALLON CONTAINER PLANTS OR BARE ROOT.
 - OREGON ASH (*FRAXINUS LATIFOLIA*)
 - SITKA SPRUCE (*PICEA SITCHENSIS*)
- SHRUB SPECIES - 6 FEET ON-CENTER. SHRUBS SHALL BE 1-GALLON CONTAINER PLANTS OR BARE ROOT.
 - BLACK TWINBERRY (*LONICERA INVOLUCRATA*)
 - DOUGLAS SPIREA (*SPIRAEA DOUGLASII*)
 - PACIFIC NINEBARK (*PHYSOCARPUS CAPITATUS*)
 - NOOTKA ROSE (*ROSA NUTKANA*)

BUFFER MITIGATION AREA

- TREE SPECIES - 9 FEET ON-CENTER. TREES SHALL BE 1-GALLON CONTAINER PLANTS OR BARE ROOT.
 - BIG LEAF MAPLE (*ACER MACROPHYLLUM*)
 - BITTER CHERRY (*PRUNUS EMARGINATA*)
- SHRUB SPECIES - 6 FEET ON-CENTER. SHRUBS SHALL BE 1-GALLON CONTAINER PLANTS OR BARE ROOT.
 - BEAKED HAZELNUT (*CORYLUS CORNUTA*)
 - OCEANSPRAY (*HOLODISCUS DISCOLOR*)
 - SNOWBERRY (*SYMPHORICARPOS ALBUS*)
 - RED-FLOWERING CURRRANT (*RIBES SANGUINEUM*)
 - NOOTKA ROSE (*ROSA NUTKANA*)
- GROUNDCOVER SPECIES - 3 FEET ON-CENTER. GROUNDCOVER PLANTS SHALL BE 4-INCH POTS OR BARE ROOT.
 - SWORD FERN (*POLYSTICHUM MUNITUM*)
 - COAST STRAWBERRY (*FRAGARIA CHILOENSIS*)

MATERIAL SPECIFICATIONS AND DEFINITIONS

1. **RESTORATION SPECIALIST:** THE WATERSHED COMPANY [(425) 822-5242] PERSONNEL OR OTHER PERSON QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.
2. **WOOD CHIP MULCH:** CHIPPED WOODY MATERIAL APPROXIMATELY ONE INCH MINIMUM TO THREE INCHES IN MAXIMUM DIMENSION (NOT SAWDUST OR COARSE HOG FUEL). MULCH SHALL NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, AND DIMENSIONAL LUMBER OR CONSTRUCTION/ DEMOLITION DEBRIS. PACIFIC TOPSOIL SELLS SUITABLE WOODCHIP MULCH CALLED "WOOD CHIP MULCH" AT MANY OF THEIR LOCATIONS. PACIFIC TOPSOIL: (800) 884-7645. NOTE: ARBORIST WOODCHIPS GENERALLY CONTAIN WEED SEEDS AND ARE NOT A RELIABLE ALTERNATIVE.

CONTINGENCY PLAN

IF ALL OR PORTIONS OF THE MITIGATION AREA FAIL, A CONTINGENCY PLAN WILL BE IMPLEMENTED. CONTINGENCY MEASURES MAY INCLUDE PLANT SPECIES SUBSTITUTIONS, SOIL AMENDMENTS, HERBICIDE APPLICATIONS, SUPPLEMENTAL IRRIGATION, AND HERBIVORE EXCLUSION FENCING.



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Science & Design

INSPIRING KIDS PRESERVE

MITIGATION PLAN

PARCEL # 11928230200, -320500, -320000
CAPITOL LAND TRUST
OLYMPIA, WA

PERMIT SET - NOT FOR CONSTRUCTION

SUBMITTALS & REVISIONS		NO.	DATE	DESCRIPTION	BY
1	2	3			
			08/22/20	PERMIT SET	AK
			06/05/23	REVISED IMPACTS / SITE PLAN UPDATE	RH/FH
			8/18/2023	RESPONSE TO COMMENTS	FH

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: RK
DESIGNED: LV, AK
DRAFTED: AK
CHECKED: LV/RH

JOB NUMBER:
180842

SHEET NUMBER:
W9 OF 7

Appendix B

WETLAND RATING FORMS

Wetland name or number: Wetland G

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland G

Date of site visit: 9/3/2019

Rated by: L. Dougherty, G. Brennan

Trained by Ecology? Y N

Date of training: 10/2018

HGM Class used for rating: Slope

Wetland has multiple HGM classes? Y N

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

Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	M	(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	5			4			6			15

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: Wetland G

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

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

Wetland name or number: Wetland G

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.*

SLOPE WETLANDS

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

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

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

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?	<input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> 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 _____	<input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> 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 0 = L

Record the rating on the first page

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

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

Record the rating on the first page

Wetland name or number: Wetland G

SLOPE WETLANDS

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

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually >1/8₈ in), or dense enough, to remain erect during surface flows.</i> <input checked="" type="checkbox"/> Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1 <input type="checkbox"/> All other conditions points = 0	1

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

Record the rating on the first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? <input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> No = 0	0

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

Record the rating on the first page

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

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

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

1

H 1.2. Hydroperiods

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

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

0

H 1.3. Richness of plant species

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

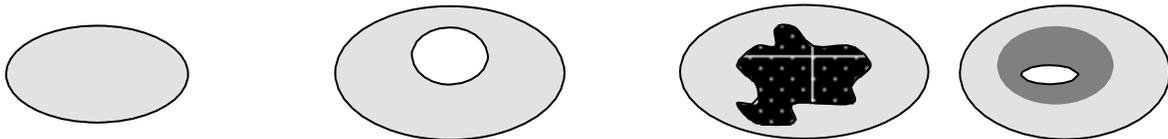
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

1

H 1.4. Interspersion of habitats

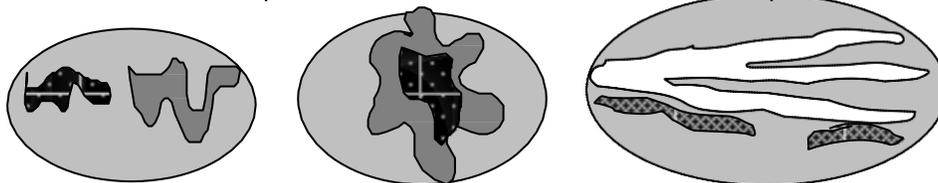
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points

Low = 1 point

Moderate = 2 points



All three diagrams in this row are

HIGH = 3points

2

Wetland name or number: Wetland G

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland. <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) AND/OR overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m). <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>). <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>). <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>). 		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 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?			
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4%</p> <p>If total accessible habitat is:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3 <input type="checkbox"/> 20-33% of 1 km Polygon points = 2 <input type="checkbox"/> 10-19% of 1 km Polygon points = 1 <input type="checkbox"/> < 10% of 1 km Polygon points = 0 			3
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 56.8% + (46.2%/2) = 79.9%</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3 <input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2 <input type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1 <input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0 			3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <ul style="list-style-type: none"> <input type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2) <input checked="" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0 			0
Total for H 2	Add the points in the boxes above	6	

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

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

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

Wetland name or number: Wetland G

WDFW Priority Habitats

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

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

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

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

Wetland name or number: Wetland G

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<p><i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i></p>	
<p>SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt <input type="checkbox"/> Yes –Go to SC 1.1 <input checked="" type="checkbox"/> No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 1.2</p>	<p>Cat. I</p>
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No= Category II</p>	<p>Cat. I Cat. II</p>
<p>SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <input type="checkbox"/> Yes – Go to SC 2.2 <input type="checkbox"/> No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? http://www.dnr.wa.gov/NHPwetlandviewer <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf <input type="checkbox"/> Yes – Contact WNHP/WDNR and go to SC 2.4 <input type="checkbox"/> No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a WHCV</p>	<p>Cat. I</p>
<p>SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No = Is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No = Is not a bog</p>	<p>Cat. I</p>

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 6.1 <input checked="" type="checkbox"/> No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>NA</p>

Wetland name or number: Wetland G

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Wetland name or number: Wetland H

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland H

Date of site visit: 5/30/19, 8/29/19

Rated by: L. Dougherty, G. Brennan

Trained by Ecology? Y N

Date of training: 10/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Y N

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

Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H (M) 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	7	5	6	18

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: Wetland H

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	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	8
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2

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

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

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

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

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

NO – go to 3

YES – The wetland class is **Flats**

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

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

The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

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

NO – go to 4

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

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

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

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

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

NO – go to 5

YES – The wetland class is **Slope**

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

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.

Wetland name or number: Wetland H

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.*

DEPRESSIONAL AND FLATS WETLANDS**Water Quality Functions - Indicators that the site functions to improve water quality****D 1.0. Does the site have the potential to improve water quality?****D 1.1. Characteristics of surface water outflows from the wetland:**

- Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3
- Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2
- Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 1
- Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1

3

D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0

0

D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):

- Wetland has persistent, ungrazed, plants > 95% of area points = 5
- Wetland has persistent, ungrazed, plants > 1/2 of area points = 3
- Wetland has persistent, ungrazed plants > 1/10 of area points = 1
- Wetland has persistent, ungrazed plants < 1/10 of area points = 0

5

D 1.4. Characteristics of seasonal ponding or inundation:*This is the area that is ponded for at least 2 months. See description in manual.*

- Area seasonally ponded is > ½ total area of wetland points = 4
- Area seasonally ponded is > ¼ total area of wetland points = 2
- Area seasonally ponded is < ¼ total area of wetland points = 0

0

Total for D 1

Add the points in the boxes above

8

Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L

Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?**D 2.1. Does the wetland unit receive stormwater discharges?** Yes = 1 No = 0

0

D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0

1

D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0

0

D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source: [Click here to enter text.](#) Yes = 1 No = 0

0

Total for D 2

Add the points in the boxes above

1

Rating of Landscape Potential If score is: 3 or 4 = H 1 or 2 = M 0 = L

Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?**D 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

D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0

1

D 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 the unit is found)? Yes = 2 No = 0

2

Total for D 3

Add the points in the boxes above

3

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

Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
<input checked="" type="checkbox"/> Wetland is a depression or flat depression with no surface water leaving it (no outlet).	points = 4	4
<input type="checkbox"/> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	points = 2	
<input type="checkbox"/> Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
<input type="checkbox"/> Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing.	points = 0	
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.		
<input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet.	points = 7	0
<input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet.	points = 5	
<input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet.	points = 3	
<input type="checkbox"/> The wetland is a "headwater" wetland.	points = 3	
<input type="checkbox"/> Wetland is flat but has small depressions on the surface that trap water.	points = 1	
<input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft (6 in).	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
<input type="checkbox"/> The area of the basin is less than 10 times the area of the unit.	points = 5	3
<input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit.	points = 3	
<input type="checkbox"/> The area of the basin is more than 100 times the area of the unit.	points = 0	
<input type="checkbox"/> Entire wetland is in the Flats class.	points = 5	
Total for D 4	Add the points in the boxes above	7

Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	<input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	<input checked="" type="checkbox"/> Yes = 1 <input type="checkbox"/> No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	<input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> No = 0	0
Total for D 5	Add the points in the boxes above	1

Rating of Landscape Potential If score is: 3 = H 1 or 2 = M 0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• <input type="checkbox"/> Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	0
• <input type="checkbox"/> Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
<input type="checkbox"/> Flooding from groundwater is an issue in the sub-basin.	points = 1	
<input type="checkbox"/> The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood.		
<i>Explain why:</i> ___	points = 0	
<input checked="" type="checkbox"/> There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
	<input type="checkbox"/> Yes = 2 <input checked="" type="checkbox"/> No = 0	0
Total for D 6	Add the points in the boxes above	0

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

Record the rating on the first page

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

1

H 1.2. Hydroperiods

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

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

1

H 1.3. Richness of plant species

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

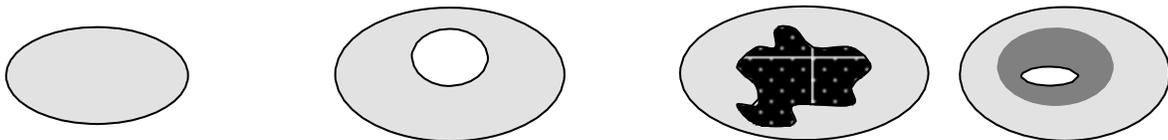
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

1

H 1.4. Interspersion of habitats

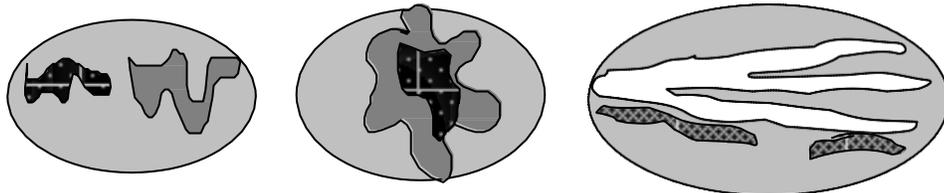
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points

Low = 1 point

Moderate = 2 points



All three diagrams in this row are

HIGH = 3points

1

Wetland name or number: Wetland H

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

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

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>		
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4%</i></p> <p>If total accessible habitat is:</p> <p><input checked="" type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3</p> <p><input type="checkbox"/> 20-33% of 1 km Polygon points = 2</p> <p><input type="checkbox"/> 10-19% of 1 km Polygon points = 1</p> <p><input type="checkbox"/> < 10% of 1 km Polygon points = 0</p>		3
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = 56.8% + (46.2%/2) = 79.9%</i></p> <p><input checked="" type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p><input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0</p>		3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p><input type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p><input checked="" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>		0
Total for H 2	Add the points in the boxes above	6

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

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

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland name or number: Wetland H

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt <input type="checkbox"/> Yes –Go to SC 1.1 <input checked="" type="checkbox"/> No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-mowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No= Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <input checked="" type="checkbox"/> Yes – Go to SC 2.2 <input type="checkbox"/> No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? http://www.dnr.wa.gov/NHPwetlandviewer <input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf <input type="checkbox"/> Yes – Contact WNHP/WDNR and go to SC 2.4 <input type="checkbox"/> No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No = Is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No = Is not a</p>	Cat. I

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 6.1 <input checked="" type="checkbox"/> No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>NA</p>

Wetland name or number: Wetland H

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Wetland name or number: Wetland I

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland I

Date of site visit: 5/30/19, 8/29/19

Rated by: L. Dougherty, G. Brennan

Trained by Ecology? Y N

Date of training: 10/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Y N

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

Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY (based on functions or special characteristics 1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H (M) 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	7	5	7	19

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: Wetland I

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	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	8
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2

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

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

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

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

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

NO – go to 3

YES – The wetland class is **Flats**

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

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

The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

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

NO – go to 4

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

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

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

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

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

NO – go to 5

YES – The wetland class is **Slope**

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

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.

Wetland name or number: Wetland I

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.*

DEPRESSIONAL AND FLATS WETLANDS**Water Quality Functions - Indicators that the site functions to improve water quality****D 1.0. Does the site have the potential to improve water quality?****D 1.1. Characteristics of surface water outflows from the wetland:**

- Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3
- Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2
- Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 1
- Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1

3

D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0

0

D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):

- Wetland has persistent, ungrazed, plants > 95% of area points = 5
- Wetland has persistent, ungrazed, plants > 1/2 of area points = 3
- Wetland has persistent, ungrazed plants > 1/10 of area points = 1
- Wetland has persistent, ungrazed plants < 1/10 of area points = 0

5

D 1.4. Characteristics of seasonal ponding or inundation:*This is the area that is ponded for at least 2 months. See description in manual.*

- Area seasonally ponded is > ½ total area of wetland points = 4
- Area seasonally ponded is > ¼ total area of wetland points = 2
- Area seasonally ponded is < ¼ total area of wetland points = 0

0

Total for D 1

Add the points in the boxes above

8

Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L

Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?**D 2.1. Does the wetland unit receive stormwater discharges?** Yes = 1 No = 0

0

D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0

1

D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0

0

D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source: [Click here to enter text.](#) Yes = 1 No = 0

0

Total for D 2

Add the points in the boxes above

1

Rating of Landscape Potential If score is: 3 or 4 = H 1 or 2 = M 0 = L

Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?**D 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

D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0

1

D 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 the unit is found)? Yes = 2 No = 0

2

Total for D 3

Add the points in the boxes above

3

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

Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
<input checked="" type="checkbox"/> Wetland is a depression or flat depression with no surface water leaving it (no outlet).	points = 4	4
<input type="checkbox"/> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	points = 2	
<input type="checkbox"/> Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
<input type="checkbox"/> Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing.	points = 0	
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.		
<input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet.	points = 7	0
<input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet.	points = 5	
<input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet.	points = 3	
<input type="checkbox"/> The wetland is a "headwater" wetland.	points = 3	
<input type="checkbox"/> Wetland is flat but has small depressions on the surface that trap water.	points = 1	
<input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft (6 in).	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
<input type="checkbox"/> The area of the basin is less than 10 times the area of the unit.	points = 5	3
<input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit.	points = 3	
<input type="checkbox"/> The area of the basin is more than 100 times the area of the unit.	points = 0	
<input type="checkbox"/> Entire wetland is in the Flats class.	points = 5	
Total for D 4	Add the points in the boxes above	7

Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	<input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	<input checked="" type="checkbox"/> Yes = 1 <input type="checkbox"/> No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	<input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> No = 0	0
Total for D 5	Add the points in the boxes above	1

Rating of Landscape Potential If score is: 3 = H 1 or 2 = M 0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• <input type="checkbox"/> Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	0
• <input type="checkbox"/> Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
<input type="checkbox"/> Flooding from groundwater is an issue in the sub-basin.	points = 1	
<input type="checkbox"/> The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood.		
<i>Explain why:</i> ___	points = 0	
<input checked="" type="checkbox"/> There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
	<input type="checkbox"/> Yes = 2 <input checked="" type="checkbox"/> No = 0	0
Total for D 6	Add the points in the boxes above	0

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

Record the rating on the first page

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

1

H 1.2. Hydroperiods

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

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

1

H 1.3. Richness of plant species

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

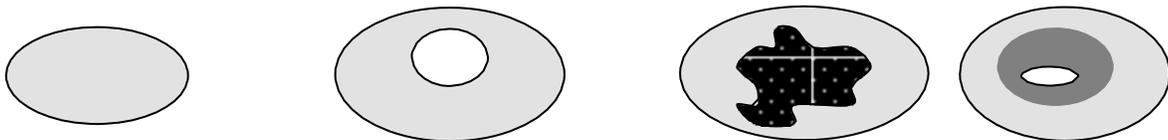
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

2

H 1.4. Interspersion of habitats

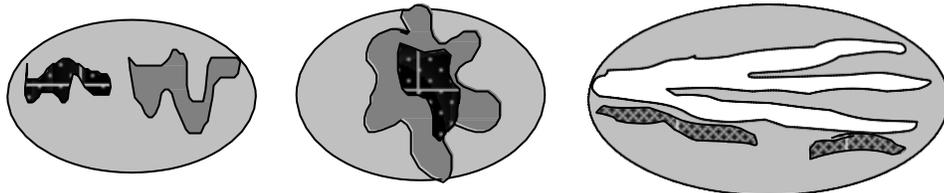
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points

Low = 1 point

Moderate = 2 points



All three diagrams in this row are

HIGH = 3points

2

Wetland name or number: Wetland I

<p>H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland. <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) AND/OR overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m). <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>). <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>). <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>). 	1
<p>Total for H 1 Add the points in the boxes above</p>	7

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

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4%</i> If total accessible habitat is:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3 <input type="checkbox"/> 20-33% of 1 km Polygon points = 2 <input type="checkbox"/> 10-19% of 1 km Polygon points = 1 <input type="checkbox"/> < 10% of 1 km Polygon points = 0 	3
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] = 56.8% + (46.2%/2) = 79.9%</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3 <input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2 <input type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1 <input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0 	3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <ul style="list-style-type: none"> <input type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2) <input checked="" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0 	0
<p>Total for H 2 Add the points in the boxes above</p>	6

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

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

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt <input type="checkbox"/> Yes –Go to SC 1.1 <input checked="" type="checkbox"/> No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-mowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No= Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <input checked="" type="checkbox"/> Yes – Go to SC 2.2 <input type="checkbox"/> No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? http://www.dnr.wa.gov/NHPwetlandviewer <input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf <input type="checkbox"/> Yes – Contact WNHP/WDNR and go to SC 2.4 <input type="checkbox"/> No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No = Is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No = Is not a</p>	Cat. I

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 6.1 <input checked="" type="checkbox"/> No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>NA</p>

Wetland name or number: Wetland I

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Wetland name or number: Wetland J

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland J

Date of site visit: 9/3/2019

Rated by: L. Dougherty, G. Brennan

Trained by Ecology? Y N

Date of training: 10/2018

HGM Class used for rating: Slope

Wetland has multiple HGM classes? Y N

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

Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H (M) 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	6	4	6	16

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: Wetland J

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

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

Wetland name or number: Wetland J

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 J

SLOPE WETLANDS

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

S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i> <input type="checkbox"/> Slope is 1% or less points = 3 <input type="checkbox"/> Slope is > 1%-2% points = 2 <input checked="" type="checkbox"/> Slope is > 2%-5% points = 1 <input type="checkbox"/> Slope is greater than 5% points = 0		1
S 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions):</u> Yes = 3 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. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> <input checked="" type="checkbox"/> Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 <input type="checkbox"/> Dense, uncut, herbaceous plants > ½ of area points = 3 <input type="checkbox"/> Dense, woody, plants > ½ of area points = 2 <input type="checkbox"/> Dense, uncut, herbaceous plants > ¼ of area points = 1 <input type="checkbox"/> Does not meet any of the criteria above for plants points = 0		6
Total for S 1 Add the points in the boxes above		7

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

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? <input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> 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 _____ <input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> 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 0 = L

Record the rating on the first page

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

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

Record the rating on the first page

Wetland name or number: Wetland J

SLOPE WETLANDS

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

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

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

Record the rating on the first page

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

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

Record the rating on the first page

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

S 6.1. Distance to the nearest areas downstream that have flooding problems: <input type="checkbox"/> The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 <input type="checkbox"/> Surface flooding problems are in a sub-basin farther down-gradient points = 1 <input checked="" type="checkbox"/> No flooding problems anywhere downstream points = 0	0
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S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? <input type="checkbox"/> Yes = 2 <input checked="" type="checkbox"/> No = 0	0
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Total for S 6	0	Add the points in the boxes above
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Rating of Value If score is: 2-4 = H 1 = M 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

1

H 1.2. Hydroperiods

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

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

0

H 1.3. Richness of plant species

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

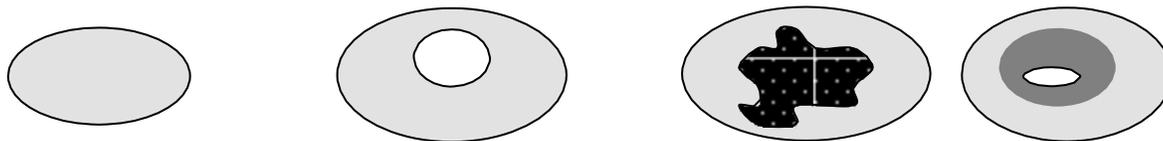
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

1

H 1.4. Interspersion of habitats

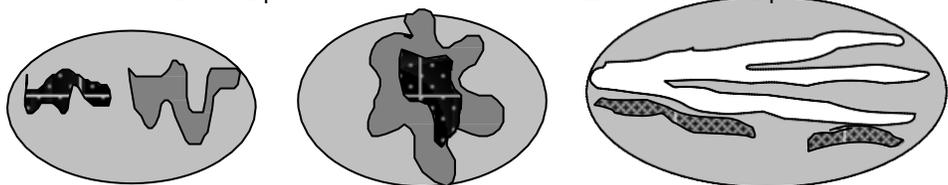
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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

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

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?			
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4%</p> <p>If total accessible habitat is:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3 <input type="checkbox"/> 20-33% of 1 km Polygon points = 2 <input type="checkbox"/> 10-19% of 1 km Polygon points = 1 <input type="checkbox"/> < 10% of 1 km Polygon points = 0 			3
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 56.8% + (46.2%/2) = 79.9%</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3 <input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2 <input type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1 <input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0 			3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <ul style="list-style-type: none"> <input type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2) <input checked="" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0 			0
Total for H 2	Add the points in the boxes above	6	

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

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

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

Wetland name or number: Wetland J

WDFW Priority Habitats

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

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

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

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

Wetland name or number: Wetland J

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt <input type="checkbox"/> Yes –Go to SC 1.1 <input checked="" type="checkbox"/> No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No= Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <input checked="" type="checkbox"/> Yes – Go to SC 2.2 <input type="checkbox"/> No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? http://www.dnr.wa.gov/NHPwetlandviewer <input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf <input type="checkbox"/> Yes – Contact WNHP/WDNR and go to SC 2.4 <input type="checkbox"/> No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No = Is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No = Is not a bog</p>	Cat. I

Wetland name or number: Wetland J

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 6.1 <input checked="" type="checkbox"/> No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>NA</p>

Wetland name or number: Wetland J

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Wetland name or number: Wetland K

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland K

Date of site visit: 9/3/2019

Rated by: L. Dougherty, G. Brennan

Trained by Ecology? Y N

Date of training: 10/2018

HGM Class used for rating: Slope

Wetland has multiple HGM classes? Y N

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

Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	M	(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	5			3			6			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	<input checked="" type="checkbox"/>

Wetland name or number: Wetland K

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

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

Wetland name or number: Wetland K

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.*

SLOPE WETLANDS

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

S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i>		
<input type="checkbox"/> Slope is 1% or less	points = 3	1
<input type="checkbox"/> Slope is > 1%-2%	points = 2	
<input checked="" type="checkbox"/> Slope is > 2%-5%	points = 1	
<input type="checkbox"/> Slope is greater than 5%	points = 0	
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic <i>(use NRCS definitions)</i> : Yes = 3 No = 0		0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i>		
<input type="checkbox"/> Dense, uncut, herbaceous plants > 90% of the wetland area	points = 6	3
<input checked="" type="checkbox"/> Dense, uncut, herbaceous plants > ½ of area	points = 3	
<input type="checkbox"/> Dense, woody, plants > ½ of area	points = 2	
<input type="checkbox"/> Dense, uncut, herbaceous plants > ¼ of area	points = 1	
<input type="checkbox"/> Does not meet any of the criteria above for plants	points = 0	
Total for S 1	Add the points in the boxes above	4

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

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?	<input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> 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 _____	<input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> 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 0 = L

Record the rating on the first page

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

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

Record the rating on the first page

Wetland name or number: Wetland K

SLOPE WETLANDS

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

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

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

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

Record the rating on the first page

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

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

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

Record the rating on the first page

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

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

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

Total for S 6	Add the points in the boxes above	0
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Rating of Value If score is: 2-4 = H 1 = M 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

0

H 1.2. Hydroperiods

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

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

0

H 1.3. Richness of plant species

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

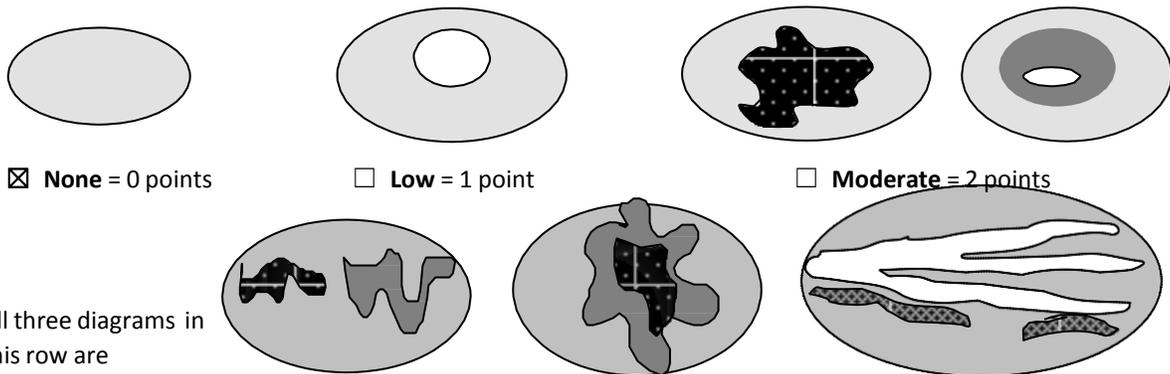
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

- 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 K

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland.</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) AND/OR overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m).</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>).</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>).</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>).</p>		0
Total for H 1	Add the points in the boxes above	1

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?			
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4%</i></p> <p>If total accessible habitat is:</p> <p><input checked="" type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3</p> <p><input type="checkbox"/> 20-33% of 1 km Polygon points = 2</p> <p><input type="checkbox"/> 10-19% of 1 km Polygon points = 1</p> <p><input type="checkbox"/> < 10% of 1 km Polygon points = 0</p>			3
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 56.8% + (46.2%/2) = 79.9%</i></p> <p><input checked="" type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p><input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0</p>			3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p><input type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p><input checked="" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>			0
Total for H 2	Add the points in the boxes above	6	

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

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

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

Wetland name or number: Wetland K

WDFW Priority Habitats

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

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

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

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

Wetland name or number: Wetland K

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<p><i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i></p>	
<p>SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt <input type="checkbox"/> Yes –Go to SC 1.1 <input checked="" type="checkbox"/> No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 1.2</p>	<p>Cat. I</p>
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No= Category II</p>	<p>Cat. I Cat. II</p>
<p>SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <input checked="" type="checkbox"/> Yes – Go to SC 2.2 <input type="checkbox"/> No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? http://www.dnr.wa.gov/NHPwetlandviewer <input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf <input type="checkbox"/> Yes – Contact WNHP/WDNR and go to SC 2.4 <input type="checkbox"/> No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a WHCV</p>	<p>Cat. I</p>
<p>SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No = Is not a bog SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No = Is not a bog</p>	<p>Cat. I</p>

Wetland name or number: Wetland K

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 6.1 <input checked="" type="checkbox"/> No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>NA</p>

Wetland name or number: Wetland K

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Wetland name or number: Wetland M

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland M Date of site visit: 8/27/2019

Rated by: L. Dougherty, G. Brennan Trained by Ecology? Y N Date of training: 10/2018

HGM Class used for rating: Slope

Wetland has multiple HGM classes? Y N

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

Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY (based on functions or special characteristics 1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	M	(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	
Score Based on Ratings	6			5			6			TOTAL 17

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: Wetland M

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	2
Hydroperiods	H 1.2	4
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	6
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	6
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	4
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	7
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	8
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	9

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2

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

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

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

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

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

NO – go to 3

YES – The wetland class is **Flats**

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

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

The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

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

NO – go to 4

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

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

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

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

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

NO – go to 5

YES – The wetland class is **Slope**

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

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.

Wetland name or number: Wetland M

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.*

SLOPE WETLANDS

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

S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i> <input type="checkbox"/> Slope is 1% or less points = 3 <input type="checkbox"/> Slope is > 1%-2% points = 2 <input checked="" type="checkbox"/> Slope is > 2%-5% points = 1 <input type="checkbox"/> Slope is greater than 5% points = 0		1
S 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions):</u> Yes = 3 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. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> <input type="checkbox"/> Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 <input type="checkbox"/> Dense, uncut, herbaceous plants > ½ of area points = 3 <input checked="" type="checkbox"/> Dense, woody, plants > ½ of area points = 2 <input type="checkbox"/> Dense, uncut, herbaceous plants > ¼ of area points = 1 <input type="checkbox"/> Does not meet any of the criteria above for plants points = 0		2
Total for S 1 Add the points in the boxes above		3

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

Record the rating on the first page

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

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

Record the rating on the first page

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

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

Record the rating on the first page

Wetland name or number: Wetland M

SLOPE WETLANDS

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

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

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually >1/8_s in), or dense enough, to remain erect during surface flows.</i> <input checked="" type="checkbox"/> Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1 <input type="checkbox"/> All other conditions points = 0	1
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Rating of Site Potential If score is: 1 = M 0 = L

Record the rating on the first page

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

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

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

Record the rating on the first page

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

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

S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? <input type="checkbox"/> Yes = 2 <input checked="" type="checkbox"/> No = 0	0
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Total for S 6	Add the points in the boxes above	0
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Rating of Value If score is: 2-4 = H 1 = M 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

0

H 1.2. Hydroperiods

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

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

0

H 1.3. Richness of plant species

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

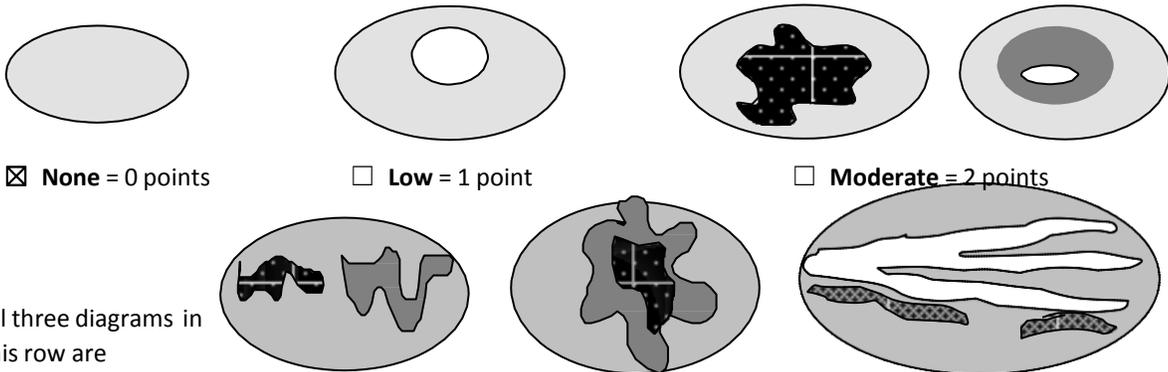
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

- 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 M

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland. <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) AND/OR overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m). <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>). <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>). <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>). 		2
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 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?			
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4%</p> <p>If total accessible habitat is:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3 <input type="checkbox"/> 20-33% of 1 km Polygon points = 2 <input type="checkbox"/> 10-19% of 1 km Polygon points = 1 <input type="checkbox"/> < 10% of 1 km Polygon points = 0 			3
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 56.8% + (46.2%/2) = 79.9%</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3 <input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2 <input type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1 <input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0 			3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <ul style="list-style-type: none"> <input type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2) <input checked="" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0 			0
Total for H 2	Add the points in the boxes above	6	

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

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

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

Wetland name or number: Wetland M

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt <input type="checkbox"/> Yes –Go to SC 1.1 <input checked="" type="checkbox"/> No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No= Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <input checked="" type="checkbox"/> Yes – Go to SC 2.2 <input type="checkbox"/> No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? http://www.dnr.wa.gov/NHPwetlandviewer <input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a WHCV</p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf <input type="checkbox"/> Yes – Contact WNHP/WDNR and go to SC 2.4 <input type="checkbox"/> No = Not a WHCV</p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No – Go to SC 3.2</p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <input type="checkbox"/> Yes – Go to SC 3.3 <input checked="" type="checkbox"/> No = Is not a bog</p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No – Go to SC 3.4 NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No = Is not a bog</p>	Cat. I

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 6.1 <input checked="" type="checkbox"/> No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>NA</p>

^AWetland name or number: Wetland M

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Wetland name or number: Wetland P

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland P

Date of site visit: 02/26/2020

Rated by: S. Payne, G. Brennan Trained by Ecology? Y N Date of training: 6/2017, 10/2019

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Y N

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

Source of base aerial photo/map: Google Earth

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

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <u>M</u> L	H M <u>L</u>	H M <u>L</u>	
Landscape Potential	H <u>M</u> L	H <u>M</u> L	<u>H</u> M L	
Value	<u>H</u> M L	H M <u>L</u>	H <u>M</u> L	TOTAL
Score Based on Ratings	7	4	6	17

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: Wetland P

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and 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	

Wetland name or number: Wetland P

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.*

DEPRESSIONAL AND FLATS WETLANDS**Water Quality Functions - Indicators that the site functions to improve water quality****D 1.0. Does the site have the potential to improve water quality?****D 1.1. Characteristics of surface water outflows from the wetland:**

- Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3
- Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2
- Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 1
- Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1

2

D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0

0

D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):

- Wetland has persistent, ungrazed, plants > 95% of area points = 5
- Wetland has persistent, ungrazed, plants > 1/2 of area points = 3
- Wetland has persistent, ungrazed plants > 1/10 of area points = 1
- Wetland has persistent, ungrazed plants < 1/10 of area points = 0

1

D 1.4. Characteristics of seasonal ponding or inundation:*This is the area that is ponded for at least 2 months. See description in manual.*

- Area seasonally ponded is > ½ total area of wetland points = 4
- Area seasonally ponded is > ¼ total area of wetland points = 2
- Area seasonally ponded is < ¼ total area of wetland points = 0

4

Total for D 1

Add the points in the boxes above

7

Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L

Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?**D 2.1. Does the wetland unit receive stormwater discharges?** Yes = 1 No = 0

1

D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0

1

D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0

0

D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source: [Click here to enter text.](#) Yes = 1 No = 0

0

Total for D 2

Add the points in the boxes above

2

Rating of Landscape Potential If score is: 3 or 4 = H 1 or 2 = M 0 = L

Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?**D 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

D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0

1

D 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 the unit is found)? Yes = 2 No = 0

2

Total for D 3

Add the points in the boxes above

3

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

Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
<input type="checkbox"/> Wetland is a depression or flat depression with no surface water leaving it (no outlet).	points = 4	2
<input checked="" type="checkbox"/> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	points = 2	
<input type="checkbox"/> Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
<input type="checkbox"/> Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing.	points = 0	
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.		
<input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet.	points = 7	3
<input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet.	points = 5	
<input checked="" type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet.	points = 3	
<input type="checkbox"/> The wetland is a "headwater" wetland.	points = 3	
<input type="checkbox"/> Wetland is flat but has small depressions on the surface that trap water.	points = 1	
<input type="checkbox"/> Marks of ponding less than 0.5 ft (6 in).	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
<input type="checkbox"/> The area of the basin is less than 10 times the area of the unit.	points = 5	0
<input type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit.	points = 3	
<input checked="" type="checkbox"/> The area of the basin is more than 100 times the area of the unit.	points = 0	
<input type="checkbox"/> Entire wetland is in the Flats class.	points = 5	
Total for D 4	Add the points in the boxes above	5

Rating of Site Potential If score is: 12-16 = H 6-11 = M 0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	<input checked="" type="checkbox"/> Yes = 1 <input type="checkbox"/> No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	<input checked="" type="checkbox"/> Yes = 1 <input type="checkbox"/> No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	<input type="checkbox"/> Yes = 1 <input checked="" type="checkbox"/> No = 0	0
Total for D 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: 3 = H 1 or 2 = M 0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• <input type="checkbox"/> Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	0
• <input type="checkbox"/> Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
<input type="checkbox"/> Flooding from groundwater is an issue in the sub-basin.	points = 1	
<input type="checkbox"/> The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood.		
<i>Explain why:</i> ___	points = 0	
<input checked="" type="checkbox"/> There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
	<input type="checkbox"/> Yes = 2 <input checked="" type="checkbox"/> No = 0	0
Total for D 6	Add the points in the boxes above	0

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

Record the rating on the first page

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

0

H 1.2. Hydroperiods

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

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

1

H 1.3. Richness of plant species

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

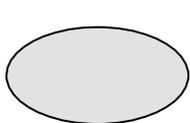
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

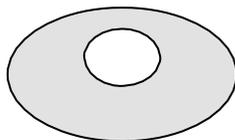
1

H 1.4. Interspersion of habitats

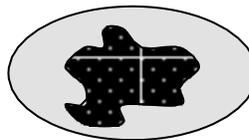
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



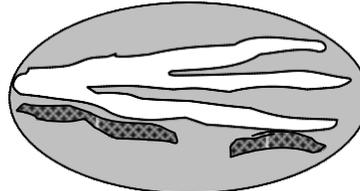
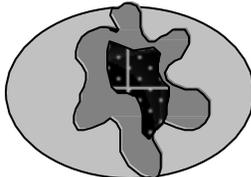
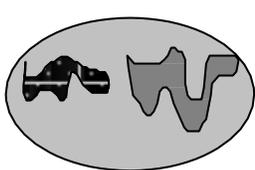
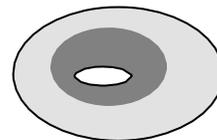
None = 0 points



Low = 1 point



Moderate = 2 points



All three diagrams in this row are

HIGH = 3points

0

Wetland name or number: Wetland P

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland.</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) AND/OR overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m).</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>).</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>).</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>).</p>		1
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 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?			
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 35.8% + (15.9%/2) = 46.5%</i></p> <p>If total accessible habitat is:</p> <p><input type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3</p> <p><input type="checkbox"/> 20-33% of 1 km Polygon points = 2</p> <p><input type="checkbox"/> 10-19% of 1 km Polygon points = 1</p> <p><input type="checkbox"/> < 10% of 1 km Polygon points = 0</p>			3
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 58.6% + (38.4%/2) = 77.8%</i></p> <p><input type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p><input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0</p>			3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p><input type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p><input type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>			0
Total for H 2	Add the points in the boxes above	6	

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

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

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

WDFW Priority Habitats

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

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

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

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

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife’s forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to SC 6.1 <input checked="" type="checkbox"/> No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter “Not Applicable” on Summary Form</p>	<p>NA</p>

Wetland name or number: Wetland P

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2014 Ecology Wetland Rating Form Figures

CAPITOL LAND TRUST – HENDERSON INLET

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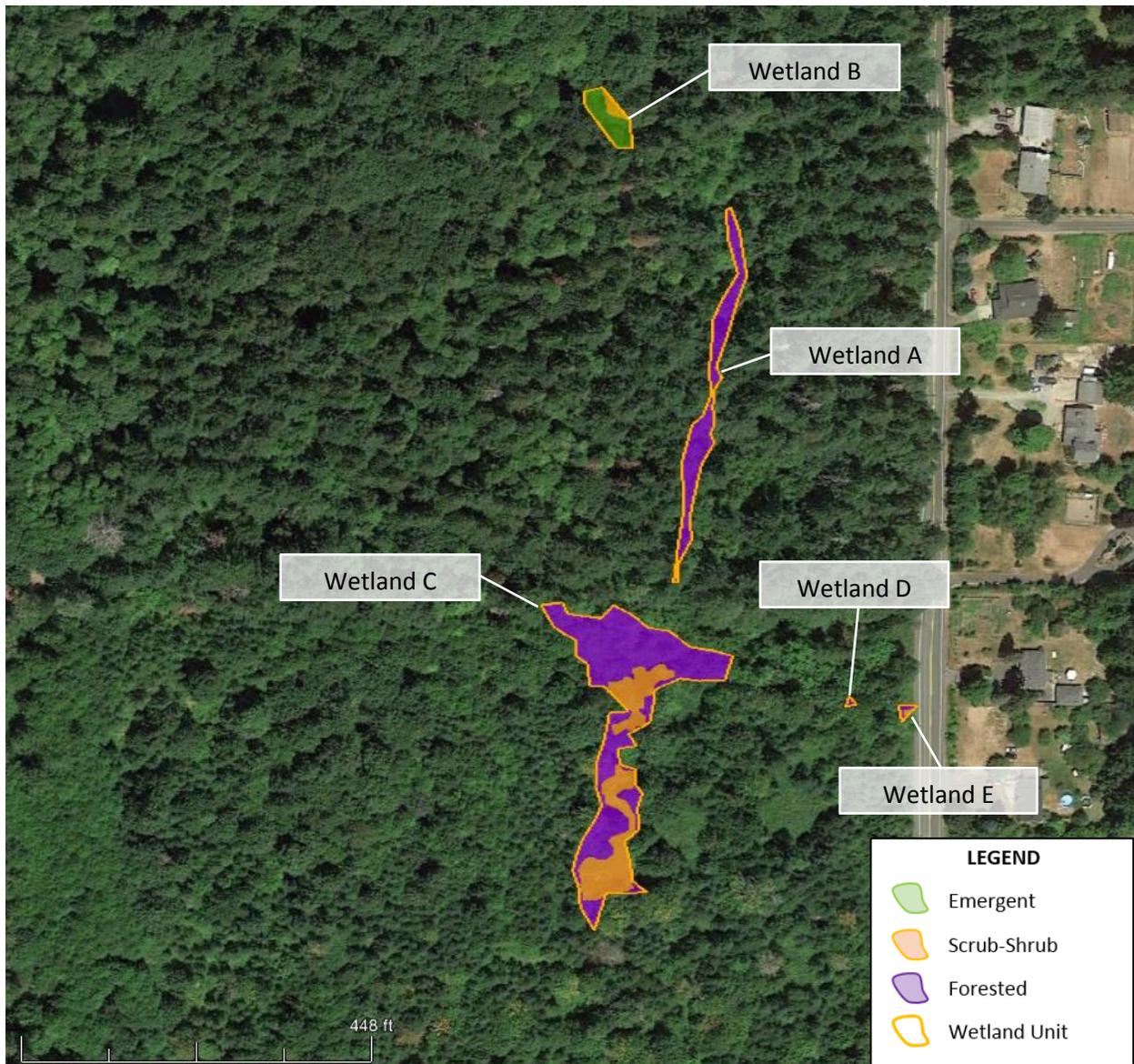


Figure 1. Cowardin plant classes for Wetlands A-E– H1.1, H1.4

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

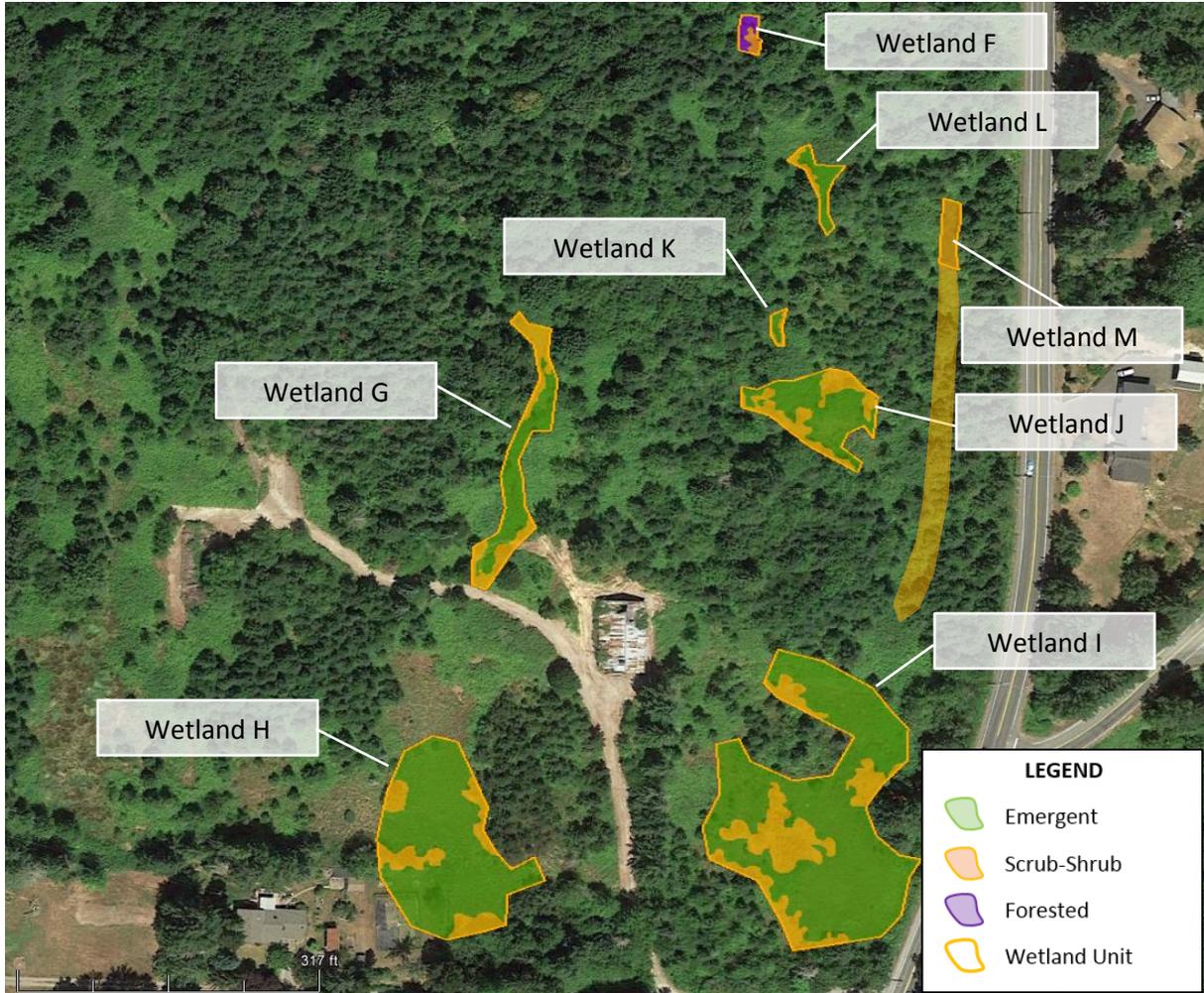


Figure 2. Cowardin plant classes for Wetlands F-M– H1.1, H1.4

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

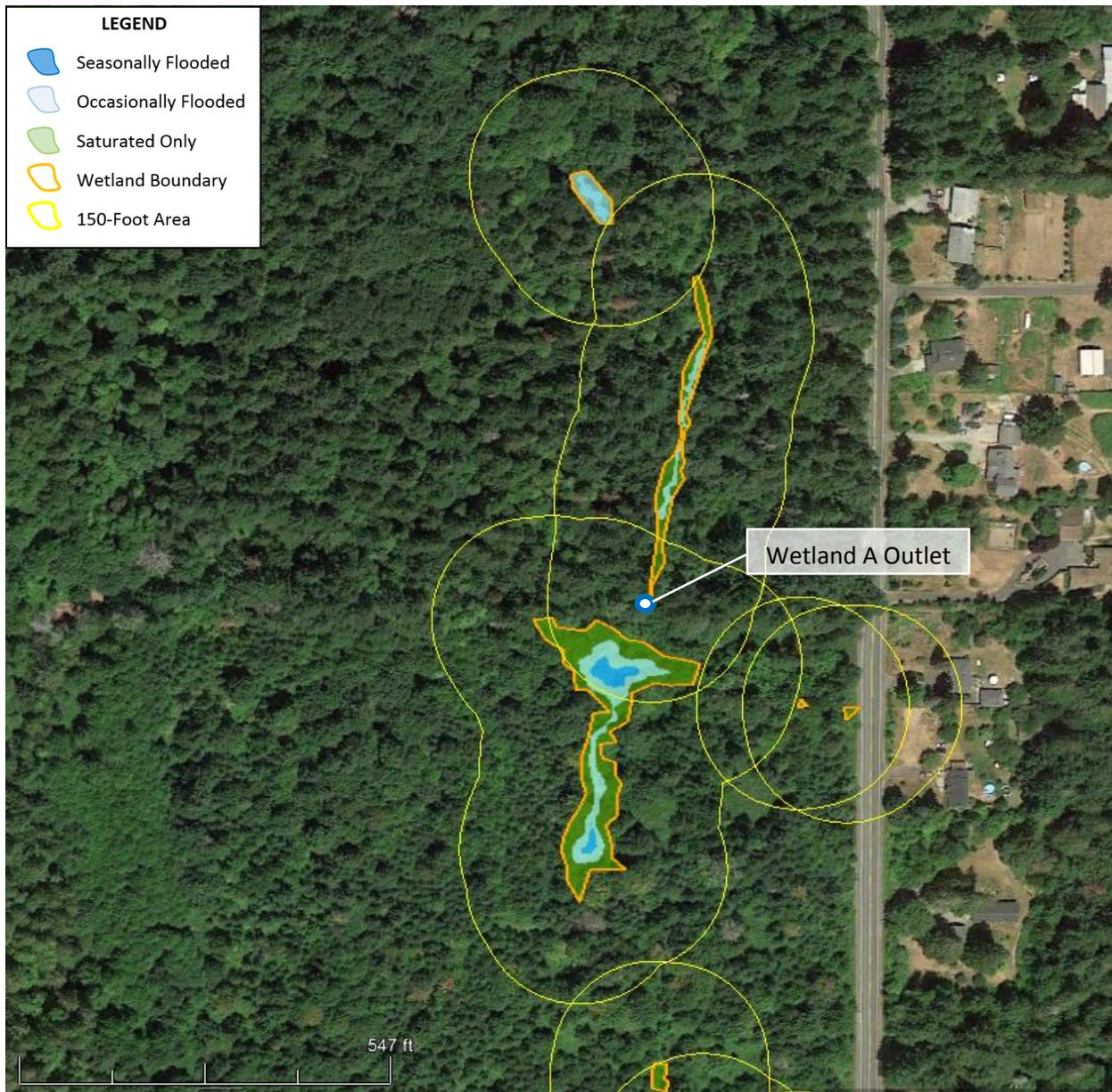


Figure 3. Hydroperiods and 150-foot area for Wetlands A-E – H1.2, S2.1, S5.1, D1.1, D1.4, H1.2, D2.2, D5.2

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

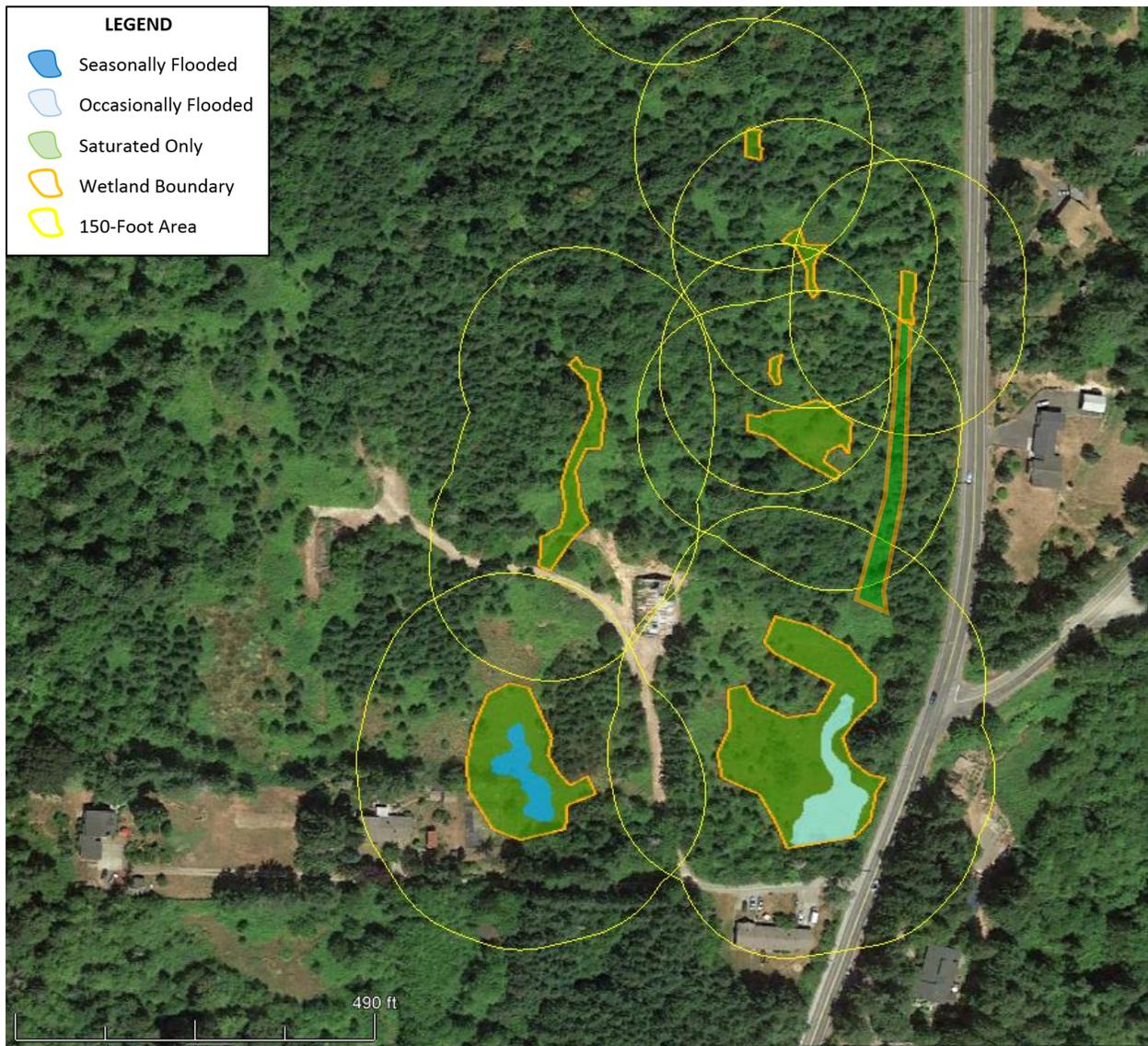


Figure 4. Hydroperiods and 150-foot area for Wetlands F-M – H1.2, S2.1, S5.1, D1.1, D1.4, H1.2, D2.2, D5.2

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



Figure 5. Plant cover of dense and rigid trees, shrubs, and herbaceous plants for Wetlands A, D, and E – S1.3, S4.1

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



Figure 6. Plant cover of dense and rigid trees, shrubs, and herbaceous plants for Wetlands F, G, J, K, L and M – S1.3, S4.1

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

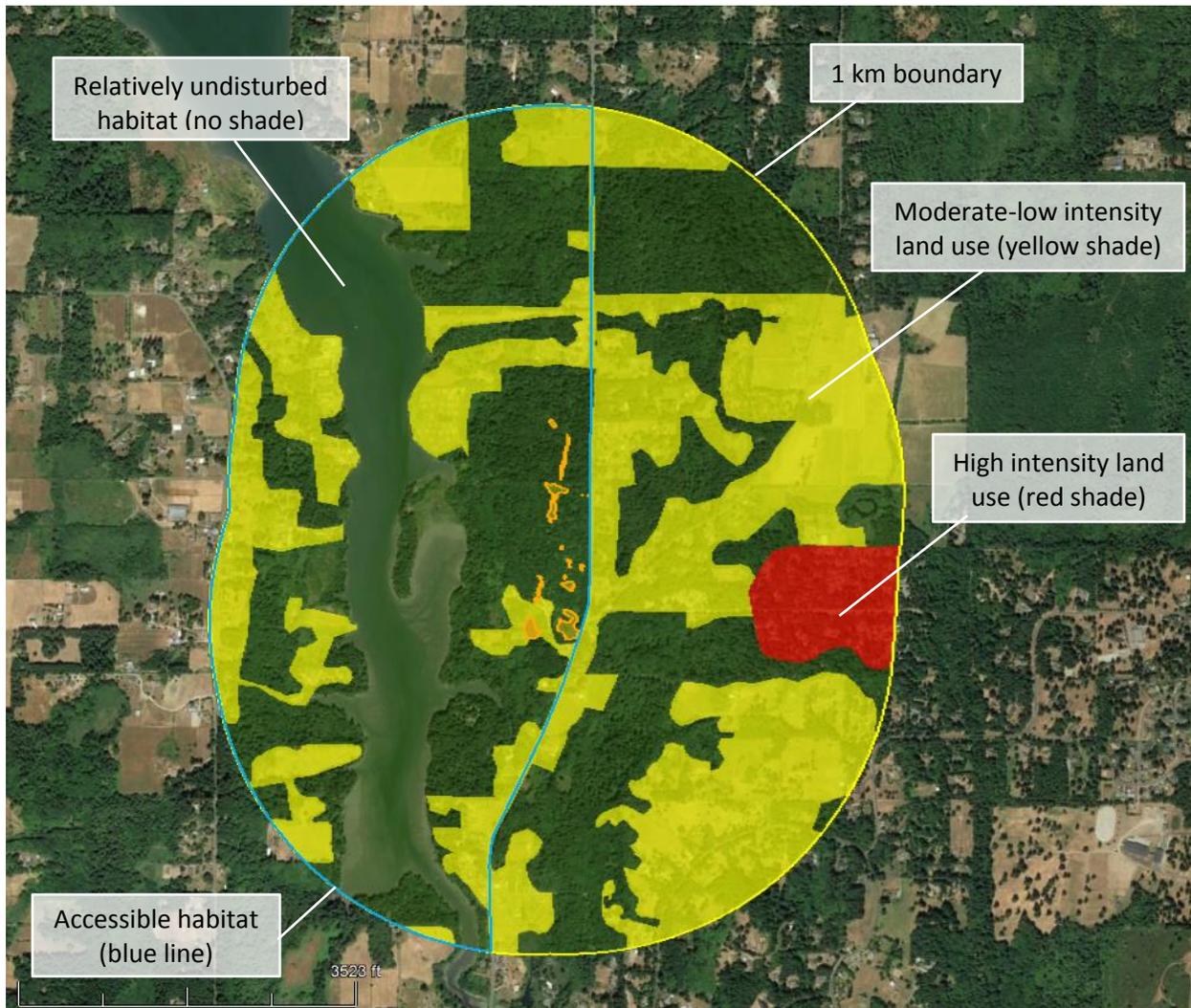


Figure 7. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat for Wetlands A-M – H2.1, H2.2, H2.3

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

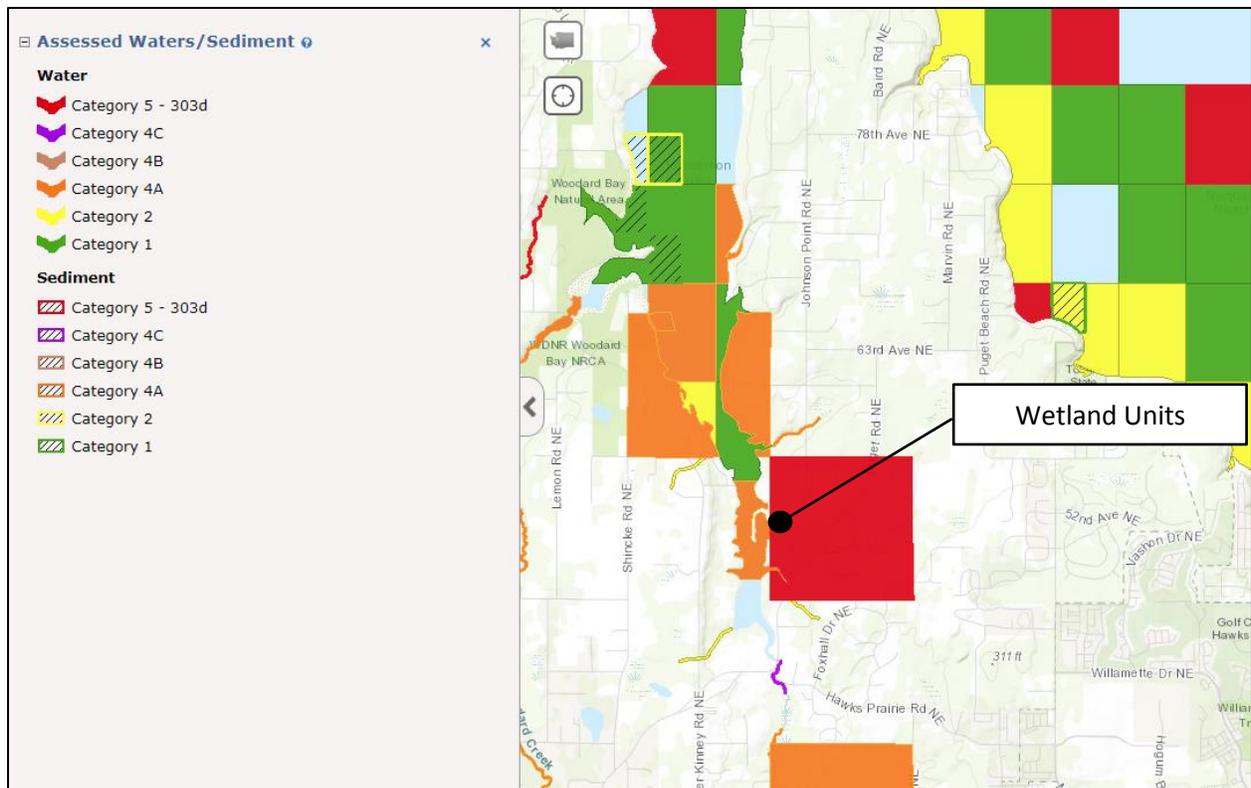


Figure 8. Screen-capture of 303(d) listed waters in basin for Wetlands A-M. – S3.1, S3.2

Note: The “Waterbody name” for the mapped 303(d) polygon encompassing the study area is “Unnamed Creek (Trib to Dobbs Creek).” Wetlands in study area do not drain to Dobbs Creek, and therefore were not given points for discharging to a waterbody on the 303(d) list.

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

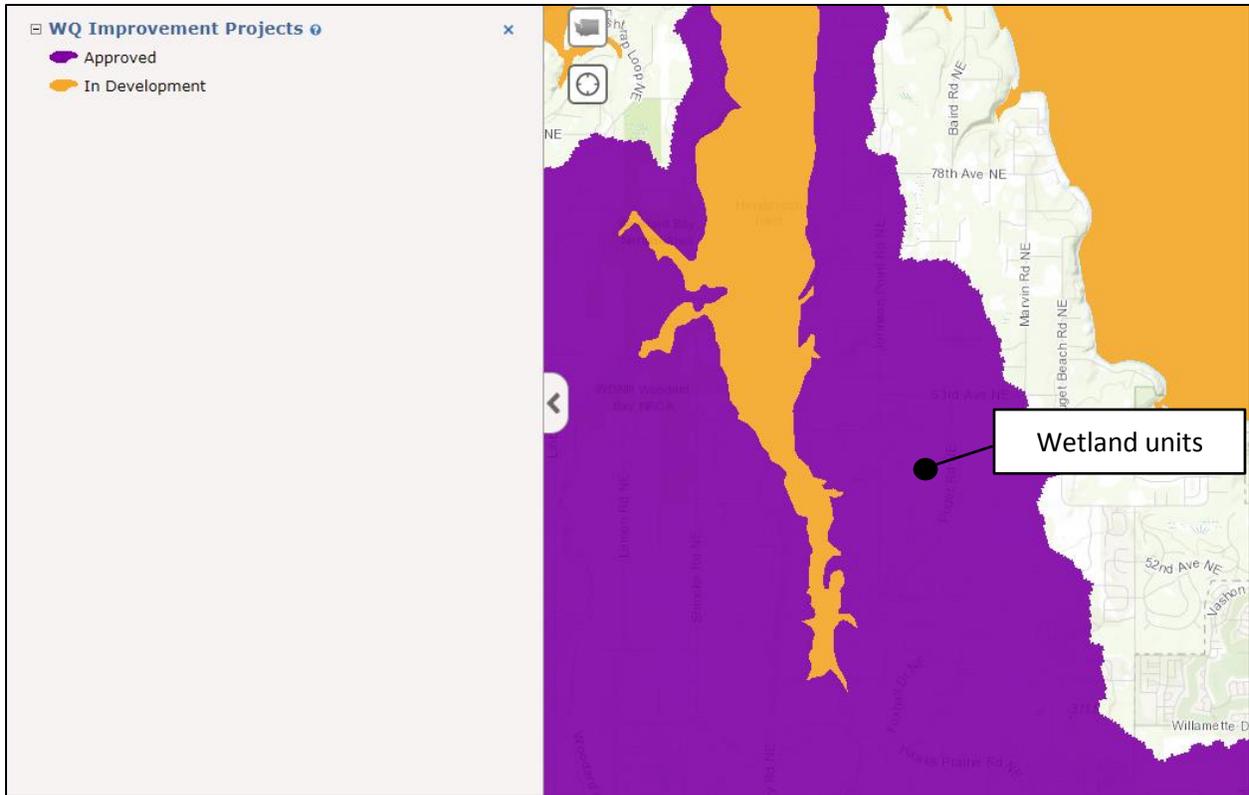


Figure 9. Screen-capture of TMDL list for WRIA in which unit is found for Wetlands A-M – S3.3

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



Figure 10. Map of the contributing basin for Wetland B – D4.3, D5.3

Note: Wetland B has no outlet.

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



Figure 11. Map of the contributing basin for Wetland C – D4.3, D5.3

Note: Wetland C has no outlet.

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



Figure 12. Map of the contributing basin for Wetlands H and I – D4.3, D5.3

Note: Wetlands I and H have no outlet.

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

2014 Ecology Wetland Rating Form Figures

CAPITOL LAND TRUST – HENDERSON INLET

Wetland P (Depressional)	1
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Figure 2. Hydroperiods, outlet(s), and 150-ft area – D1.1, D1.4, H1.2, D2.2, D5.2.....	2
Figure 3. Map of the contributing basin – D4.3, D5.3	3
Figure 4. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3.....	4
Figure 5. Screen-capture of 303(d) listed waters in basin – D3.1, D3.2	5
Figure 6. Screen-capture of TMDL map for sub-basin in which unit is found – D3.3.....	6

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WETLAND P (DEPRESSIONAL)



Figure 1. Cowardin plant classes – D1.3, H1.1, H1.4

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



Figure 2. Hydroperiods, outlet(s), and 150-ft area – D1.1, D1.4, H1.2, D2.2, D5.2

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

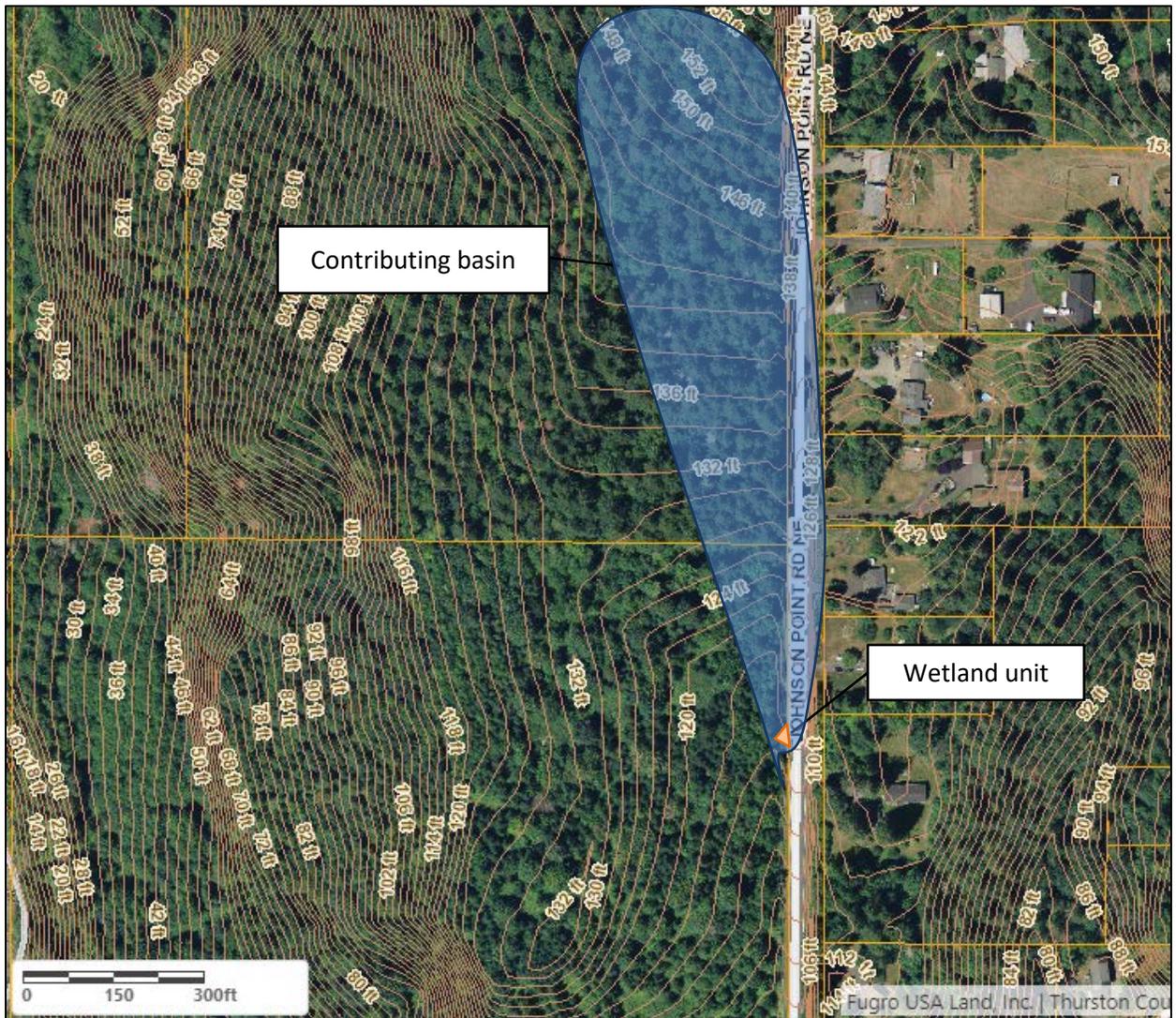


Figure 3. Map of the contributing basin – D4.3, D5.3

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

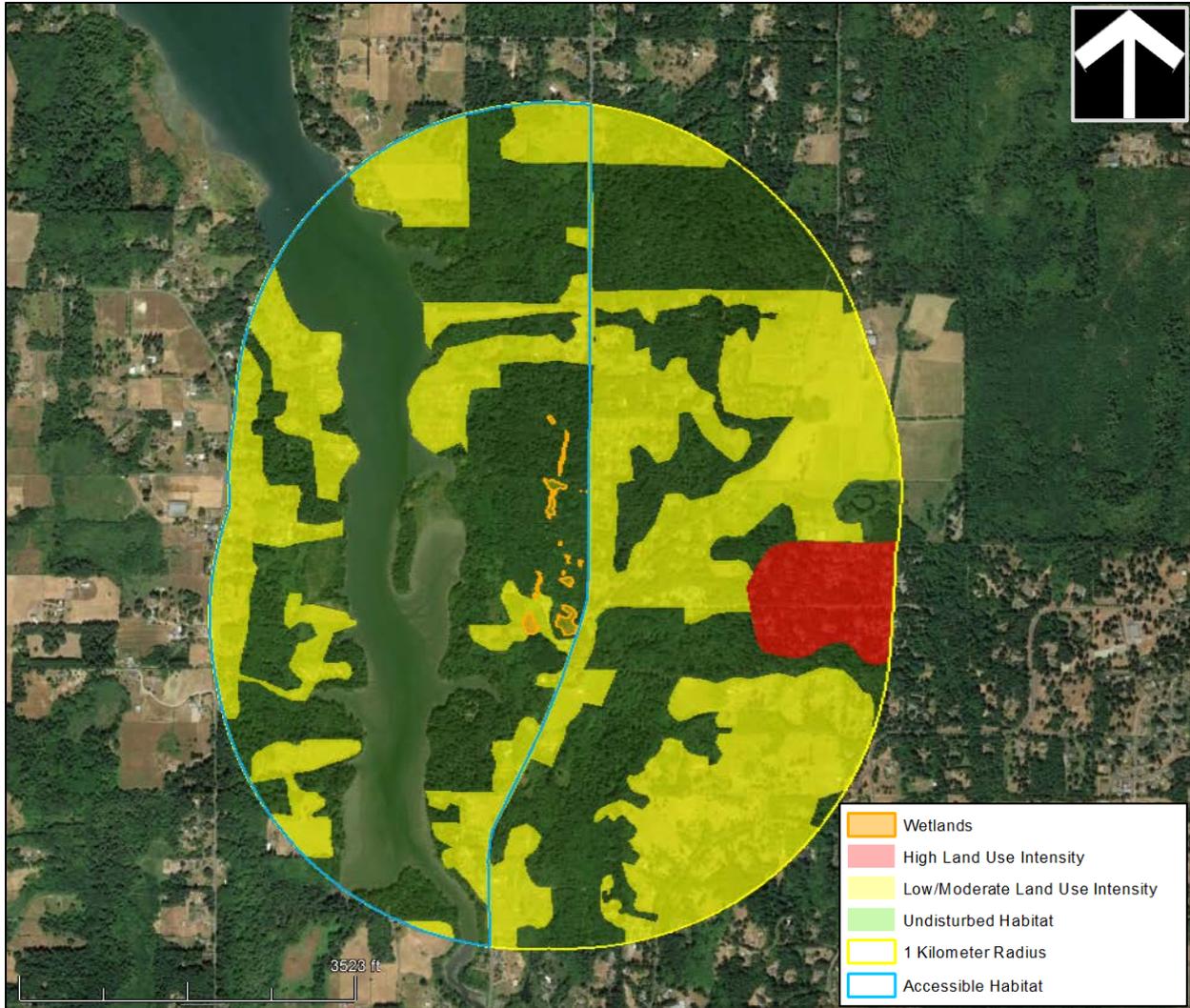


Figure 4. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3

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

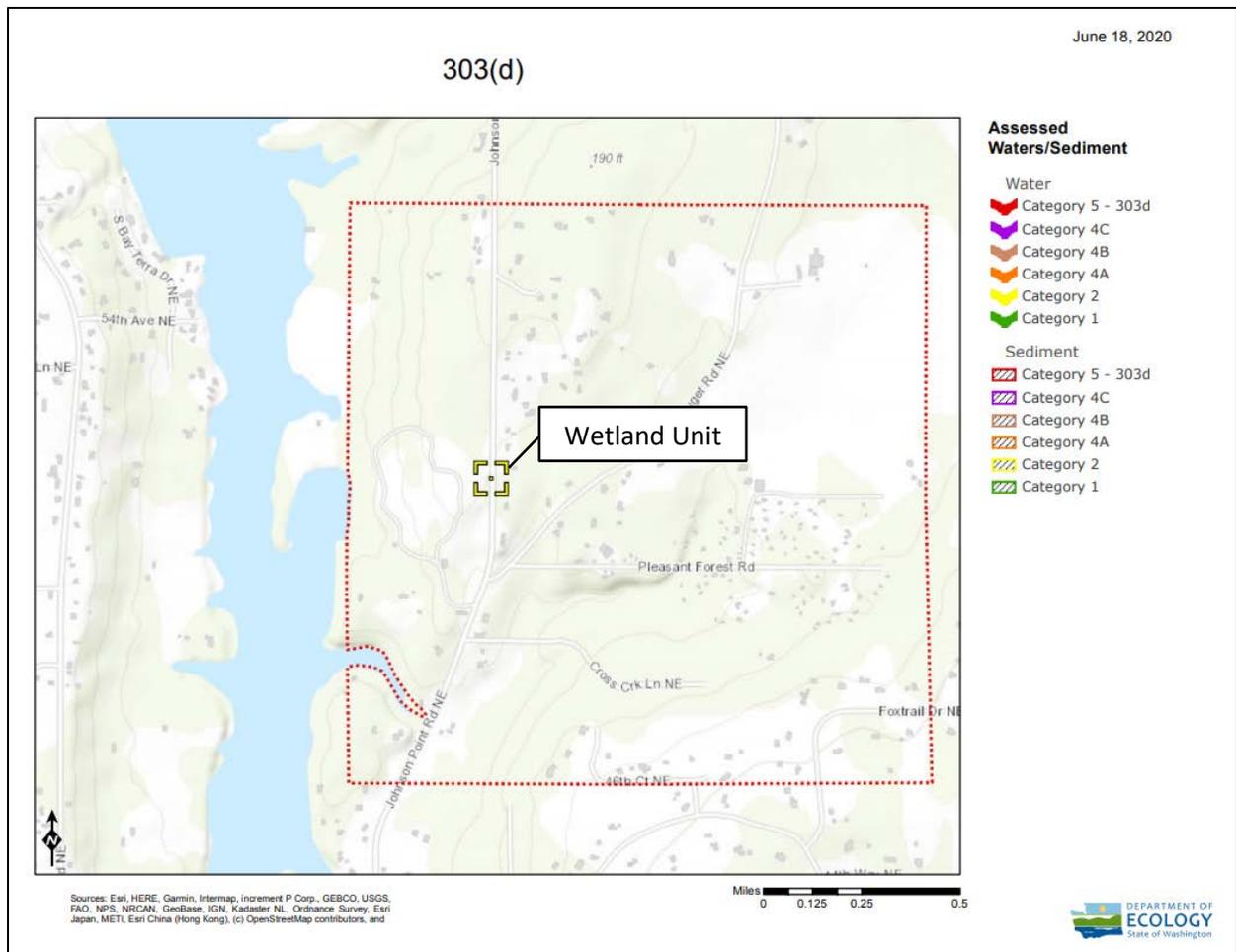


Figure 5. Screen-capture of 303(d) listed waters in basin – D3.1, D3.2

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

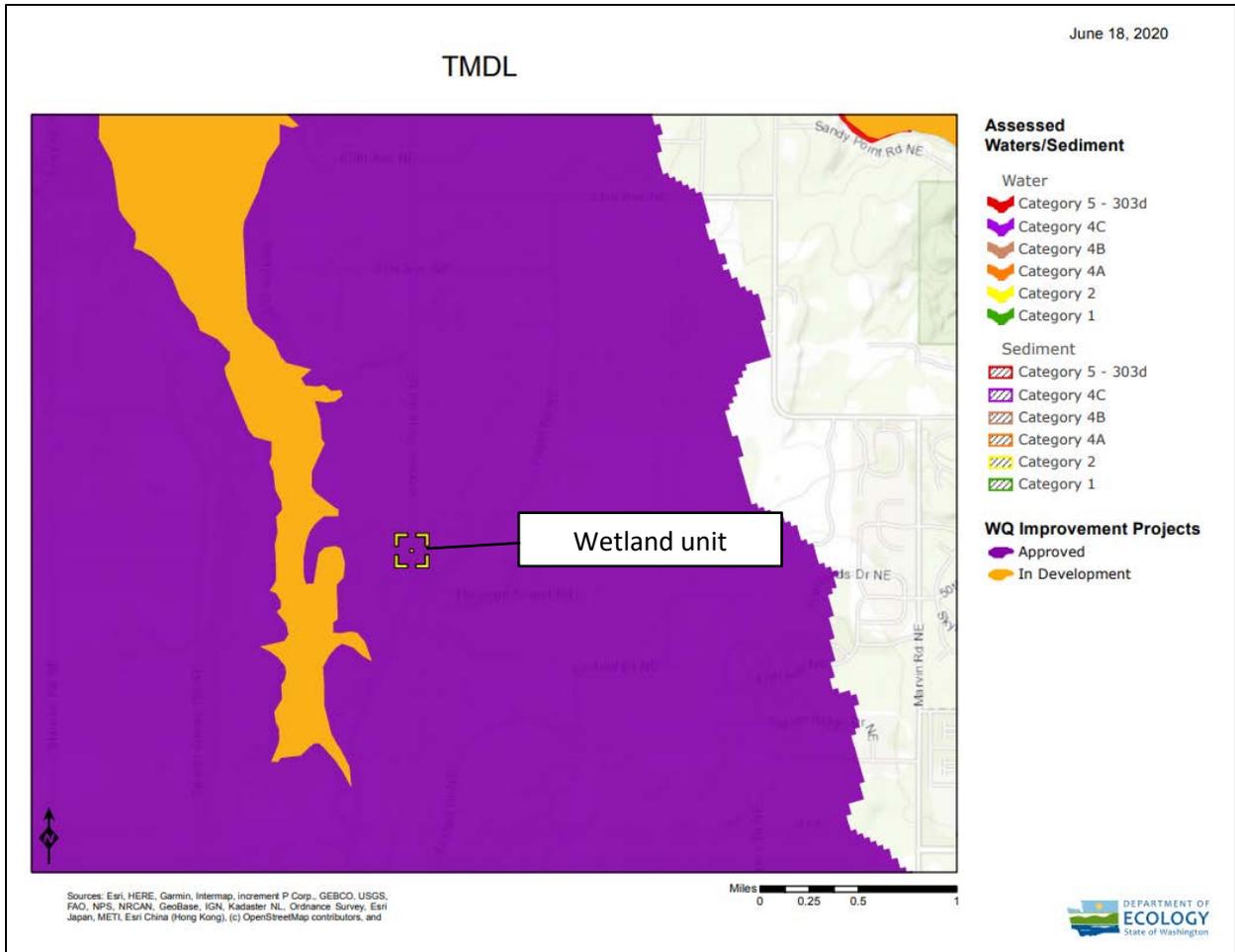


Figure 6. Screen-capture of TMDL map for sub-basin in which unit is found – D3.3

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

Appendix C

WETLAND DETERMINATION DATA FORMS

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 8/28/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-13
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2-5
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowsin silt loam NWI classification: None

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Wetland G in-pit (center of swale).	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 5-m diameter)					
1. <u><i>Thuja plicata</i></u>	75	Y	FAC	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. <u><i>Pseudotsuga menziesii (rooted out)</i></u>	20	-	FACU		
3. _____					
4. _____					
	<u>95</u>	= Total Cover		Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: (A) (B) Prevalence Index = B/A = _____	
Sapling/Shrub Stratum (Plot size: 3-m diameter)					
1. <u><i>Rubus armeniacus</i></u>	50	Y	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
	<u>50</u>	= Total Cover			
Herb Stratum (Plot size: 1-m diameter)					
1. <u><i>Ranunculus repens</i></u>	30	Y	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <u><i>Juncus effusus</i></u>	30	Y	FACW		
3. <u><i>Carex deweyana Schwein.</i></u>	25	Y	FAC		
4. <u><i>Cirsium arvense</i></u>	7	N	FAC		
5. <u><i>Lotus corniculatus</i></u>	5	N	FAC		
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
	<u>97</u>	= Total Cover			
Woody Vine Stratum (Plot size: 3-m diameter)					
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum: 3 _____					
Remarks:					

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 8/28/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-14
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 10
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowsin silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: 5-m diameter)				Number of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across all Strata: <u>6</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>67</u> (A/B)
1. <u><i>Alnus rubra</i></u>	20	Y	FAC	
2. <u><i>Pseudotsuga menziesii</i></u>	10	Y	FACU	
3. _____				
4. _____				
<u>30</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = _____ FACW species x 2 = _____ FAC species x 3 = _____ FACU species x 4 = _____ UPL species x 5 = _____ Column Totals: (A) (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u><i>Rubus armeniacus</i></u>	30	Y	FAC	
2. <u><i>Rubus laciniatus</i></u>	15	Y	FACU	
3. _____				
4. _____				
5. _____				
<u>45</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				
1. <u><i>Lotus corniculatus</i></u>	30	Y	FAC	
2. <u><i>Grass sp.</i></u>	20	Y	FAC*	
3. <u><i>Ranunculus repens</i></u>	5	N	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>55</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: _____				
Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</small>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: *Presumed FAC indicator status. Bracken and sword fern rooted ~3 ft. from soil pit.				

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 8/28/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-15
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Depression Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowsin silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: 5-m diameter)				Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3-m diameter)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A = _____
1. _____				
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	50	Y	FACW	
2. <u>Juncus effusus</u>	40	Y	FACW	
3. <u>Lotus corniculatus</u>	15	N	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>105</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: <u>0</u>				
Remarks:				

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 8/28/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-16
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 15
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowsin silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Worksheet
Tree Stratum (Plot size: 5-m diameter)				Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>67</u> (A/B)
1. <u>Pinus contorta</u>	80	Y	FAC	
2. _____				
3. _____				
4. _____				
<u>80</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u>Crataegus monogyna</u>	50	Y	FAC	
2. <u>Rubus armeniacus</u>	10	N	FAC	
3. _____				
4. _____				
5. _____				
<u>60</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Rubus ursinus</u>	20	Y	FACU	
2. <u>Lotus corniculatus</u>	5	N	FAC	
3. <u>Polystichum munitum</u>	2	N	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>27</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: <u>0</u>				
Remarks: Understory mostly covered in pine needles.				

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 8/28/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-17
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Terrace Local relief (concave, convex, none): None Slope (%): 2
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowsin silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: 5-m diameter)				
1. _____				Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u>Rubus armeniacus</u>	5	Y	FAC	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: (A) (B) Prevalence Index = B/A = _____
2. _____				
3. _____				
4. _____				
5. _____				
<u>5</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				
1. <u>Juncus effusus</u>	80	Y	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Lotus corniculatus</u>	10	N	FAC	
3. <u>Epilobium ciliatum</u>	5	N	FACW	
4. <u>Rubus ursinus</u>	2	N	FACU	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>97</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: <u>0</u>				
Remarks:				

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 8/28/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-18
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 7
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowsin silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: 5-m diameter)				Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>60</u> (A/B)
1. <u><i>Pseudotsuga menziesii</i></u>	60	Y	FACU	
2. <u><i>Frangula purshiana</i></u>	15	Y	FAC	
3. _____				
4. _____				
<u>75</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u><i>Rubus armeniacus</i></u>	40	Y	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
<u>40</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u><i>Cirsium arvense</i></u>	15	Y	FAC	
2. <u><i>Rubus ursinus</i></u>	10	Y	FACU	
3. <u><i>Epilobium ciliatum</i></u>	2	N	FACW	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>27</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: <u>0*</u>				
Remarks: *Groundcover is mostly duff/dead blackberry canes.				

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 9/3/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-19
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowsin silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: 5-m diameter)				
1. <u><i>Pseudotsuga menziesii</i> (rooted upslope)</u>	5	N	FACU	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>80</u> (A/B)
2. _____				
3. _____				
4. _____				
<u>5</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u><i>Fraxinus latifolia</i></u>	15	Y	FACW	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = _____ FACW species x 2 = _____ FAC species x 3 = _____ FACU species x 4 = _____ UPL species x 5 = _____ Column Totals: (A) (B) Prevalence Index = B/A = _____
2. <u><i>Rubus armeniacus</i></u>	10	Y	FAC	
3. _____				
4. _____				
5. _____				
<u>25</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				
1. <u><i>Rubus ursinus</i></u>	20	Y	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Grass sp.</i></u>	30	Y	FAC*	
3. <u><i>Juncus effusus</i></u>	20	Y	FACW	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>70</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum: <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: *Presumed FAC indicator status Groundcover is mostly dead blackberry canes/duff.				

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 9/3/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-20
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowsin silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 5-m diameter)					
1. <i>Pseudotsuga menziesii</i>	80	Y	FACU	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>20</u> (A/B)	
2. <i>Alnus rubra</i>	15	N	FAC		
3. _____					
4. _____					
<u>95</u> = Total Cover					
Sapling/Shrub Stratum (Plot size: 3-m diameter)					
1. <i>Rubus armeniacus</i>	15	Y	FAC	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: (A) (B) Prevalence Index = B/A = _____	
2. <i>Oemleria cerasiformis</i>	20	Y	FACU		
3. _____					
4. _____					
5. _____					
<u>35</u> = Total Cover					
Herb Stratum (Plot size: 1-m diameter)					
1. <i>Pteridium aquilinum</i>	25	Y	FACU		
2. <i>Rubus ursinus</i>	10	Y	FACU		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
<u>35</u> = Total Cover					
Woody Vine Stratum (Plot size: 3-m diameter)					
1. _____				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
2. _____					
<u>0</u> = Total Cover					
% Bare Ground in Herb Stratum: _____					
Remarks:					

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 9/3/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-21
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Terrace Local relief (concave, convex, none): None Slope (%): 2
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent slopes NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: 5-m diameter)				
1. <u><i>Pseudotsuga menziesii</i> (rooted out)</u>	5	N	FACU	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>4</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>75</u> (A/B)
2. _____				
3. _____				
4. _____				
<u>5</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u><i>Rubus armeniacus</i></u>	30	Y	FAC	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = _____ FACW species x 2 = _____ FAC species x 3 = _____ FACU species x 4 = _____ UPL species x 5 = _____ Column Totals: (A) (B) Prevalence Index = B/A = _____
2. <u><i>Rubus laciniatus</i></u>	25	Y	FACU	
3. _____				
4. _____				
5. _____				
<u>55</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				
1. <u><i>Juncus effusus</i></u>	25	Y	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Ranunculus repens</i></u>	10	Y	FAC	
3. <u><i>Lotus corniculatus</i></u>	5	N	FAC	
4. <u><i>Geum macrophyllum</i></u>	1	N	FAC	
5. <u><i>Rumex crispus</i></u>	1	N	FAC	
6. <u><i>Rubus ursinus</i></u>	5	N	FACU	
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>47</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: _____				
Remarks:				

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 9/3/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-22
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 7-10
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent slopes NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: 5-m diameter)				
1. <u><i>Acer circinatum</i></u>	80	Y	FACU	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>20</u> (A/B)
2. <u><i>Pseudotsuga menziesii</i></u>	30	Y	FACU	
3. _____				
4. _____				
<u>110</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u><i>Corylus cornuta</i></u>	10	Y	FACU	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = _____ FACW species x 2 = _____ FAC species x 3 = _____ FACU species x 4 = _____ UPL species x 5 = _____ Column Totals: (A) (B) Prevalence Index = B/A = _____
2. <u><i>Rubus armeniacus</i></u>	20	Y	FAC	
3. _____				
4. _____				
5. _____				
<u>30</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				
1. <u><i>Rubus ursinus</i></u>	25	Y	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>25</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				
1. _____				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: 10				
Remarks: Groundcover mostly dead leaves/duff.				

SOIL

Sampling Point: DP-22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-14	10YR 4/3	100					Silt loam	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)					Indicators for Problematic Hydric Soils³:			
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)					<input type="checkbox"/> 2cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)					³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
Restrictive Layer (if present): Type: _____ Depth (inches): _____					Hydric soil present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required: check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (explain in remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks	
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (in): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			



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

DP-25

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 9/3/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-25
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Skipopa silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes
Tree Stratum (Plot size: 5-m diameter)				
1. <u><i>Alnus rubra</i> (rooted out)</u>	10	N	FAC	
2. <u><i>Acer macrophyllum</i> (rooted out)</u>	15	N	FACU	
3. _____				
4. _____				
	25	= Total Cover		
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u><i>Rubus armeniacus</i></u>	10	Y	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
	10	= Total Cover		
Herb Stratum (Plot size: 1-m diameter)				
1. <u><i>Oenanthe sarmentosa</i></u>	80	Y	OBL	
2. <u><i>Juncus effusus</i></u>	30	Y	FACW	
3. <u><i>Rubus ursinus</i></u>	30	Y	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	140	= Total Cover		
Woody Vine Stratum (Plot size: 3-m diameter)				
1. _____				
2. _____				
% Bare Ground in Herb Stratum: _____ = Total Cover				

Dominance Test worksheet:
 Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
 Total Number of Dominant Species Across all Strata: 4 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by:
 OBL species _____ x 1 = _____
 FACW species _____ x 2 = _____
 FAC species _____ x 3 = _____
 FACU species _____ x 4 = _____
 UPL species _____ x 5 = _____
 Column Totals: (A) _____ (B) _____
 Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
 1 – Rapid Test for Hydrophytic Vegetation
 2 – Dominance Test is > 50%
 3 – Prevalence Index is ≤ 3.0¹
 4 – Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 5 – Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 9/3/19
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-26
 Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Skipopa silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: 5-m diameter)				Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>20</u> (A/B)
1. <u><i>Pseudotsuga menziesii</i></u>	50	Y	FACU	
2. <u><i>Acer macrophyllum</i></u>	30	Y	FACU	
3. _____				
4. _____				
<u>80</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u><i>Rubus armeniacus</i></u>	15	Y	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
<u>15</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u><i>Pteridium aquilinum</i></u>	50	Y	FACU	
2. <u><i>Rubus ursinus</i></u>	25	Y	FACU	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>75</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: <u>0*</u>				
Remarks: <u>*Groundcover is duff.</u>				

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 2/26/2020
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-27
 Investigator(s): G. Brennan, S. Payne Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Depression Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowasin silt loam NWI classification: None

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

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

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

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: 5-m diameter)				Number of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A)
1. _____				Total Number of Dominant Species Across all Strata: <u>5</u> (B)
2. _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>80</u> (A/B)
3. _____				
4. _____				
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3-m diameter)				Prevalence Index worksheet:
1. <u>Fraxinus latifolia</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Rubus armeniacus</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	OBL species _____ x 1 = _____
3. <u>Amelanchier alnifolia</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
<u>45</u> = Total Cover				UPL species _____ x 5 = _____
Herb Stratum (Plot size: 1-m diameter)				Column Totals: (A) _____ (B) _____
1. <u>Ranunculus repens</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index = B/A = _____
2. <u>Poa sp.</u>	<u>4</u>	<u>Y</u>	<u>FAC*</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>24</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: <u>76</u>				
Remarks: <u>*presumed FAC</u>				Hydrophytic Vegetation Indicators:
				<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation
				<input checked="" type="checkbox"/> 2 – Dominance Test is > 50%
				<input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹
				<input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
				<input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹
				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Project/Site: Capitol Land Trust – Henderson Inlet City/County: Thurston County Sampling date: 2/26/2020
 Applicant/Owner: Bob Droll State: WA Sampling Point: DP-28
 Investigator(s): G. Brennan, S. Payne Section, Township, Range: S28 T19N R01W
 Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR): A Lat: - Long: - Datum: -
 Soil Map Unit Name: Kapowasin silt loam NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: Click here to enter text.					

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: 5-m diameter)				Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>5</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>60</u> (A/B)
1. <u><i>Pseudotsuga menziesii</i></u>	35	Y	FACU	
2. <u><i>Alnus rubra</i></u>	15	Y	FAC	
3. _____				
4. _____				
<u>50</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: (A) _____ (B) _____ Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: 3-m diameter)				
1. <u><i>Rubus armeniacus</i></u>	10	Y	FAC	
2. <u><i>Alnus rubra</i></u>	20	Y	FAC	
3. _____				
4. _____				
5. _____				
<u>30</u> = Total Cover				
Herb Stratum (Plot size: 1-m diameter)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is > 50% <input type="checkbox"/> 3 – Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u><i>Polystichum munitum</i></u>	60	Y	FACU	
2. <u><i>Rubus ursinus</i></u>	5	N	FACU	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>65</u> = Total Cover				
Woody Vine Stratum (Plot size: 3-m diameter)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum: <u>35</u>				
Remarks:				

Appendix D

BOND QUANTITY WORKSHEET



Department of Permitting and
Environmental Review
35030 SE Douglas Str, Suite 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711

**Critical Areas Mitigation
Bond Quantity Worksheet**

C24 09/09/2015
Is-wks-sensareaBQ.xls
Is-wks-sensareaBQ.pdf

Project Name: Inspiring Kids Preserve **Date:** 25-Aug-23 **Prepared by:** Kahlo, R

Project Number: **Project Description:**

Location: Henderson Inlet, Thurston County **Applicant:** Capitol Land Truse **Phone:**

PLANT MATERIALS (includes labor cost for plant installation)

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	\$5.00	Each	3262.00		\$ 16,310.00
PLANTS: Container, 1 gallon, medium soil	\$11.50	Each	6686.00		\$ 76,889.00
PLANTS: Container, 2 gallon, medium soil	\$20.00	Each			\$ -
PLANTS: Container, 5 gallon, medium soil	\$36.00	Each			\$ -
PLANTS: Seeding, by hand	\$0.50	SY	2032.00		\$ 1,016.00
PLANTS: Slips (willow, red-osier)	\$2.00	Each	5934.00		\$ 11,868.00
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Flats/plugs	\$2.00	Each			\$ -
TOTAL					\$ 106,083.00

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit	Quantity	Description	Cost
Compost, vegetable, delivered and spread	\$37.88	CY			\$ -
Decompacting till/hardpan, medium, to 6" depth	\$1.57	CY			\$ -
Decompacting till/hardpan, medium, to 12" depth	\$1.57	CY			\$ -
Hydroseeding	\$0.51	SY			\$ -
Labor, general (landscaping other than plant installation)	\$40.00	HR			\$ -
Labor, general (construction)	\$40.00	HR			\$ -
Labor: Consultant, supervising	\$55.00	HR			\$ -
Labor: Consultant, on-site re-design	\$95.00	HR			\$ -
Rental of decompacting machinery & operator	\$70.00	HR			\$ -
Sand, coarse builder's, delivered and spread	\$42.00	CY			\$ -
Staking material (set per tree)	\$7.00	Each			\$ -
Surveying, line & grade	\$250.00	HR			\$ -
Surveying, topographical	\$250.00	HR			\$ -
Watering, 1" of water, 50' soaker hose	\$3.62	MSF			\$ -
Irrigation - temporary	\$3,000.00	Acre			\$ -
Irrigation - buried	\$4,500.00	Acre			\$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	\$1.02	SY			\$ -
TOTAL					\$ -

HABITAT STRUCTURES*

ITEMS	Unit Cost	Unit	Quantity	Description	Cost
Fascines (willow)	\$ 2.00	Each			\$ -
Logs, (cedar), w/ root wads, 16"-24" diam., 30' long	\$1,000.00	Each			\$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	\$400.00	Each			\$ -
Logs, w/o root wads, 16"-24" diam., 30' long	\$245.00	Each			\$ -
Logs w/ root wads, 16"-24" diam., 30' long	\$460.00	Each			\$ -
Rocks, one-man	\$60.00	Each			\$ -
Rocks, two-man	\$120.00	Each			\$ -
Root wads	\$163.00	Each			\$ -
Spawning gravel, type A	\$22.00	CY			\$ -
Weir - log	\$1,500.00	Each			\$ -
Weir - adjustable	\$2,000.00	Each			\$ -
Woody debris, large	\$163.00	Each			\$ -
Snags - anchored	\$400.00	Each			\$ -
Snags - on site	\$50.00	Each			\$ -
Snags - imported	\$800.00	Each			\$ -
TOTAL					\$ -

* All costs include delivery and installation

EROSION CONTROL

ITEMS	Unit Cost	Unit	Quantity	Description	Cost
Backfill and Compaction-embankment	\$ 4.89	CY			\$ -
Crushed surfacing, 1 1/4" minus	\$30.00	CY			\$ -
Ditching	\$7.03	CY			\$ -
Excavation, bulk	\$4.00	CY			\$ -
Fence, silt	\$1.60	LF			\$ -
Jute Mesh	\$1.26	SY			\$ -
Mulch, by hand, straw, 2" deep	\$1.27	SY	855.00	Mulch rings for container plants	\$ 1,085.85
Mulch, by hand, wood chips, 2" deep	\$3.25	SY			\$ -
Mulch, by machine, straw, 1" deep	\$0.32	SY			\$ -
Piping, temporary, CPP, 6"	\$9.30	LF			\$ -
Piping, temporary, CPP, 8"	\$14.00	LF			\$ -
Piping, temporary, CPP, 12"	\$18.00	LF			\$ -
Plastic covering, 6mm thick, sandbagged	\$2.00	SY			\$ -
Rip Rap, machine placed, slopes	\$33.98	CY			\$ -
Rock Constr. Entrance 100'x15'x1'	\$3,000.00	Each			\$ -
Rock Constr. Entrance 50'x15'x1'	\$1,500.00	Each			\$ -
Sediment pond riser assembly	\$1,695.11	Each			\$ -
Sediment trap, 5' high berm	\$15.57	LF			\$ -
Sediment trap, 5' high berm w/spillway incl. riprap	\$59.60	LF			\$ -
Sodding, 1" deep, level ground	\$5.24	SY			\$ -
Sodding, 1" deep, sloped ground	\$6.48	SY			\$ -
Straw bales, place and remove	\$600.00	TON			\$ -
Hauling and disposal	\$20.00	CY			\$ -
Topsoil, delivered and spread	\$35.73	CY			\$ -
TOTAL					\$ 1,085.85

GENERAL ITEMS					
ITEMS	Unit Cost	Unit			Cost
Fencing, chain link, 6' high	\$18.89	LF			\$ -
Fencing, chain link, corner posts	\$111.17	Each			\$ -
Fencing, chain link, gate	\$277.63	Each			\$ -
Fencing, split rail, 3' high (2-rail)	\$10.54	LF			\$ -
Fencing, temporary (NGPE)	\$1.20	LF			\$ -
Signs, sensitive area boundary (inc. backing, post, install)	\$28.50	Each			\$ -
				TOTAL	\$ -
OTHER				<i>(Construction Cost Subtotal)</i>	\$ 107,168.85
ITEMS	Percentage of Construction	Unit			Cost
Mobilization	10%	1			\$ 10,716.89
Contingency	30%	1			\$ 32,150.66
				TOTAL	\$ 42,867.54
MAINTENANCE AND MONITORING NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintenance ranges may be assessed anywhere from 5 to 10 years.					
Maintenance, annual (by owner or consultant)					
Less than 1,000 sq.ft. and buffer mitigation only	\$ 1.08	SF		(3 X SF total for 3 annual events; Includes monitoring)	\$ -
Less than 1,000 sq.ft. with wetland or aquatic area mitigation	\$ 1.35	SF		(3 X SF total for 3 annual events; Includes monitoring)	\$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation	\$ 180.00	EACH		(4hr @\$45/hr)	\$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation	\$ 270.00	EACH		(6hr @\$45/hr)	\$ -
Larger than 5,000 sq.ft. but < 1 acre -buffer mitigation only	\$ 360.00	EACH		(8 hrs @ 45/hr)	\$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area mitigation	\$ 450.00	EACH		(10 hrs @ \$45/hr)	\$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 1,600.00	DAY	40.00	(WEC crew)	\$ 64,000.00
Larger than 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 2,000.00	DAY		(1.25 X WEC crew)	\$ -
Monitoring, annual (by owner or consultant)					
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	\$ 720.00	EACH		(8 hrs @ 90/hr)	\$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	\$ 900.00	EACH		(10 hrs @ \$90/hr)	\$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	\$ 1,440.00	DAY	12.00	(16 hrs @ \$90/hr)	\$ 17,280.00
Larger than 5 acres - buffer and / or wetland or aquatic area impacts	\$ 2,160.00	DAY		(24 hrs @ \$90/hr)	\$ -
				TOTAL	\$ 81,280.00
Total					\$231,316.39