# WETLAND DELINEATION AND FISH AND WILDLIFE HABITAT ASSESSMENT REPORT

# SOUTH HILL DATA CENTER

**MAY 2018** 



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### SOUTH HILL DATA CENTER

#### MAY 11, 2018

#### PROJECT LOCATION

 $1015 \text{ TO } 1025 \text{ } 39^{\text{th}}$  Avenue Southeast Puyallup, Washington 98374

#### PREPARED FOR

MARK JOHNSON BENAROYA CAPITAL COMPANY 3600 136<sup>TH</sup> PLACE SOUTHEAST, SUITE 250 BELLEVUE, WASHINGTON 98006

#### PREPARED BY

**SOUNDVIEW CONSULTANTS LLC** 2907 HARBORVIEW DRIVE, SUITE D GIG HARBOR, WASHINGTON 98335 (253) 514-8952



# **Executive Summary**

Soundview Consultants LLC (SVC) has been contracted by Benaroya Capital Company (Applicant) to provide a Wetland Delineation and Fish and Wildlife Habitat Assessment Report to assist with planning for a proposed binding site plan of an 86.71-acre site located at 1015 to 1025 39th Avenue Southeast in the City of Puyallup, Washington. The subject property consists of three parcels situated in the Southeast 1/4 of Section 3, Township 19 North, Range 4 East, W.M. (Pierce County Tax Parcel Numbers 0419034031, 0419034032, and 0419034034).

SVC investigated the subject property for the presence of potentially-regulated wetlands, waterbodies, fish and wildlife habitat, and/or priority species in September 2016, and reconfirmed the site findings during a follow-up investigation in April 2018. Using current methodology, the site investigations identified six potentially-regulated wetlands (Wetlands A through F) on the subject property. Wetland A is considered a Category III depressional wetland with a low habitat score which requires a standard 80-foot buffer based on the surrounding high intensity land use. Wetland B is also considered a Category III depressional wetland but with a moderate habitat score which requires a standard 150foot buffer. Wetlands C, D, E, and F are Category IV wetlands and are likely non-regulated by the City of Puvallup's (City) critical areas regulations per Puvallup Municipal Code (PMC) 21.06.910(4) due to their small size (less than 10,000 square feet).

Four offsite wetlands were previously identified on the west-adjacent Parcel 0419037014 (SVC, 2017). The buffers for these features do not extend onto the subject property according to a 2017 City approval for the Wesley Homes development. In addition, Lake Bradley is located approximately 175 feet to the northwest of the subject property in Bradley Lake Park on Parcel 0419032111. No other potentially-regulated wetlands or fish and wildlife habitat were identified within 300 feet of the subject property.

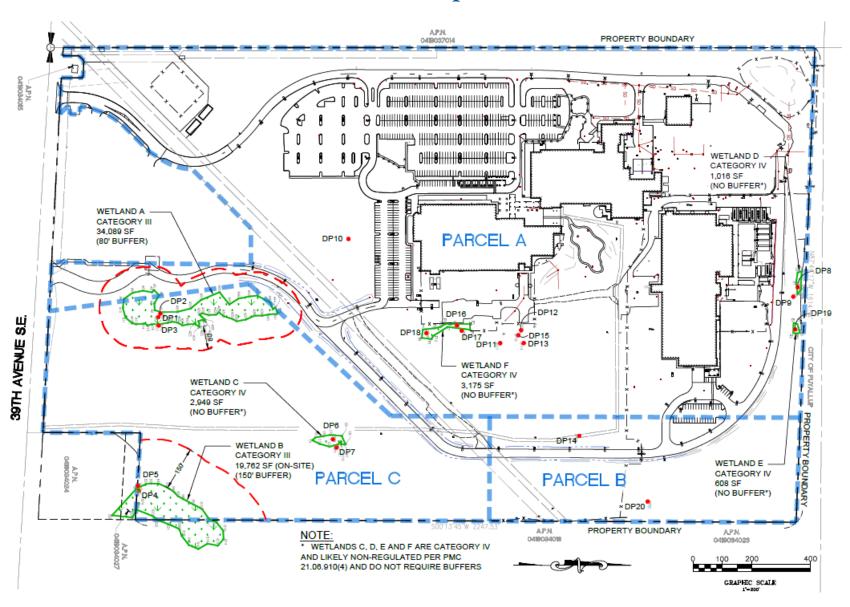
The proposed project includes a binding site plan application that will increase the number of lots onsite from three to nine. No improvements are proposed at this time; as such, the lot division will not impact any critical areas.

The summary table below identifies the onsite wetlands and potential regulatory status of local, state, and federal agencies.

Wetland Name	Size Onsite (SF)	Category <sup>1</sup>	Regulated Under PMC Chapter 21.06	Regulated Under RCW 90.48	Regulated Under Section 404 of the Clean Water Act
Wetland A	34,089	III	Yes	Likely	Likely
Wetland B	19,762	III	Yes	Likely	Likely
Wetland C	2,949	IV	Not Likely	Likely	Not Likely
Wetland D	1,016	IV	Not Likely	Likely	Potentially
Wetland E	608	IV	Not Likely	Likely	Potentially
Wetland F	3,175	IV	Not Likely	Likely	Potentially

Current Washington Department of Ecology (WSDOE) and PMC wetland definitions.

# Site Map



# **Table of Contents**

Chapter 1. Introduction	
Chapter 2. Proposed Project	
2.1 Project Location	
2.2 Project Description	
Chapter 3. Methods	
Chapter 4. Existing Conditions	
4.1 Landscape Setting	
4.2 Soils	
4.3 Vegetation	
4.4 Wetland and Stream Inventories	
4.5 Priority Habitats and Species	
4.6 Precipitation	
Chapter 5. Results	
5.1 Wetlands	
5.1.1 Overview	
5.1.2 Wetland Buffers	
5.1.3 Wetland Functions	
5.2 Offsite Features	
Chapter 6. Regulatory Considerations	
6.1 Local Considerations	
6.2 State and Federal Considerations	
Chapter 7. Closure	
Chapter 8. References	۷ ــــــــــــــــــــــــــــــــــــ
Figures	
Figure 1. Vicinity Map.	
Figure 2. Aerial Image of Subject Property.	4
Amel 1 1	
Tables	
Table 1. Precipitation Summary <sup>1</sup>	6
Table 2. Wetland Summary	
Table 3. Wetland A Summary.	
Table 4. Wetland B Summary.	
Table 5. Wetland C Summary.	
Table 6. Wetland D Summary.	
Table 7. Wetland E Summary.	
Table 8. Wetland F Summary.	
Table 9. Wetland Functions and Values.	
Table 7 Camia i alleaville mid , macellinininininininininininininininininini	

# **Appendices**

Appendix A — Methods and Tools

Appendix B — Background Information

Appendix C — Site Plans

Appendix D — Data Forms

Appendix E — Wetland Rating Forms

Appendix F — Wetland Rating Maps

Appendix G — Qualifications

# Chapter 1. Introduction

Soundview Consultants LLC (SVC) has been contracted by Benaroya Capital Company (Applicant) to provide a Wetland Delineation and Fish and Wildlife Habitat Assessment Report to assist with planning for a proposed binding site plan of an 86.71-acre site located at 1015 to 1025 39<sup>th</sup> Avenue Southeast in the City of Puyallup, Washington. The subject property consists of three parcels situated in the Southeast ½ of Section 3, Township 19 North, Range 4 East, W.M. (Pierce County Tax Parcel Numbers 0419034031, 0419034032, and 0419034034).

The purpose of this assessment is to identify the presence of potentially-regulated wetlands, waterbodies, fish and wildlife habitat, and/or priority species on or near the subject site and to assess potential impacts upon any such critical areas from the proposed project.

This report provides conclusions and recommendations regarding:

- Site description, project description, and area of assessment;
- Background research and identification of potentially-regulated critical areas within the vicinity of the proposed project;
- Identification and assessment of potentially-regulated wetlands and other hydrologic features;
- Identification and assessment of potentially-regulated fish and wildlife habitat;
- Existing site map detailing identified critical areas and associated buffers;
- Site plan detailing the proposed lot division; and
- Supplemental information necessary for local regulatory review.

# Chapter 2. Proposed Project

#### 2.1 Project Location

The subject property consists of an 86.71-acre site located at 1015 to 1025 39<sup>th</sup> Avenue Southeast in the City of Puyallup, Washington (Figure 1). The subject property consists of three parcels situated in the Southeast ½ of Section 3, Township 19 North, Range 4 East, W.M. (Pierce County Tax Parcel Numbers 0419034031, 0419034032, and 0419034034).

To access the subject property from downtown Tacoma via Interstate 5 northbound, take Exit 135 and merge onto State Route 167 toward Puyallup. Proceed six miles and turn right onto North Meridian, which becomes South Meridian after 0.4 mile. After approximately 2.65 miles, turn left onto Meridian Avenue East/ Meridian South. Proceed for 0.25 mile and turn left onto 37th Avenue Southeast. Proceed for 0.7 mile when the road turns into 39th Avenue Southeast. The subject property will be on the left.

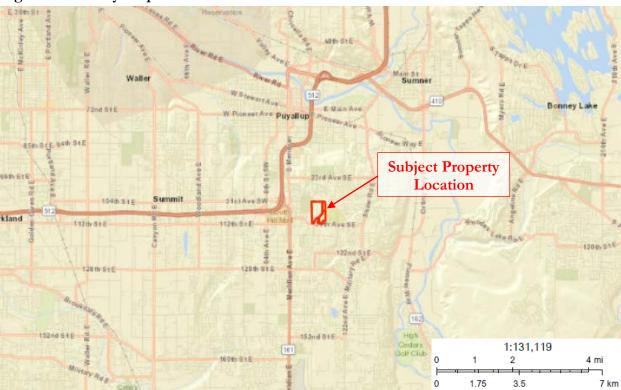


Figure 1. Vicinity Map.

### 2.2 Project Description

The proposed project includes a binding site plan application that will increase the number of lots onsite from three to nine (Lots 1 through 9). The proposed lot layout is illustrated on site plan in Appendix C. No improvements are proposed at this time; as such, the lot division will not impact any critical areas.

# Chapter 3. Methods

SVC investigated, delineated, and assessed wetlands, drainages, and other potentially-regulated fish and wildlife habitat on and within 300 feet of the subject property in September 2016, and reconfirmed the site findings during a follow-up site investigation in April 2018. All determinations were made using observable vegetation, hydrology, and soils in conjunction with background data collected from the U.S. Geological Survey (USGS) topographic map, Natural Resources Conservation Service (NRCS) Soil Survey, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) and SalmonScape mapping tools, Washington State Department of Natural Resources (DNR) water typing data, Pierce County Geographic Information Systems (GIS) data, City of Puyallup's wetland inventory, precipitation data, and various orthophotographic resources. Appendix A contains further details for the methods and tools used to prepare this report.

Wetland boundaries were determined using the routine approach described in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, 1987) and modified according to the guidelines established in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE, 2010). Qualified wetland scientists marked boundaries of onsite wetlands with orange surveyor's flagging labeled alphanumerically and tied to 3-foot lath or vegetation along the wetland boundary. Pink surveyor's flagging was labeled alphanumerically and tied to 3-foot lath or vegetation at formal sampling locations to mark the points where detailed data was collected (DP-1 to DP-20). Additional tests pits were excavated at regular intervals inside and outside of the wetland boundaries to further confirm each delineation.

Wetlands were classified using both the hydrogeomorphic (Brinson, 1993) and Cowardin (Cowardin, 1979; Federal Geographic Data Committee, 2013) classification systems, and generally assessed using the Wetland Functions Characterization Tool for Linear Projects (Null et al., 2000). Following classification and assessment, all wetlands were rated and categorized using the Washington State Wetlands Rating System for Western Washington – Washington State Department of Ecology Publication No. 14-06-029, published October 2014 (Hruby, 2014) and guidelines established in PMC 21.06.910.

The fish and wildlife habitat assessment was conducted during the same site visits by qualified fish and wildlife biologists. The experienced biologists made visual observations using stationary and walking survey methods for both aquatic and upland habitats noting any special habitat features or signs of fish and wildlife activity.

# Chapter 4. Existing Conditions

#### 4.1 Landscape Setting

The subject property is located in an urban commercial setting within the City of Puyallup's urban growth area (Figure 2). The subject property is currently developed with an office complex with associated infrastructure (e.g., access roads, parking areas, utilities, and storm pond) and areas of maintained lawn; the remainder of the site consists of undeveloped forested areas. The subject property abuts Pierce College Puyallup and undeveloped forested areas to the east; 112<sup>th</sup> Street East to the south with various commercial businesses and warehouse facilities beyond; undeveloped forested areas and Bradley Lake Park to the west; and undeveloped forested areas, a pedestrian trail, and Pierce College West Access Road to the north. Topography on the site generally slopes downward from the southeast to the northwest with elevations ranging from approximately 540 feet to 440 feet above mean sea level (amsl). A Pierce County topographic map is provided in Appendix B1. The subject property is located in Water Resource Inventory Area (WRIA) 10 – Puyallup-White.



Figure 2. Aerial Image of Subject Property.

#### 4.2 Soils

The NRCS Soil Survey of Pierce County, Washington, identifies four soil series on the site: Everett gravelly sandy loam, 0 to 6 percent slopes; Indianola loamy sand, 6 to 15 percent slopes; Kapowsin gravelly loam, 0 to 6 percent slopes; and Kapowsin gravelly loam, 6 to 15 percent slopes (Zulauf, 1979). A soil map is provided in Appendix B5.

#### Everett gravelly sandy loam, 0 to 6 percent slopes (13B)

According to the survey, Everett gravelly sandy loam, 0 to 6 percent slopes is a somewhat excessively drained soil formed in gravelly glacial outwash under conifers. In a typical profile, the surface layer (0 to 2 inches) is a very dark brown gravelly sandy loam. The subsoil (2 to 19 inches) is a dark yellowish brown sandy loam and dark brown very gravelly, coarse sandy loam. The substratum (19 to more than 60 inches) is clean, loose, very gravelly sand. Everett gravelly sandy loam, 0 to 6 percent slopes is listed as non-hydric on the Pierce County Hydric Soils List (NRCS, 2001).

#### Indianola loamy sand, 6 to 15 percent slopes (18C)

According to the survey, Indianola loamy sand, 6 to 15 percent slopes, is a somewhat excessively drained soil formed in sandy glacial outwash on broad uplands. In a typical profile, the surface layer (7 inches thick) is dark brown loamy sand. The underlying material to a depth of 60 inches is dark yellowish brown, brown, or olive brown sand. Some areas of this soil series are known to rest on unstable lake sediments, and be adjacent to areas of a soil that is deep, loose, and gravelly. Roots extend to a depth of more than 60 inches. Indianola loamy sand, 6 to 15 percent slopes, is listed as non-hydric on the Pierce County Hydric Soils List (NRCS, 2001).

#### Kapowsin gravelly loam, 0 to 6 percent slopes (19B)

According to the survey, Kapowsin gravelly loam, 0 to 6 percent slopes have developed in glacial till under conifers and dominates the Midland-Parkland area in elevation ranges from 300 to 900 feet. In a typical profile, the surface layer is dark brown gravelly loam to a depth of 7 inches. The subsoil, between depths of 7 and 25 inches is dark brown or dark yellowish brown gravelly loam and brown loam. The substratum, to a depth of more than 60 inches, is mottled olive brown loam and grayish brown gravelly loam. The substratum is compact glacial till that is cemented in places, particularly in the upper part. Kapowsin gravelly loam, 0 to 6 percent slopes is listed as non-hydric on the Pierce County Hydric Soils List (NRCS, 2001).

#### Kapowsin gravelly loam, 6 to 15 percent slopes(19C)

According to the survey, Kapowsin gravelly loam, 6 to 16 percent slopes are moderately well drained and formed in glacial till under conifers. In a typical profile the surface layer is dark brown gravelly loam to a depth of 7 inches. From 7 to 25 inches the soil is dark brown or dark yellowish brown gravelly loam and brown loam. From 25 to 60 inches the soil is mottled and olive brown loam and grayish brown gravelly loam. This soil is compact glacial till with moderate erosion hazard. Kapowsin gravelly loam 6 to 15 percent slopes is listed as non-hydric on the Pierce County Hydric Soils List (NRCS, 2001).

#### 4.3 Vegetation

The majority of the subject property consists of impervious surfaces (buildings and asphalt pavement) surrounded by maintained lawn and ornamental, non-native landscaping. The undeveloped forest patches on the rest of the site are generally dominated by a canopy of Douglas fir (*Pseudostuga menziesii*) and big leaf maple (*Acer macrophyllum*) with an understory of evergreen huckleberry (*Vaccinium ovatum*), tall Oregon grape (*Mahonia aquifolium*), salal (*Gaultheria shallon*), stinging nettle (*Urtica dioica*), and non-native invasive Himalayan blackberry (*Rubus armeniacus*).

#### 4.4 Wetland and Stream Inventories

The USFWS NWI map (Appendix B2) and Pierce County wetland inventory (Appendix B3) misidentify a linear wetland feature on the center of the subject property, where buildings, roads, and parking lots currently exist. These maps also identify a potential offsite wetland area approximately 150 to the east of the site, which the City of Puyallup wetland inventory (Appendix B8) misidentifies as extending onto the subject property. The City of Puyallup wetland inventory identifies two other potential wetland areas on the eastern portion of the site and four wetlands on the west-adjacent Parcel 0419037014. The buffers for these offsite wetlands to the west do not extend onto the subject property according to a 2017 City approval for the Wesley Homes development. The DNR stream typing map (Appendix B4) does not identify any potential streams on or within 300 feet of the subject property. No other potential wetlands or streams are documented in the vicinity of the subject property.

#### 4.5 Priority Habitats and Species

The WDFW PHS map (Appendix B6) identifies waterfowl concentrations associated with Lake Bradley which is located approximately 175 feet to the northwest of the subject property in Bradley Lake Park on Parcel 0419032111. The WDFW SalmonScape map (Appendix B7) does not identify salmonid presence associated with Bradley Lake or within 300 feet of the site. No other priority habitats or threatened, endangered, or sensitive plant or animal species were identified within 300 feet of the subject property.

#### 4.6 Precipitation

Precipitation data was obtained from the National Oceanic and Atmospheric Administration (NOAA) station at Seattle-Tacoma International Airport in order to obtain percent of normal precipitation during and preceding the investigations. A summary of data collected is provided in Table 1.

Table 1. Precipitation Summary<sup>1</sup>

Date	Day of	Day Before	1 Week Prior	2 Weeks Prior	30 Days Prior (Observed/Normal)	Year to Date (Observed/Normal) <sup>2</sup>	Percent of Normal <sup>3</sup>
9/13/16	0.00	0.00	0.07	0.73	0.73/1.15	24.45/21.14	63/116
9/14/16	0.00	0.00	0.07	0.73	0.73/1.16	24.45/21.18	63/115
9/15/16	0.00	0.00	0.00	0.72	0.73/1.18	24.45/21.23	62/115
4/24/18	0.00	0.00	0.04	3.61	5.64/3.05	18.09/15.06	185/120

Precipitation volume provided in inches. Data obtained from NOAA (http://w2.weather.gov/climate/xmacis.php?wfo=sew) for Sea-Tac Airport.

During the September 2016 site visits, precipitation levels were approximately 63 percent of statistical normal levels for the 30 days prior and approximately 115 percent of normal levels for the calendar year. In April 2018, precipitation levels for the 30 days prior to the site visit were 185 percent of normal, and 120 percent of normal for the calendar year. This precipitation data suggests that both drier (2016) and wetter (2018) than normal conditions were encountered during the time of the site investigations; such conditions were considered in making professional wetland boundary determinations.

<sup>2.</sup> Year-to-date precipitation is for the calendar year from January 1 to the onsite date(s).

<sup>3.</sup> Percent of normal is shown for the last 30 days and calendar year to date.

# Chapter 5. Results

#### 5.1 Wetlands

#### 5.1.1 Overview

The site investigation identified six potentially-regulated wetlands on the subject property (Wetlands A through F). The identified wetlands contained indicators of wetland hydrology, hydric soils, and a predominance of hydrophytic vegetation according to current wetland delineation methodology. Four additional wetlands and Lake Bradley were identified offsite to the west within 300 feet of the subject property. No other wetlands, fish and wildlife habitat, or priority species were identified on or within 300 feet of the subject property. Wetland data forms are provided in Appendix D; wetland rating forms are provided in Appendix E; and wetland rating maps are provided in Appendix F for the onsite wetlands only. Table 2 summarizes the onsite wetlands identified onsite during the site investigations.

Table 2. Wetland Summary

	Predominant Wetland Classification / Rating			Rating	Wetland Size Standard		
Wetland	Cowardin <sup>1</sup>	HGM <sup>2</sup>	WSDOE <sup>3</sup>	City of Puyallup <sup>4</sup>	Onsite (SF)	Buffer Width (feet)	
A	PFOCD	Depressional	III	III	34,089	805	
В	PFOCD	Depressional	III	III	19,762	150 <sup>5</sup>	
С	PFO/EMC	Depressional	IV	IV	2,949	N/A <sup>6</sup>	
D	PFOAD	Depressional	IV	IV	1,016	N/A <sup>6</sup>	
Е	PFOD	Slope	IV	IV	608	N/A <sup>6</sup>	
F	PFOB	Slope	IV	IV	3,175	N/A <sup>6</sup>	

#### Notes:

#### Wetland A

Wetland A is 34,089 square feet (0.78 acre) in size and located on the south-central portion of the subject property, straddling the common boundary between proposed Lots 7 and 9. Hydrology for Wetland A is provided by stormwater discharge, surface sheet flow, direct precipitation, and a seasonally-high groundwater table. Wetland vegetation is dominated by a canopy of red alder (*Alnus rubra*) and black cottonwood (*Populus balsamifera*) with an understory of hardhack (*Spiraea douglasii*) and salmonberry (*Rubus spectabilis*). Wetland A is a Palustrine Forested, Seasonally Flooded/Continuously Saturated wetland (PFOCD). Per PMC 21.06.910, Wetland A is a Category III depressional wetland with a total habitat score of 4 points. Table 3 summarizes Wetland A.

<sup>1.</sup> Cowardin et al. (1979) or NWI Class based on vegetation: PFO = Palustrine Forested, PEM = Palustrine Emergent; Modifier for Water Regime: A = Temporarily Flooded, B = Seasonally Saturated, C = Seasonally Flooded; D = Continuously Saturated.

<sup>2.</sup> Brinson, M. M. (1993).

<sup>3.</sup> WSDOE rating according to Washington State Wetland Rating System for Western Washington (Hruby, 2014).

<sup>4.</sup> PMC 21.06.910 rating definitions.

<sup>5.</sup> Based on habitat score and high intensity land use per 21.06.930(2)(a).

Likely not regulated by the City's critical areas regulations per PMC 21.06.910(4) due to the unit's small size and Category IV
classification.

#### Wetland B

Wetland B is 19,762 square feet (0.45 acre) in size onsite and is located on the southeastern corner of the subject property on proposed Lot 7, extending offsite to the east. Hydrology for Wetland B is provided by surface sheet flow, direct precipitation, and a seasonally-high groundwater table. Wetland vegetation is dominated by a canopy of western red cedar (*Thuja plicata*) and red alder with an understory of hardhack and skunk cabbage (*Lysichiton americanus*). Wetland B is a Palustrine Forested, Seasonally Flooded/Continuously Saturated wetland (PFOCD). Per PMC 21.06.910, Wetland B is a Category III depressional wetland with a total habitat score of 5 points. Table 4 summarizes Wetland B.

#### Wetland C

Wetland C is 2,949 square feet (0.07 acre) in size and is located on the southeastern portion of the subject property on proposed Lot 7. Hydrology for Wetland C is provided by surface sheet flow, direct precipitation, and a seasonally-high groundwater table. Wetland vegetation is dominated by a canopy of red alder with an understory of reed canarygrass (*Phalaris arundinacea*). Wetland C is a Palustrine Forested/Emergent, Seasonally Flooded wetland (PFO/EMC). Per PMC 21.06.910, Wetland C is a Category IV depressional wetland. Table 5 summarizes Wetland C.

#### Wetland D

Wetland D is 1,016 square feet (0.02 acre) in size and is located on the north-central portion of the subject property on proposed Lot 2. Hydrology for Wetland D is provided by surface sheet flow, direct precipitation, and a seasonally-high groundwater table. Wetland vegetation is dominated by a canopy of black cottonwood and Pacific willow (*Salix lasiandra*) with an understory of salmonberry and field horsetail (*Equisetum arvense*). Wetland D is a Palustrine Forested, Occasionally Flooded/Continuously Saturated wetland (PFOAD). Per PMC 21.06.910, Wetland D is a Category IV depressional wetland. Table 6 summarizes Wetland D.

#### Wetland E

Wetland E is 608 square feet (0.01 acre) in size and is located on the north-central portion of the subject property on proposed Lot 2. Hydrology for Wetland E is provided by surface sheet flow, direct precipitation, and a seasonally-high groundwater table provided by hillside seeps. Wetland vegetation is dominated by a canopy of red alder with an understory of skunk cabbage. Wetland E is a Palustrine Forested, Continuously Saturated wetland (PFOD). Per PMC 21.06.910, Wetland E is a Category IV slope wetland. Table 7 summarizes Wetland E.

#### Wetland F

Wetland F is 3,175 square feet (0.07 acre) in size and is located in the center of the subject property on Proposed Lot 4. Hydrology for Wetland F is provided by surface sheet flow, direct precipitation, and a seasonally-high groundwater table provided by hillside seeps. Wetland vegetation is dominated by a canopy of red alder with an understory of hardhack, non-native invasive Himalayan blackberry, soft rush (*Juncus effusus*), and colonial bentgrass (*Agrostis capillaris*). Wetland F is a Palustrine Forested, Seasonally Saturated wetland (PFOB). Per PMC 21.06.910, Wetland F is a Category IV slope wetland. Table 8 summarizes Wetland F.

Table 3. Wetland A Summary.

Table 3. Wetland	WETLAND A – INFORM	MATION CHIMMADV	
	Located on the south-central portion		etraddling the common
Location:	boundary between proposed Lots 7	, 1 1	stradding the common
という意思 (画面	Boundary Between proposed Lots /	Local Jurisdiction	City of Puyallup
P at S LOT		WRIA	10 – Puyallup/White
200	是一种特别的一种。	WSDOE Rating	
	<b>以</b> "我们就是一个人,我们就是一个人	(Hruby, 2014)	III
		City of Puyallup Rating	III
		City of Puyallup Buffer	80 feet
		Width	
	<b>等于现在了一个人的</b>	Wetland Size	34,089 SF
A TOP OF	A 100 March 100	Cowardin Classification	PFOCD
		HGM Classification	Depressional
		Wetland Data Sheet(s)	DP-1, DP-2
		Upland Data Sheet (s)	DP-3
		Boundary Flag color	Orange
Dominant	Wetland vegetation is dominated by	a canopy of red alder and bla	ck cottonwood with an
Vegetation	understory of hardhack and salmonl	* *	
Soils	Hydric soil indicator F3 (Depleted M	Matrix) was observed.	
Hydrology	Hydrology for Wetland A is provide precipitation, and a seasonally-high (Water Marks), B3 (Drift Deposits),	groundwater table. Primary h	ydrologic indicators B1
Rationale for	Wetland boundaries were determine		
Delineation	hydrophytic plant community.		
Rationale for Local Rating	Local rating is based upon WSDOE		PMC 21.06.910.
	Wetland Function		
Water Quality	Wetland A has a moderate ability to due to the direct stormwater input; the in greater than 95 percent of the acceptable seasonal ponding. Wetland method is moderate (6).	ne wetland containing persisterea; and since greater than h A's score for Water Quality F	ent, ungrazed vegetation alf of the wetland area unctions using the 2014
Hydrologic	Wetland A provides moderate hydro land development that generates su score for Hydrologic Functions usin	urface runoff and its storage	capacity. Wetland A's
Habitat	Habitat functions provided by Wetla interspersion of habitats, or accessible land uses. However, Wetland A do logs which provide some level of Wetland A's score for Habitat Function	le habitat as the wetland is ac es contain special habitat fea habitat complexity for bird tions using the 2014 method	ljacent to high-intensity tures such as snags and s and small mammals. is low (4).
Buffer	The buffer surrounding Wetland A	•	
Condition	undeveloped forested areas that are	degraded by non-native invas	sive species.

Table 4. Wetland B Summary.

Table 4. Wetland	v	AATIONI CIIMMAADV				
	WETLAND B – INFORM		annead Let 7 extending			
Location:	Located on the southeastern corner of offsite to the east.	of the subject property on pro	posed Lot /, extending			
WE LEVEL TO	orisite to the east.	Local Jurisdiction	City of Puyallup			
	<b>一个人的人</b>	WRIA	10 – Puyallup/White			
<b>自己</b>		WSDOE Rating	10 – 1 uyanup/ winte			
		(Hruby, 2014)	III			
人人主义人们	<b>《 1 图 图 1 图 图 1 图 图 1</b>	City of Puyallup Rating	III			
	THE PARTY NAMED IN	City of Puyallup Buffer				
	VIII TO THE RESERVE AND THE RE	Width	150 feet			
	N. A. B. A. L. C.	Wetland Size	19,762 SF (onsite)			
	MALANT	Cowardin Classification	PFOCD			
		HGM Classification	Depressional			
		Wetland Data Sheet(s)	DP-4			
		Upland Data Sheet (s)	DP-5			
		Boundary Flag color	Orange			
Dominant	Wetland vegetation is dominated by	a canopy of western red ceda	ar and red alder with an			
Vegetation	understory of hardhack and skunk c	abbage.				
Soils	Soils consist of muck with organics. Hydric soil indicators A1 (Histosol) and A4 (Hydrogen Sulfide) were observed.					
Hydrology	Hydrology for Wetland B is provided by surface sheet flow, direct precipitation, and a seasonally-high groundwater table. Primary hydrologic indicators A2 (High Water Table), A3 (Saturation), B3 (Drift Deposits), and C1 (Hydrogen Sulfide) were observed.					
Rationale for	Wetland boundaries were determine					
Delineation	hydrophytic plant community.	, 101				
Rationale for	Local rating is based upon WSDOE	s current rating system per F	PMC 21.06.910.			
Local Rating	Wetland Function	one Summary				
	Wetland B has a moderate ability to	į	nts from surface runoff			
	due to the proximity to 39th Ave					
Water Quality	ungrazed vegetation in greater than					
	wetland area ponding seasonally. Wetland B's score for Water Quality Functions usin					
	the 2014 method is moderate (6).					
	Wetland B provides moderate hydro					
Hydrologic	land development that generates su	-				
	score for Hydrologic Functions usin					
	Habitat functions provided by Wetl and accessible habitat as the wetlan					
Habitat	Wetland B does contain special l	,	•			
1 1 avitat	hydroperiods, and low invasive sp					
complexity for birds and small mammals. Wetland B's score for Habitat Fund						
	the 2014 method is moderate (5).					
Buffer	The buffer surrounding Wetland B					
Condition	facility, and undeveloped forested ar	eas that are degraded by non-	-native invasive species.			

Table 5. Wetland C Summary.

Table 5. Wetland	WETLAND C - INFORM	MATION SUMMARY			
Location:	Located on the southeastern portion	n of the subject property on p	proposed Lot 7		
		Local Jurisdiction	City of Puyallup		
<b>经验证</b>	LOW MALE LAND	WRIA	10 – Puyallup/White		
	<b>你是公子</b>	WSDOE Rating (Hruby, 2014)	IV		
		City of Puyallup Rating	IV		
	AND THE PROPERTY OF THE PROPER	City of Puyallup Buffer	N/A – Likely Non-		
<b>美国教育</b>	<b>从</b> 从外	Width	Regulated		
		Wetland Size	2,949 SF		
		Cowardin Classification	PFO/EMC		
		HGM Classification	Depressional		
		Wetland Data Sheet(s)	DP-6		
de la companya della companya della companya de la companya della		Upland Data Sheet (s)	DP-7		
7		Boundary Flag color	Orange		
Dominant	Wetland vegetation is dominated by a canopy of red alder with an understory of reed				
Vegetation	canarygrass.				
Soils	Hydric soil indicator A11 (Depleted Below Dark Surface) was observed.				
Hydrology	Hydrology for Wetland C is provided by surface sheet flow, direct precipitation, and a seasonally-high groundwater table. Primary hydrologic indicator A1 (Surface Water), A2 (High Water Table), A3 (Saturation), and B8 (Sparsely Vegetated Concave Surface) were observed.				
Rationale for	Wetland boundaries were determine	ined by topographic drop	and a transition to a		
Delineation	hydrophytic plant community.	, , , , , , , , , , , , , , , , , , , ,			
Rationale for Local Rating	Local rating is based upon WSDOE's current rating system per PMC 21.06.910.				
	Wetland Function	ons Summary			
	Wetland C has a moderate ability to	•	nts from surface runoff		
	due to the wetland containing persis				
Water Quality	of the area, and greater than one	1	1 0		
	However, this function is limited by the relatively small size of the wetland. Wetland				
	score for Water Quality Functions u				
Undualsais	Wetland C provides moderate hydrogeneity and leaks a surface water				
Hydrologic	capacity and lacks a surface water outlet. Wetland C's score for Hydrologic Functions				
	using the 2014 method is moderate Habitat functions provided by Wetla		ck of plant richness and		
	presence of invasive species. Howe		-		
Habitat	such as snags and logs and minimal				
	habitat complexity for birds and		•		
	Functions using the 2014 method is				
Buffer	The area surrounding Wetland C is		forested areas that are		
Condition	degraded due to the presence of inv	,			

Table 6. Wetland D Summary.

	WETLAND D - INFORM	MATION SUMMARY	
Location:	Located on the north-central portion		proposed Lot 2.
	<b>宣言</b> (1) (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	Local Jurisdiction	City of Puyallup
A TOWN	<b>一等49</b> 维则存储数据次	WRIA	10 – Puyallup/White
	4、 建立多个人使取得处理工	WSDOE Rating	IV
		(Hruby, 2014)	1 V
		City of Puyallup Rating	IV
		City of Puyallup Buffer	N/A – Likely Non-
		Width	Regulated
		Wetland Size	1,016 SF
"表面"。	- F	Cowardin Classification	PFOAD
		HGM Classification	Depressional
		Wetland Data Sheet(s)	DP-8
		Upland Data Sheet (s)	DP-9
		Boundary Flag color	Orange
Dominant	Wetland vegetation is dominated by	y a canopy of black cottonw	rood and Pacific willow
Vegetation	with an understory of salmonberry a	and field horsetail.	
Soils	Hydric soil indicator A11 (Depleted	Below Dark Surface) was ob	served.
Hydrology	Hydrology for Wetland D is provid seasonally-high groundwater table. I (Algal Mat or Crust) were observed.	Primary hydrologic indicators	
Rationale for	Wetland boundaries were determine		and a transition to a
Delineation	hydrophytic plant community.	, , , , , , , , , , , , , , , , , , , ,	
Rationale for Local Rating	Local rating is based upon WSDOE	s current rating system per I	PMC 21.06.910.
3	Wetland Function	ons Summary	
Water Quality	Wetland D has some ability to retain to the presence of persistent, ungrated However, this function is limited by seasonal ponding. Wetland D's scort is moderate (5).	n sediments and pollutants f azed plants in greater than ha y the relatively small size of e for Water Quality Functions	alf the area of the unit. the wetland and lack of s using the 2014 method
Hydrologic	Wetland D provides limited hydrolo flowing ditch to facilitate reductions score for Hydrologic Functions usin	s of surface flows during stor ag the 2014 method is low (4)	m events. Wetland D's
Habitat	Habitat functions provided by Wetla and interspersion of habitats. Howe unit which provides some habitat co using the 2014 method is low (4).	ever, downed woody debris is omplexity. Wetland D's scor	s present in the wetland e for Habitat Functions
Buffer Condition	The area surrounding Wetland D coare degraded due to the presence of an access road to the south.		

Table 7. Wetland E Summary.

	WETLAND E – INFORM	MATION SUMMARY			
Location:	Located on the north-central portion		proposed Lot 2.		
STATE OF THE STATE		Local Jurisdiction	City of Puyallup		
XXX	一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个	WRIA	10 – Puyallup/White		
		WSDOE Rating (Hruby, 2014)	IV		
		City of Puyallup Rating	IV		
		City of Puyallup Buffer Width	N/A – Likely Non- Regulated		
	TO SEE SEE SEE SEE SEE SEE SEE SEE SEE SE	Wetland Size	608 SF		
		Cowardin Classification	PFOD		
	<b>操</b>	HGM Classification	Slope		
		Wetland Data Sheet(s)	DP-19		
		Upland Data Sheet (s)	DP-9		
		Boundary Flag color	Orange		
Dominant	Wetland vegetation is dominated by a canopy of red alder with an understory of skunk				
Vegetation	cabbage.		·		
Soils	Hydric soil indicator A11 (Depleted	Below Dark Surface) was ob	served.		
Hydrology	Hydrology for Wetland E is provid seasonally-high groundwater table p indicators A2 (High Water Table) an	provided through hillside see	ps. Primary hydrologic		
Rationale for Delineation	Wetland boundaries were determined by point of saturation and a transition to a hydrophytic plant community.				
Rationale for Local Rating	Local rating is based upon WSDOE's current rating system per PMC 21.06.910.				
3	Wetland Function	ons Summary			
Water Quality	Wetland E has some potential to covering greater than half of the limited by its size and slope char Functions using the 2014 method is	wetland area, though such f racteristics. Wetland E's so	functions are extremely		
Hydrologic	Wetland E provides minimal hydlandscape, slope characteristics, and Wetland E's score for Hydrologic F	lrologic functions due to it lack of known flooding issues unctions using the 2014 meth	s lower in the sub-basin. nod is low (4).		
Habitat	Habitat functions provided by Wet richness and interspersion of habitat wetland unit which provides some Functions using the 2014 method is	ts. However, downed woody habitat complexity. Wetland low (4).	debris is present in the d E's score for Habitat		
Buffer Condition	The area surrounding Wetland E co are degraded due to the presence of an access road to the south.				

Table 8. Wetland F Summary.

	WETLAND F – INFORM	MATION SUMMARY		
Location:	Located on the central of the subjec		1.	
A Sel		Local Jurisdiction	City of Puyallup	
		WRIA	10 – Puyallup/White	
		WSDOE Rating (Hruby, 2014)	IV	
		City of Puyallup Rating	IV	
A - A - A		City of Puyallup Buffer	N/A – Likely Non-	
		Width	Regulated	
	THE RESERVE THE PARTY OF THE PA	Wetland Size	3,175 SF	
	10000000000000000000000000000000000000	Cowardin Classification	PFOB	
		HGM Classification	Slope	
		Wetland Data Sheet(s)	DP-16, DP-18	
		Upland Data Sheet (s)	DP-17	
		Boundary Flag color	Orange	
Dominant	Wetland vegetation is dominated by			
Vegetation	non-native invasive Himalayan black	xberry, soft rush, and colonia	l bentgrass.	
Soils	Hydric soil indicator S5 (Sandy Redox) was observed.			
Hydrology	Hydrology for Wetland F is provided by surface sheet flow, direct precipitation, and a seasonally-high groundwater table provided through hillside seeps. Primary hydrologic indicator A3 (Saturation) was observed.			
Rationale for Delineation	Wetland boundaries were determine hydrophytic plant community.	ned by point of saturation	and a transition to a	
Rationale for		2a assument notingt T	DMC 21 04 010	
Local Rating	Local rating is based upon WSDOE	's current raung system per I	TVIC 21.00.910.	
	Wetland Function			
Water Quality	Wetland F has a moderate ability to covering greater than half of the within 150 feet upslope in land uses to Quality Functions using the 2014 me	etland area, and greater than that generate pollutants. Wet ethod is moderate (5).	10 percent of the area land F's score for Water	
Hydrologic	Wetland F provides minimal hydrolo slope characteristics, and no known score for Hydrologic Functions usin	flooding issues lower in the ag the 2014 method is low (4)	sub-basin. Wetland F's	
Habitat	Habitat functions provided by Wet richness and interspersion of habitat wetland unit which provides some Functions using the 2014 method is	ts. However, downed woody habitat complexity. Wetland low (4).	debris is present in the d F's score for Habitat	
Buffer Condition	The area surrounding Wetland F condegraded due to the presence of invaccess road to the west.			

#### 5.1.2 Wetland Buffers

Wetland A is a Category III wetland with a low habitat score which requires a standard 80-foot buffer according to PMC 21.06.930 based on the surrounding high land use intensity. Wetland B is a Category III wetland but with a moderate habitat score which requires a standard 150-foot buffer. Wetlands C, D, E, and F are Category IV wetlands and are likely non-regulated by the City's critical area regulations pursuant to PMC 21.06.910(4) as the wetlands are less than 10,000 square feet in size.

#### 5.1.3 Wetland Functions

Using the rapid assessment method (Null et al., 2000), the wetlands on the subject property may provide some water quality, hydrologic, and/or habitat functions (Table 9). However, these functions are limited by habitat diversity, wetland size, and the position of the wetlands within the landscape.

Wetlands A, B, D, E, and F generally provide a moderate degree of function for improving water quality including sediment removal and nutrient and toxicant removal due to the proximity to pollutant-generating impervious surfaces (i.e., roadways and parking areas), the presence of dense, uncut vegetation, and/or seasonal ponding characteristics. However, such functions are limited for Wetlands C, D, E, and F due to their small sizes.

Hydrologic functions provided by Wetlands A, B, and C are moderate due to the presence of dense vegetation to slow peak flows, the large sizes of Wetlands A and B which provide ample storage capacity, the depressional nature of these wetlands, and the lack of outlet for Wetland C. Wetlands D, E, and F provide minimal hydrologic functions due to their relatively small sizes, lack of significant storage areas, and sloped nature of Wetlands E and F. None of the onsite wetlands provide erosion control or shoreline stabilization functions, nor do they provide flood flow alternation functions above a de minimis level due to the lack of known downgradient flooding problems in the sub-basin.

With the exception of Wetland C which is small and does not contain an outlet, the identified wetlands onsite provide some habitat functions related to production and export of organic matter due to the presence of dense, intact vegetation communities and several of the wetland units containing multiple strata. Wetlands A, B, and C provide additional functions such as habitat for aquatic invertebrates and amphibians as they contain snags and logs and areas of seasonal ponding that are essential for greater habitat suitability. Wetland B exhibits some native plant richness due to the wetland's size, forest structure, and relative predominance of native plant species. Wetlands D, E, and F provide limited habitat functions due to the lack of special habitat features, and Wetlands E and F are further limited by their sloped nature.

The onsite wetlands likely do not provide any function of educational value, uniqueness, or heritage to the best of our professional judgement.

Table 9. Wetland Functions and Values.

E water / Wil at			Wet	land		
Function / Value <sup>1</sup>	A	В	С	D	E	F
Water Quality Functions						
Sediment Removal	X	X	-	X	X	X
Nutrient and Toxicant Removal	X	X	-	X	X	X
Hydrologic Functions						
Flood Flow Alteration	-	-	-	-	-	-
Erosion Control & Shoreline Stabilization	-	-	-	-	-	-
Habitat Functions						
Production & Export of Organic Matter	X	X	-	X	X	X
General Habitat Suitability	-	-	-	-	-	-
Habitat for Aquatic Invertebrates	X	X	X	-	-	-
Habitat for Amphibians	X	X	X	-	-	-
Habitat for Wetland-Associated Mammals	-	-	-	-	-	-
Habitat for Wetland-Associated Birds	-	-	-	-	-	-
General Fish Habitat	-	-	-	-	-	-
Native Plant Richness	-	X	-	-	-	-
Special Characteristics		•	•		•	
Educational or Scientific Value	-	-	-	-	-	-
Uniqueness and Heritage	-	-	-	-	-	-

<sup>1. &</sup>quot;-" means that the function is not present; "x" means that the function is present and is of lower quality; and "+" means the function is present and is of higher quality.

#### 5.2 Offsite Features

Four offsite wetlands are located on the west-adjacent Parcel 0419037014. The buffers for these features do not extend onto the subject property according to a 2017 City approval for the Wesley Homes development. Lake Bradley is located approximately 175 feet to the northwest of the subject property in Bradley Lake Park on Parcel 0419032111; the maximum potential buffer from Lake Bradley, which is likely considered a regulated Fish and Wildlife Habitat Area under Article X of PMC 21.06, is not anticipated to encumber the subject property. No other wetlands, fish and wildlife habitat, or priority species were identified on or within 300 feet of the subject property.

# Chapter 6. Regulatory Considerations

#### 6.1 Local Considerations

Wetland A is a Category III wetland with a low habitat score which requires a standard 80-foot buffer according to PMC 21.06.930 based on the surrounding high land use intensity. Wetland B is a Category III wetland but with a moderate habitat score which requires a standard 150-foot buffer. Wetlands C, D, E, and F are Category IV wetlands and are likely non-regulated by the City's critical area regulations pursuant to PMC 21.06.910(4) as the wetlands are all less than 10,000 square feet in size.

#### 6.2 State and Federal Considerations

In a December 2, 2008, memorandum from the Environmental Protection Agency (EPA) and USACE, joint guidance is provided that describes waters that are to be regulated under Section 404 of the Clean Water Act (CWA) (USACE, 2010). This memorandum was amended on February 2, 2012 where the EPA and USACE issued a final guidance letter on waters protected by the CWA.

The 2012 guidance describes the following waters where jurisdiction would be asserted: 1) traditional navigable waters, 2) interstate waters, 3) wetlands adjacent to traditional navigable waters, 4) non-navigable tributaries of traditional navigable waters that are relatively permanent meaning they contain water at least seasonally (e.g. typically three months and does not include ephemeral waters), and 5) wetlands that directly abut permanent waters. The regulated waters are those associated with naturally occurring waters and water courses and not artificial waters (i.e. stormwater pond outfalls). The 2012 memorandum further goes on to describe waters where jurisdiction would likely require further analysis: 1) Tributaries to traditional navigable waters or interstate waters, 2) Wetlands adjacent to jurisdictional tributaries to traditional navigable waters or interstate waters, and 3) Waters that fall under the "other waters" category of the regulations.

In addition, the 2012 guidance identifies thirteen waters or areas where jurisdiction will not be asserted:

1) Wet areas that are not tributaries or open waters and do not meet the agencies regulatory definition of "wetlands," 2) Waters excluded from coverage under the CWA by existing regulations, 3) Waters that lack a "significant nexus: where one is required for a water to be jurisdictional, 4) Artificially irrigated areas that would revert to upland if the irrigation ceased, 5) Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing, 6) Artificial reflecting pools or swimming pools excavated in uplands, 7) Small ornamental waters created by excavating and/or diking dry land to retain water for primarily aesthetic reasons, and puddles, 8) Water-filled depressions created incidental to construction activity, 9) Groundwater, including groundwater drained through subsurface drainage systems, 10) Erosional features (gullies and rills), 11) Non-wetland swales, 12) Ditches that are excavated wholly in uplands, drain only uplands or non-jurisdictional waters, and have no more than ephemeral flow, and 13) Ditches that do not contribute flow, either directly or through other waterbodies, to a traditional navigable water, interstate water, or territorial sea.

The onsite Wetlands A through F have potential surface and/or subsurface connections to waters of the United States and therefore are potentially regulated under Section 404 of the CWA. However, as no direct impacts to the wetlands are proposed, permitting under USACE is not required at this time. The WSDOE also regulates wetlands and natural surface waters under RCW 90.48. If potential

future development actions can avoid direct impacts to the onsite wetlands, such future actions would
future development actions can avoid direct impacts to the onsite wetlands, such future actions would not likely require permitting with the USACE and WSDOE.

# Chapter 7. Closure

The findings and conclusions documented in this report have been prepared for specific application to this project. They have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. Our work was also performed in accordance with the terms and conditions set forth in our proposal. The conclusions and recommendations presented in this report are professional opinions based on an interpretation of information currently available to us and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, our observations and conclusions applicable to this project may need to be revised wholly or in part.

All wetland boundaries identified by SVC are based on conditions present at the time of the site inspection and considered preliminary until the flagged wetland boundaries are validated by the jurisdictional agencies. Validation of the wetland boundaries by the regulating agency provides a certification, usually written, that the wetland boundaries verified are the boundaries that will be regulated by the agencies until a specific date or until the regulations are modified. Only the regulating agencies can provide this certification.

As wetlands are dynamic communities affected by both natural and human activities, changes in wetland boundaries may be expected; therefore, wetland delineations cannot remain valid for an indefinite period of time. Local agencies typically recognize the validity of wetland delineations for a period of five years after completion of a wetland delineation report. Development activities on a site five years after the completion of this wetland delineation report may require revision of the wetland delineation. In addition, changes in government codes, regulations, or laws may occur. Due of such changes, our observations and conclusions applicable to this site may need to be revised wholly or in part.

# Chapter 8. References

- Brinson, M. M. 1993. A hydrogeomorphic classification for wetlands, Technical Report WRP-DE-4. U.S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.
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# Appendix A — Methods and Tools

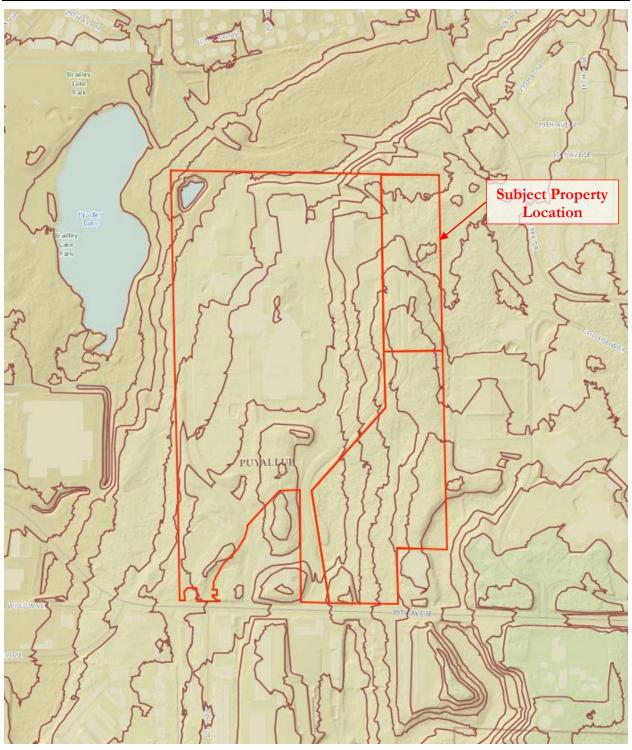
Table A-1. Methods and tools used to prepare the report.

Parameter	Method or Tool	Website	Reference		
Wetland Delineation	USACE 1987 Wetland Delineation Manual	http://el.erdc.usace.army.mil /elpubs/pdf/wlman87.pdf	nvironmental Laboratory. 1987. Corps of Engineers Wetlands relineation Manual. Technical Report Y-87-1, US Army Engineer Vaterways Experiment Station, Vicksburg, Mississippi.		
	Western Mountains, Valleys, and Coast Region Regional Supplement	http://www.usace.army.mil/ Portals/2/docs/civilworks/r egulatory/reg_supp/west_mt _finalsupp.pdf	U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.		
Wetland Classification	USFWS / Cowardin Classification System	http://www.fws.gov/wetland s/Documents/Classification- of-Wetlands-and-Deepwater- Habitats-of-the-United- States.pdf https://www.fgdc.gov/stand ards/projects/wetlands/nvcs -2013	Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. Government Printing Office, Washington, D.C. Federal Geographic Data Committee. 2013. Classification of Wetlands and Deepwater Habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.		
	Hydrogeomorphic Classification (HGM) System	http://el.erdc.usace.army.mil /wetlands/pdfs/wrpde4.pdf	Brinson, M. M. (1993). "A hydrogeomorphic classification for wetlands," Technical Report WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.		
Wetland Rating	Washington State Wetland Rating System	http://www.ecy.wa.gov/bibli o/0406025.html	<b>Hruby, T</b> . 2014. Washington State wetland rating system for western Washington –Revised. Publication # 04-06-025.		
	Puyallup Municipal Code	http://www.codepublishing.c om/WA/Puyallup/	Uses current WSDOE Rating System under PMC 21.06.910		
Wetland Indicator Status	2016 National Wetland Plant List	https://www.fws.gov/wetlan ds/documents/National- Wetland-Plant-List-2016- Wetland-Ratings.pdf	Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X		
Plant Names	USDA Plant Database	http://plants.usda.gov/	Website		
Soils Data	NRCS Soil Survey	http://websoilsurvey.nrcs.us da.gov/app/WebSoilSurvey.a spx	Website GIS data based upon: <b>Zulauf, A.S.</b> 1979. Soil Survey of Pierce County, Washington.  United States Department of Agriculture, Soil Conservation Service in cooperation with Washington State Department of Natural Resources, and Washington State University, Agriculture Research Center. Washington, D.C.		
Threatened and Endangered Species	Washington Natural Heritage Program	http://data- wadnr.opendata.arcgis.com/d atasets/wnhp-current- element-occurrences	Washington Natural Heritage Program (Data published 7/19/17). Endangered, threatened, and sensitive plants of Washington. Washington State Department of Natural Resources, Washington Natural Heritage Program, Olympia, WA		
	Washington Priority Habitats and Species	http://wdfw.wa.gov/hab/ph spage.htm	WDFW PHS Program (Data produced 11/22/17). Map of priority habitats and species in project vicinity.		
	USFWS species lists by County	http://www.fws.gov/wafwo /speciesmap.html	Website		
	NOAA fisheries species list and maps	http://www.nwr.noaa.gov/E SA-Salmon-Listings/Salmon- Populations/Index.cfm and http://www.nmfs.noaa.gov/ pr/species/	Website		
Species of Local Importance	WDFW GIS Data	http://wdfw.wa.gov/mapping/salmonscape/	Website		
Report Preparation	Puyallup Municipal Code	http://www.codepublishing.c om/WA/Puyallup/	PMC Chapter 21.06 – Critical Areas (passed 11/28/17).		

# Appendix B — Background Information

This appendix includes a Pierce County Topographic Map (B1); USFWS NWI Map (B2); Pierce County Wetland and Stream Inventory (B3); DNR Stream Typing Map (B4); NRCS Soil Survey Map (B5); WDFW PHS Map (B6); WDFW SalmonScape Map (B7), and City of Puyallup Wetland Inventory (B8).

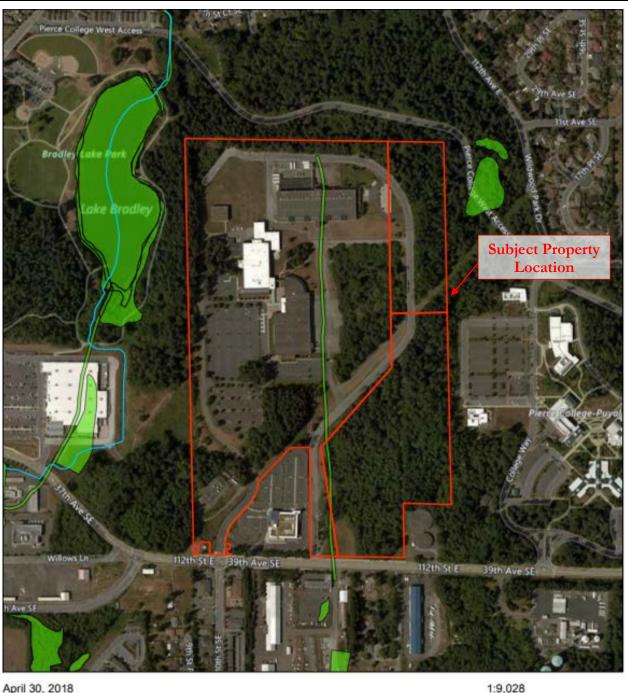
# Appendix B1 — Pierce County Topographic Map



### Appendix B2 — USFWS NWI Map



## Appendix B3 — Pierce County Wetland and Stream Inventory





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0.2 mi

0.3 km

## Appendix B4 — DNR Stream Typing Map

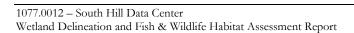


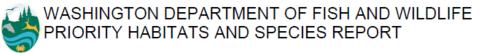
## Appendix B5 — NRCS Soil Survey Map



# Appendix B6 — WDFW PHS Map





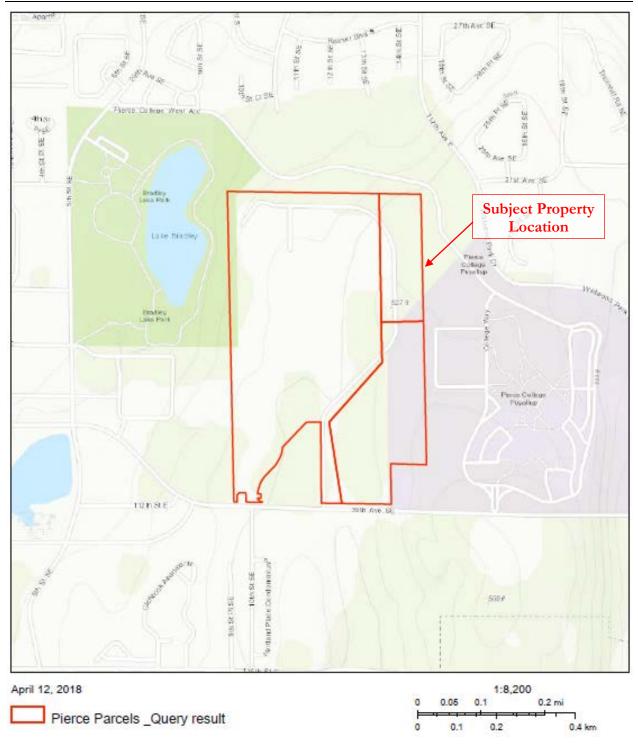


SOURCE DATASET: PHSPlusPublic Query ID: P180412141234

REPORT DATE: 04/12/2018 2.13

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Freshwater Forested/Shrub	N/A	Aquatic Habitat	NA	N/A	N	US Fish and Wildlife Service
	NWIWetlands	Aquatic habitat		N/A	AS MAPPED	Polygons
		http://www.ecy.wa.		PHS Listed		
Waterfowl Concentrations	PIERCE COUNTY - NON	Regular Concentration	1/4 mile (Quarter	N/A	N	WA Dept. of Fish and Wildlife
	PHSREGION 902564	Regular concentration		N/A	AS MAPPED	Polygons
	302304	http://wdfw.wa.gov/publications/pub.php?		PHS LISTED		
Wetlands	SOUTH PUYALLUP	Aquatic Habitat	1/4 mile (Quarter	N/A	N	WA Dept. of Fish and Wildlife
	PHSREGION 902560	N/A		N/A	AS MAPPED	Polygons
		http://www.ecy.wa.		PHS LISTED		

# Appendix B7 — WDFW SalmonScape Map

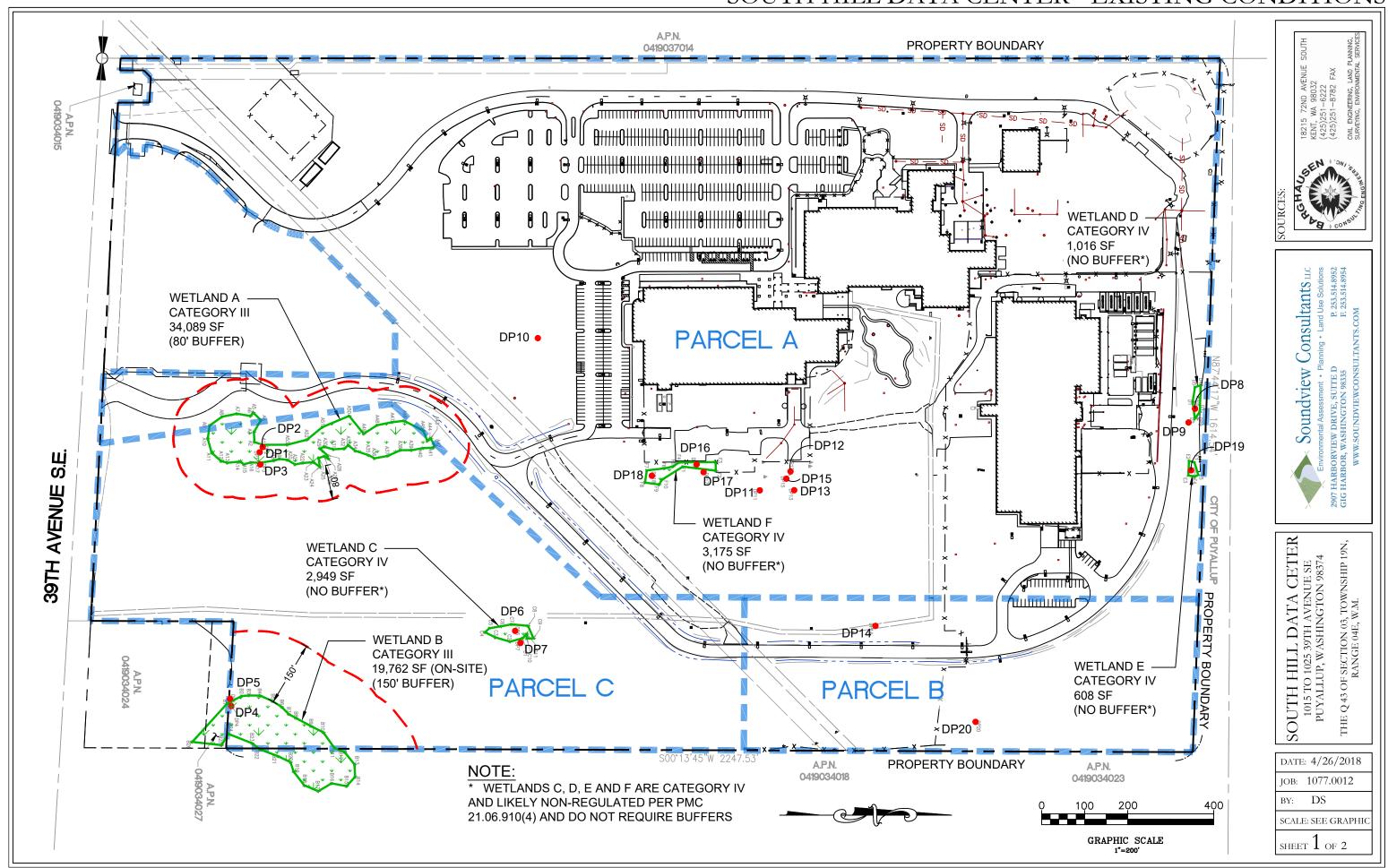


# Appendix B8 — City of Puyallup Wetland Inventory

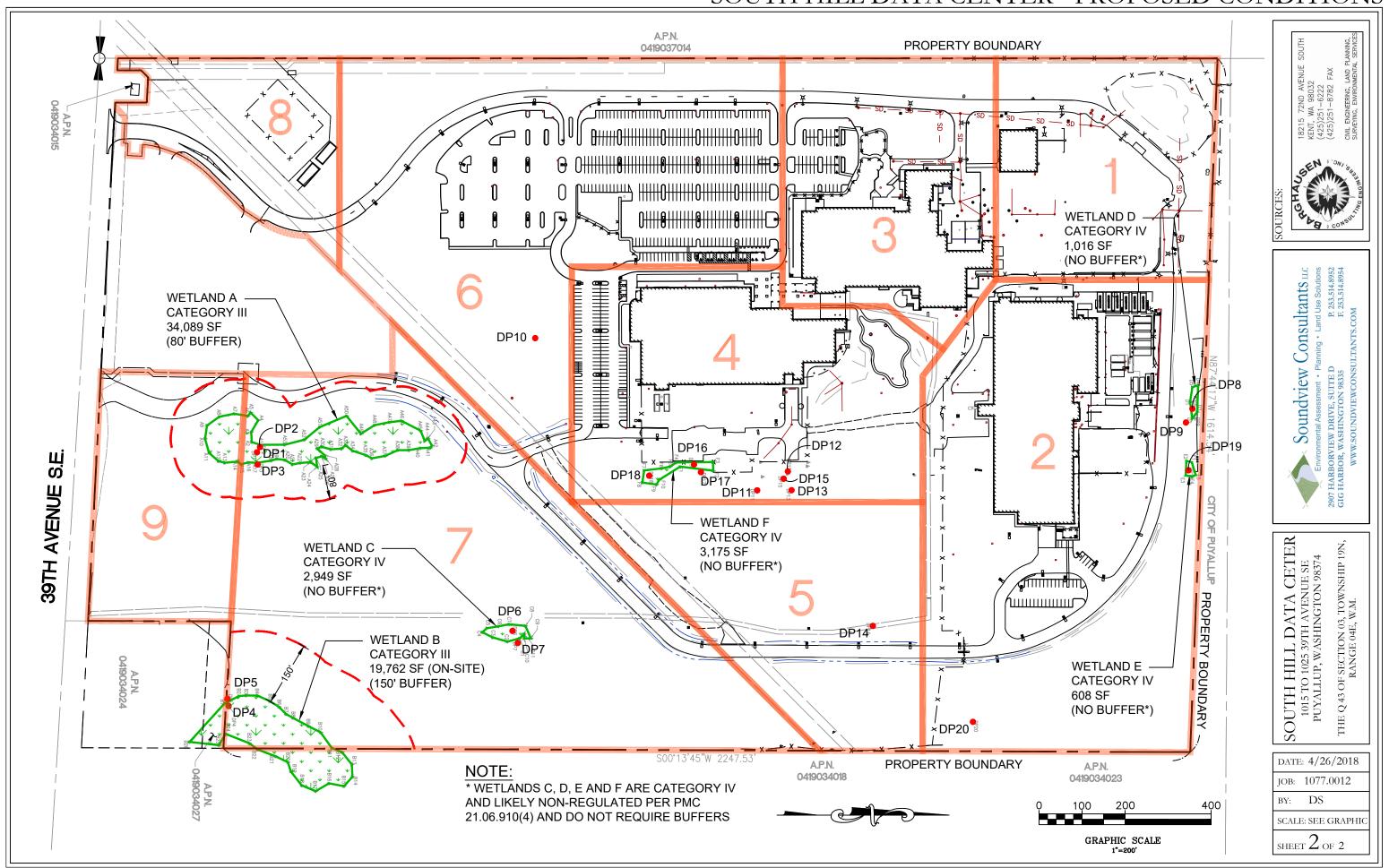


# Appendix C — Site Plans

# SOUTH HILL DATA CENTER - EXISTING CONDITIONS



# SOUTH HILL DATA CENTER - PROPOSED CONDITIONS



# Appendix D — Data Forms

Project/Site: 1077.0012 - South Hill Data Center		City/Cou	<sub>ınty:</sub> Puyallı	up/Pierce	Sampling Date: 9/13/16
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-1
Investigator(s): Richard Peel, Emily Swaim					
•					e Slope (%): 0
Subregion (LRR): A2		_	,	,	
Soil Map Unit Name: Indianola Loamy Sand				NWI classifica	
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrology sign	nificantly dis	turbed?	Are "No	ormal Circumstances" pres	ent? Yes ☒ No ☐
Are Vegetation, Soil, or Hydrology natu	rally probler	matic?	(If need	led, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samp	ling point l	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐					
Hydric Soil Present? Yes ☒ No ☐			the Sampled		
Wetland Hydrology Present? Yes ☒ No ☐		, w	rithin a Wetlaı	nd? Yes ☒ No	) ⊔
Remarks:  Data collected near center of Wet	land A	·			
VEGETATION – Use scientific names of plant	ts.				
	Absolute		ant Indicator	Dominance Test works	heet:
Tree Stratum (Plot size: 30 ft)  1. Alnus rubra	<u>% Cover</u> 50	Specie Yes	es? Status FAC	Number of Dominant Sp	
2. Populus balsamifera	40	Yes	FAC	That Are OBL, FACW, o	r FAC: <u>4</u> (A)
3		-		Total Number of Domina Species Across All Strate	
4	90	= Tota	al Cover	Percent of Dominant Spo That Are OBL, FACW, o	
Sapling/Shrub Stratum (Plot size: 15 ft)					
1. Rubus spectabilis	30	Yes		Prevalence Index work	
2. Spiraea douglasii	30	Yes	<u>FACW</u>	Total % Cover of:	
3					x 1 = 0
4				FACW species 30	
5	60				x = 360 x = 4 = 0
Herb Stratum (Plot size: 5 ft)	60	= I ota	al Cover		x = 0 x = 0
1				Column Totals: 150	(A) $\frac{420}{}$ (B)
2				Column Totals. 100	(A) <u>+20</u> (B)
3				Prevalence Index	= B/A = 2.8
4				Hydrophytic Vegetation	n Indicators:
5				☐ Rapid Test for Hydro	phytic Vegetation
6				■ Dominance Test is >	50%
7				➤ Prevalence Index is	≤3.0 <sup>1</sup>
8					ations <sup>1</sup> (Provide supporting or on a separate sheet)
9				☐ Wetland Non-Vascul	• /
10					nytic Vegetation <sup>1</sup> (Explain)
11					and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)	0		al Cover	be present, unless distu	
1				Hydrophytic	
2	^		10	Vegetation	☑ Na □
% Bare Ground in Herb Stratum 100	<u> </u>	= Tota	al Cover	Present? Yes	⊠ No □
Remarks: FAC-FACW vegetation observed.				1	
1 AO-1 AOVV Vegetation observed.					

Profile Descri	Matrix				x Featur	es_					
	Color (moist)	%	Colo	r (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
0-12	10YR 2/1	100			-	_		LoSa		Loamy Fine Sand	
12-16	10YR 3/4	95	10\	/R 3/6	5	CS	M	Sand		Fine Sand	
					_	<del>-</del>					
					_						
		<del></del>									
	ncentration, D=Dep						ed Sand G			ation: PL=Pore Lining, M=Matrix.	
	dicators: (Applic	cable to a				tea.)				rs for Problematic Hydric Soils <sup>3</sup> :	
☐ Histosol (A	•			Sandy Redox (S				_		Muck (A10)	
☐ Histic Epip☐ Black Histic	, ,			Stripped Matrix Loamy Mucky N	` '	1) (ovcon	+ MI D A 1\			Parent Material (TF2) Shallow Dark Surface (TF12)	
	Sulfide (A4)			_oamy Gleyed I			LIVILNA I)		-	r (Explain in Remarks)	
	Below Dark Surfac	e (A11)		Depleted Matrix		-/			Othic	(Explain in Romano)	
•	Surface (A12)	- (		Redox Dark Sui		)		3In	dicato	rs of hydrophytic vegetation and	
☐ Sandy Mud	cky Mineral (S1)			Depleted Dark S	Surface (	F7)			wetlar	nd hydrology must be present,	
	yed Matrix (S4)		☐ F	Redox Depress	ions (F8)				unles	s disturbed or problematic.	
	yer (if present):										
Depth (inch	nes):							Hydri	c Soil	Present? Yes 🗵 No 🗌	
Remarks:											
			ممما	dua ta pravir	~i+	المسر منط	and have	adom.			
Trydric 30ii3	not observed t	out assi	umed (	due to proxir	mity wit	hin wetla	and bour	ndary.			
,		out assi	umed (	due to proxir	mity wit	hin wetla	and bour	ndary.			
HYDROLOG	ŝΥ		umed (	due to proxir	mity wit	hin wetla	and bour	ndary.			
HYDROLOG Wetland Hydr	iY rology Indicators	:		·		hin wetla	and bour		Secon	dary Indicators (2 or more required	
HYDROLOG Wetland Hydrony Indicat	iY ology Indicators: tors (minimum of o	:	ired; che	eck all that appl	у)					dary Indicators (2 or more required	
HYDROLOG  Wetland Hydro  Primary Indicat  Surface Wi	ology Indicators: tors (minimum of dater (A1)	:	ired; che	eck all that appl Water-Stai	y) ned Leav	ves (B9) ( <b>є</b>				ater-Stained Leaves (B9) (MLRA 1,	
HYDROLOG  Wetland Hydro  Primary Indicar  Surface Wo	ology Indicators: tors (minimum of ole) ater (A1) r Table (A2)	:	ired; che	eck all that appl ☑ Water-Stai 1, 2, 4	y) ned Leav	ves (B9) ( <b>є</b>		RA	□ Wa	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B)	_
HYDROLOG  Wetland Hydro  Primary Indicar  Surface Woodling  High Water  Saturation	ology Indicators: tors (minimum of olater (A1) r Table (A2) (A3)	:	ired; che	eck all that appl  Water-Stai  1, 2, 4	y) ned Leav <b>A, and 4E</b> (B11)	ves (B9) ( <b>є</b>		RA	□ Wa	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10)	
HYDROLOG  Wetland Hydr.  Primary Indicat  Surface With High Water  Saturation  Water Mark	ology Indicators: tors (minimum of olater (A1) r Table (A2) (A3) ks (B1)	:	ired; che	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv	y) ned Leav <b>A, and 4E</b> (B11) vertebrate	ves (B9) ( <b>є</b> <b>3)</b> es (B13)		RA	☐ Wa	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2)	, <b>2</b> ,
HYDROLOG  Wetland Hydro  Primary Indicat  Surface With High Water  Saturation  Water Mark  Sediment I	cology Indicators: stors (minimum of colored (A1) r Table (A2) (A3) ks (B1) Deposits (B2)	:	ired; che	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv	y) ned Leav A, and 4E (B11) vertebrate Sulfide O	ves (B9) ( <b>6</b> <b>3)</b> es (B13) edor (C1)	except MLI	RA	☐ Wa	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (	, <b>2</b> ,
HYDROLOG  Wetland Hydro  Primary Indicat  Surface Water High Water Saturation Water Mari Sediment I Drift Depos	rology Indicators: stors (minimum of cater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3)	:	ired; che	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen	y) ned Leav A, and 4E (B11) vertebrate Sulfide C	ves (B9) ( <b>6 3)</b> es (B13) edor (C1) eres along	except MLI	RA ots (C3)	☐ Wa	Ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B)  ainage Patterns (B10)  y-Season Water Table (C2)  turation Visible on Aerial Imagery (comorphic Position (D2)	, <b>2</b> ,
HYDROLOG  Wetland Hydro Primary Indicar Surface Woodling High Water Saturation Water Mari Sediment I Drift Depos	rology Indicators: tors (minimum of cater (A1) or Table (A2) (A3) dks (B1) Deposits (B2) sits (B3) or Crust (B4)	:	ired; che	eck all that appl  Water-Stai  1, 2, 4,  Salt Crust Aquatic Inv Hydrogen Oxidized R	y) ned Leav ned A, and 4E (B11) vertebrate Sulfide C Rhizosphe of Reduce	ves (B9) (c 3) es (B13) edor (C1) eres along ed Iron (C	except MLI Living Roo 4)	RA obts (C3)	☐ Wa	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery ( comorphic Position (D2) allow Aquitard (D3)	, <b>2</b> ,
HYDROLOG  Wetland Hydre Primary Indicat Surface Water High Water Saturation Water Mart Sediment I Drift Depos Algal Mat o	tors (minimum of of atter (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)	:	ired; che	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence o	y) ned Leav ned Leav (B11) vertebrate Sulfide C thizosphe of Reduce n Reduct	ves (B9) (e 3) es (B13) edor (C1) eres along ed Iron (C- ion in Tille	Except MLI Living Roo 4) d Soils (Co	RA ots (C3)	☐ W: ☐ Dr ☐ Dr ☐ Sa ☐ Ge ☐ Sh ☐ FA	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery ( emorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5)	, <b>2</b> ,
HYDROLOG  Wetland Hydre  Primary Indicat  Surface Water  High Water  Saturation  Water Mark  Sediment I  Drift Depos  Algal Mat of Iron Depos  Surface So	tors (minimum of of atter (A1)  Table (A2)  (A3)  ks (B1)  Deposits (B2)  sits (B3)  or Crust (B4)  sits (B5)  oil Cracks (B6)	: one requi	ired; che	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of  Recent Iron  Stunted or	y) ned Leav A, and 4E (B11) vertebrate Sulfide C thizosphe of Reduce n Reduct Stressec	ves (B9) (6 3) es (B13) edor (C1) eres along ed Iron (C ion in Tille d Plants (D	Except MLI Living Roo 4) d Soils (Co	RA ots (C3)	☐ Wai	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) iised Ant Mounds (D6) (LRR A)	, <b>2</b> ,
HYDROLOG  Wetland Hydr.  Primary Indicat  Surface Water  High Water  Saturation  Water Mart  Sediment I  Drift Depos  Algal Mat of Iron Depos  Surface So  Inundation	tors (minimum of of atter (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)	: one requi	ired; che	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of  Recent Iron  Stunted or	y) ned Leav A, and 4E (B11) vertebrate Sulfide C thizosphe of Reduce n Reduct Stressec	ves (B9) (6 3) es (B13) edor (C1) eres along ed Iron (C ion in Tille d Plants (D	Except MLI Living Roo 4) d Soils (Co	RA ots (C3)	☐ Wai	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery ( emorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5)	, <b>2</b> ,
HYDROLOG  Wetland Hydr.  Primary Indicat  Surface Water  High Water  Saturation  Water Mart  Sediment I  Drift Depos  Algal Mat of Iron Depos  Surface So  Inundation	rology Indicators: stors (minimum of orestators (Minimum of orestators (Management of orestators	: one requi	ired; che	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of  Recent Iron  Stunted or	y) ned Leav A, and 4E (B11) vertebrate Sulfide C thizosphe of Reduce n Reduct Stressec	ves (B9) (6 3) es (B13) edor (C1) eres along ed Iron (C ion in Tille d Plants (D	Except MLI Living Roo 4) d Soils (Co	RA ots (C3)	☐ Wai	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) iised Ant Mounds (D6) (LRR A)	, <b>2</b> ,
HYDROLOG  Wetland Hydro  Primary Indicat  Surface Water  High Water  Saturation  Water Marl  Sediment I  Drift Depos  Algal Mat of  Iron Depos  Surface So  Inundation  Sparsely V	rology Indicators: tors (minimum of of ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial I degetated Concave	: one requi	(B7) (B8)	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of Recent Iron  Stunted or	y) ned Leav ned Leav (B11) vertebrate Sulfide O Rhizosphe of Reduce n Reduct Stressed	ves (B9) (e 3) es (B13) edor (C1) eres along ed Iron (C ion in Tille d Plants (D emarks)	Except MLI Living Roo 4) d Soils (Co	RA ots (C3)	☐ Wai	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) iised Ant Mounds (D6) (LRR A)	, <b>2</b> ,
HYDROLOG  Wetland Hydren Primary Indicat Surface Water High Water Saturation Water Mark Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely W Field Observat Surface Water	tology Indicators: tors (minimum of of ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial I depetated Concave ations:	: one requi	(B7) e (B8)	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of Recent Iron  Stunted or  Other (Exp	y) ned Leav ned Leav (B11) vertebrate Sulfide C Rhizosphe of Reduct Reduct Stressec plain in Re	ves (B9) (e 3) es (B13) edor (C1) eres along ed Iron (Cion in Tille d Plants (Demarks)	Except MLI Living Roo 4) d Soils (Co	RA ots (C3)	☐ Wai	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) iised Ant Mounds (D6) (LRR A)	, <b>2</b> ,
HYDROLOG  Wetland Hydr.  Primary Indicat  Surface With High Water Saturation  Water Marl Sediment In Drift Deposed In Indication Sparsely Wetland Observation  Field Observation  Water Table Primary Indication Surface Water Water Table Primary Indication	ology Indicators: tors (minimum of olater (A1) or Table (A2) (A3) dks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial Indicators: represent?	: one requi	(B7) e (B8) No 🗵	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of Recent Iron Stunted or Other (Exp	y) ned Leav A, and 4E (B11) vertebrate Sulfide C thizosphe of Reduct n Reduct Stressec clain in Re	ves (B9) (6 3) es (B13) edor (C1) eres along ed Iron (C ion in Tille d Plants (D emarks)	Except MLI Living Roo 4) d Soils (C6 01) (LRR A	RA  ots (C3)  6)	☐ Wa	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)	, <b>2</b> ,
HYDROLOG  Wetland Hydre Primary Indicat Surface Water High Water Saturation Water Mark Sediment I Drift Depos Algal Mat of Iron Depos Inundation Sparsely V  Field Observat Surface Water Water Table Posaturation Predicted includes capille	tology Indicators: tors (minimum of of ater (A1)  Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial I degetated Concave ations: Present? Tresent?	: one requi lmagery ( e Surface /es  /es  /es  /es	(B7) e (B8) No 🔀 No 🔀	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of Recent Iron  Stunted or  Other (Exp	y) ned Leav ned Leav (B11) vertebrate Sulfide C Rhizosphe of Reduct Stressec slain in Re s): s): s):	ves (B9) (e 3) es (B13) edor (C1) eres along ed Iron (Cion in Tille d Plants (Demarks)	Living Roo 4) d Soils (Ce 01) (LRR A	RA ots (C3) S)	□ W: □ Dr □ Dr □ Sa □ Ge □ Sh □ FA □ Fre	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) iised Ant Mounds (D6) (LRR A)	, <b>2</b> ,
HYDROLOG  Wetland Hydre Primary Indicat Surface Water High Water Saturation Water Mark Sediment I Drift Depos Algal Mat of Iron Depos Inundation Sparsely V  Field Observat Surface Water Water Table Posaturation Prediction	ology Indicators: tors (minimum of olater (A1) or Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial Investment (regetated Concave ations: or Present?	: one requi lmagery ( e Surface /es  /es  /es  /es	(B7) e (B8) No 🔀 No 🔀	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of Recent Iron  Stunted or  Other (Exp	y) ned Leav ned Leav (B11) vertebrate Sulfide C Rhizosphe of Reduct Stressec slain in Re s): s): s):	ves (B9) (e 3) es (B13) edor (C1) eres along ed Iron (Cion in Tille d Plants (Demarks)	Living Roo 4) d Soils (Ce 01) (LRR A	RA ots (C3) S)	□ W: □ Dr □ Dr □ Sa □ Ge □ Sh □ FA □ Fre	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)	, <b>2</b> ,
HYDROLOG  Wetland Hydre Primary Indicat Surface Water High Water Saturation Water Mark Sediment I Drift Depos Algal Mat of Iron Depos Inundation Sparsely V  Field Observat Surface Water Water Table Posaturation Prediction	tology Indicators: tors (minimum of of ater (A1)  Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial I degetated Concave ations: Present? Tresent?	: one requi lmagery ( e Surface /es  /es  /es  /es	(B7) e (B8) No 🔀 No 🔀	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of Recent Iron  Stunted or  Other (Exp	y) ned Leav ned Leav (B11) vertebrate Sulfide C Rhizosphe of Reduct Stressec slain in Re s): s): s):	ves (B9) (e 3) es (B13) edor (C1) eres along ed Iron (Cion in Tille d Plants (Demarks)	Living Roo 4) d Soils (Ce 01) (LRR A	RA ots (C3) S)	□ W: □ Dr □ Dr □ Sa □ Ge □ Sh □ FA □ Fre	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)	, <b>2</b> ,
HYDROLOG  Wetland Hydre Primary Indicat Surface Water High Water Saturation Water Mark Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V  Field Observat Surface Water Water Table Posaturation Presection Presection Control (includes capill) Describe Reco	tology Indicators: tors (minimum of of ater (A1)  Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial I degetated Concave ations: Present? Tresent?	Imagery ( e Surface /es  /es  /es  /n gauge,	(B7) e (B8) No 🗵 No 🗵 monitori	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of Recent Iron  Stunted or  Other (Exp  Depth (inchest Depth (inchest Depth (inchest ing well, aerial	y) ned Leav ned Leav (B11) vertebrate Sulfide C chizosphe of Reduct n Reduct Stressec slain in Re s): s): photos, p	ves (B9) (e 3) es (B13) ed (C1) eres along ed Iron (C- ion in Tille d Plants (C- emarks)	Living Roo 4) 40 Soils (Ce 01) (LRR A	RA  ots (C3)  is and Hyd  if availab	□ W: □ Dr □ Dr □ Sa □ Ge □ Sh □ FA □ Fre	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)	, <b>2</b> ,
HYDROLOG  Wetland Hydren Primary Indicate Surface Water Mark Sediment In Drift Depose Inundation Sparsely Wetland Observator Surface Water Table Pasaturation Precincludes capill Describe Recomposed Surface Remarks:	tology Indicators: tors (minimum of of ater (A1)  Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial I Vegetated Concave ations: Present? Tresent? In a concave at a concav	Imagery ( e Surface /es  /es  /es  /n gauge,	(B7) e (B8) No 🗵 No 🗵 monitori	eck all that appl  Water-Stai  1, 2, 4/  Salt Crust  Aquatic Inv  Hydrogen  Oxidized R  Presence of Recent Iron  Stunted or  Other (Exp  Depth (inchest Depth (inchest Depth (inchest ing well, aerial	y) ned Leav ned Leav (B11) vertebrate Sulfide C chizosphe of Reduct n Reduct Stressec slain in Re s): s): photos, p	ves (B9) (e 3) es (B13) ed (C1) eres along ed Iron (C- ion in Tille d Plants (C- emarks)	Living Roo 4) 40 Soils (Ce 01) (LRR A	RA  ots (C3)  is and Hyd  if availab	□ W: □ Dr □ Dr □ Sa □ Ge □ Sh □ FA □ Fre	ater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)	, <b>2</b> ,

Project/Site: 1077.0012 - South Hill Data Center	(	City/County	<sub>y:</sub> Puyallu	p/Pierce	Sampling Date: 9/13/16
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-2
				ownship, Range: 03, 19,	· -
					e Slope (%): 0
Subregion (LRR): A2		="	•	,	
Soil Map Unit Name: Indianola Loamy Sand				NWI classificat	
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrology sign	ificantly dis	turbed?	Are "No	ormal Circumstances" pres	ent? Yes ☒ No ☐
Are Vegetation, Soil, or Hydrology natu	rally probler	natic?	(If neede	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point lo	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐					
Hydric Soil Present? Yes ☒ No ☐			e Sampled		
Wetland Hydrology Present? Yes ☒ No ☐		with	in a Wetlan	nd? Yes ☒ No	) [
Remarks:		CXX	.1 1 А		
Data collected near central-weste	rn borae	r of We	tland A		
VEGETATION – Use scientific names of plant	ts.				
	Absolute	Dominant		Dominance Test works	heet:
Tree Stratum (Plot size: 30 ft)	% Cover	Species? Yes	Status FAC	Number of Dominant Sp	
1. Alnus rubra 2. Populus balsamifera	45 45		FAC	That Are OBL, FACW, o	r FAC: <u>5</u> (A)
3		Yes	FAC	Total Number of Domina Species Across All Strata	_
4.				·	
	90	= Total C	over	Percent of Dominant Spe That Are OBL, FACW, o	
Sapling/Shrub Stratum (Plot size: 15 ft)	25	Vaa	EA C\A/		
1. Spiraea douglasii	35	Yes	FACW	Prevalence Index work	
2. Rubus spectabilis	30 5	Yes No	FAC FACU	Total % Cover of:	
3. Pseudotsuga menziesii		INO	FACO		x 1 = <u>0</u>
4				FACW species 00	x 2 = 110
5	70			FACILIPACION 5	x = 360 x = 4 = 20
Herb Stratum (Plot size: 5 ft)	10	= Total C	over	-	x = 20 x = 0
1. Phalaris arundinacea	20	Yes	FACW	Column Totals: 180	(A) $\frac{490}{}$ (B)
2.				Column rotals. 100	(A) <u>+50</u> (B)
3				Prevalence Index	= B/A = <u>2.72</u>
4				Hydrophytic Vegetation	n Indicators:
5				☐ Rapid Test for Hydro	phytic Vegetation
6				Dominance Test is >	50%
7				➤ Prevalence Index is:	≤3.0¹
8					ations <sup>1</sup> (Provide supporting or on a separate sheet)
9				☐ Wetland Non-Vascul	• /
10					nytic Vegetation <sup>1</sup> (Explain)
11	20				and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)	20	= Total C	over	be present, unless distur	bed or problematic.
1				Hydrophytic	
2				Vegetation	
% Bare Ground in Herb Stratum 80	0	= Total C	over	Present? Yes	X No □
Pamarke:					
FACU-FACW vegetation observed. Ps	eudotsug	a menzie	esii growir	ng on upland berm.	

	Matrix				dox Feature			_			
(inches)	Color (moist)	<u>%</u>		or (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>		Remarks	
0-12	10YR 4/2	97	10`	YR 3/6	3	<u>C</u>	M/PL	GrSaL	_0	Gravelly Sandy Lo	oam
	-										
								-			
	-										
<sup>1</sup> Type: C=C	oncentration, D=D	epletion,	RM=Red	luced Matrix, C	CS=Covere	ed or Coat	ed Sand G	rains.	<sup>2</sup> Loca	tion: PL=Pore Lining, I	M=Matrix.
Hydric Soil	Indicators: (App	licable to	all LRR	s, unless oth	erwise no	ted.)		Ind	dicators	for Problematic Hyd	ric Soils³:
☐ Histosol	(A1)			Sandy Redox	(S5)				2 cm N	/luck (A10)	
☐ Histic Ep	oipedon (A2)			Stripped Matri	x (S6)				Red P	arent Material (TF2)	
☐ Black His	stic (A3)			Loamy Mucky	Mineral (F	1) (excep	t MLRA 1)		Very S	hallow Dark Surface (	ΓF12)
	en Sulfide (A4)			Loamy Gleyed		2)			Other	(Explain in Remarks)	
•	d Below Dark Surfa	ace (A11)		Depleted Matr		_					
	ark Surface (A12)			Redox Dark S	•	•				of hydrophytic vegeta	
•	Mucky Mineral (S1)			Depleted Dark						hydrology must be pro	
	Bleyed Matrix (S4)			Redox Depres	sions (F8)				unless	disturbed or problemat	IC.
Type: Gr	Layer (if present)	:									
	ches): 12			-						_	_
Depth (in	iches). 12			-				Hydric	Soil P	resent? Yes 🗵 N	lo 🗌
Remarks:											
	OGY drology Indicator	rs:									
Wetland Hy			uired; ch	eck all that ap	ply)			<u>s</u>	Second	ary Indicators (2 or mo	re required)
Wetland Hy	drology Indicator		uired; ch	eck all that app		/es (B9) ( <b>c</b>	except MLF			ary Indicators (2 or mo er-Stained Leaves (B9	<u>.</u>
Wetland Hy Primary India	drology Indicator		uired; ch	➤ Water-Sta			except MLF		× Wat		
Wetland Hy Primary India	rdrology Indicator cators (minimum o Water (A1) ater Table (A2)		uired; ch	➤ Water-Sta	ained Leav		except MLF		<b>⋉</b> Wat	er-Stained Leaves (B9	
Wetland Hy Primary India Surface High Wa	cators (minimum o Water (A1) ater Table (A2) on (A3)		uired; ch	X Water-Sta 1, 2, 4	ained Leav	3)	except MLF	RA [	▼ Wat	er-Stained Leaves (B9 4A, and 4B)	) (MLRA 1, 2,
Wetland Hy Primary India □ Surface □ High Wa □ Saturatio ☑ Water M	cators (minimum o Water (A1) ater Table (A2) on (A3)		uired; ch	➤ Water-Sta 1, 2, 4	ained Leav 4A, and 4E at (B11) nvertebrate	<b>3)</b> es (B13)	except MLF	RA [	Wat □ Drai □ Dry-	er-Stained Leaves (B9 4 <b>A, and 4B)</b> nage Patterns (B10)	(MLRA 1, 2, C2)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer	cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1)		uired; ch	Water-Standard National Nation	ained Leaven AA, and 4E (B11)  nivertebrate Sulfide C	es (B13) odor (C1)	except MLF	A [	Wat Drai Dry Satu	er-Stained Leaves (B9 4A, and 4B) nage Patterns (B10) Season Water Table (	(MLRA 1, 2, C2)
Wetland Hy Primary India  ☐ Surface ☐ High Wa ☐ Saturatio ☑ Water M ☐ Sedimer ☑ Drift Dep	cators (minimum of water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2)		uired; ch	Water-Standard Nation 1, 2, 4 Salt Crus Aquatic In Hydroger Oxidized	ained Leaven AA, and 4E (B11)  nivertebrate Sulfide C	es (B13) odor (C1) eres along	Living Roo	RA [ [ [ ots (C3) [	Wat Drai Dry Satu	er-Stained Leaves (B9 4A, and 4B) nage Patterns (B10) Season Water Table ( uration Visible on Aeria	(MLRA 1, 2, C2)
Wetland Hy Primary India  □ Surface □ High Wa □ Saturatio □ Water M □ Sedimer □ Drift Dep □ Algal Ma	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) oosits (B3)		uired; ch	Water-Standard Nation 1, 2, 4 Salt Crus Aquatic In Hydroger Oxidized	ained Leaver AA, and 4E at (B11) envertebrate on Sulfide Control Rhizosphere of Reduce	es (B13) odor (C1) eres along ed Iron (C	Living Roo 4)	RA [ [ [ [ ots (C3) [	Wate Drain Dry- Satu Geo	er-Stained Leaves (B9 4A, and 4B) nage Patterns (B10) Season Water Table ( uration Visible on Aeria emorphic Position (D2)	(MLRA 1, 2, C2)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	cators (minimum of water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) cosits (B3) at or Crust (B4)		uired; ch	Water-Sta 1, 2, 4  Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir	ained Leaver 4A, and 4E at (B11) Invertebrate on Sulfide Control Rhizospher of Reduction Reduction Reduction	es (B13) odor (C1) eres along ed Iron (C- ion in Tille	Living Roo 4)	RA [	Wate Drain Dry- Satu Geo Sha	er-Stained Leaves (B9 <b>4A, and 4B)</b> nage Patterns (B10) Season Water Table ( uration Visible on Aeria emorphic Position (D2) Ilow Aquitard (D3)	(C2) (Imagery (C9)
Wetland Hy Primary India  □ Surface □ High Wa □ Saturatio 図 Water M □ Sedimer ☑ Drift Dep □ Algal Ma □ Iron Dep □ Surface	cators (minimum of water (A1) ater Table (A2) on (A3) alarks (B1) on Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5)	f one requ		Water-Standard Water-	ained Leaver 4A, and 4E at (B11) Invertebrate on Sulfide Control Rhizospher of Reduction Reduction Reduction	es (B13) odor (C1) eres along ed Iron (C- ion in Tille d Plants (D	Living Roo 4) d Soils (C6	RA [	Water	er-Stained Leaves (B9 4A, and 4B) nage Patterns (B10) Season Water Table ( uration Visible on Aeria morphic Position (D2) llow Aquitard (D3) C-Neutral Test (D5)	(C2) (MLRA 1, 2, C2) (C9)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Algal Ma Iron Dep Surface Inundatio	cators (minimum of water (A1) ater Table (A2) on (A3) aters (B1) on Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6)	one requ	(B7)	Water-Standard Water-	ained Leaver 4A, and 4B	es (B13) odor (C1) eres along ed Iron (C- ion in Tille d Plants (D	Living Roo 4) d Soils (C6	RA [	Water	er-Stained Leaves (B9 4A, and 4B) Inage Patterns (B10) Season Water Table ( Juration Visible on Aeria Demorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) Sed Ant Mounds (D6) (I	C2) (MLRA 1, 2, C2) (C9)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Algal Ma Iron Dep Surface Inundatio	cators (minimum of water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) Soil Cracks (B6) on Visible on Aeria	one requ	(B7)	Water-Standard Water-	ained Leaver 4A, and 4B	es (B13) odor (C1) eres along ed Iron (C- ion in Tille d Plants (D	Living Roo 4) d Soils (C6	RA [	Water	er-Stained Leaves (B9 4A, and 4B) Inage Patterns (B10) Season Water Table ( Juration Visible on Aeria Demorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) Sed Ant Mounds (D6) (I	C2) (MLRA 1, 2, C2) (C9)
Wetland Hy Primary India  □ Surface □ High Wa □ Saturatio 図 Water M □ Sedimer ☑ Drift Dep □ Algal Ma □ Iron Dep □ Surface □ Inundatio □ Sparsely	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concar creations:	one requ	(B7)	Water-Standard Water-	ained Leaver AA, and 4E at (B11) invertebrate in Sulfide Con Reduction Reduction Stressed splain in Reduction Reduct	es (B13) addor (C1) ares along ed Iron (Ca) ion in Tille d Plants (Demarks)	Living Roo 4) d Soils (C6	RA [	Water	er-Stained Leaves (B9 4A, and 4B) Inage Patterns (B10) Season Water Table ( Juration Visible on Aeria Demorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) Sed Ant Mounds (D6) (I	C2) (MLRA 1, 2, C2) (C9)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely	cators (minimum of water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concar creations:	Il Imagery	(B7) be (B8)	Water-Start, 2, 4  1, 2, 4  Salt Crus  Aquatic Ir  Hydroger  Oxidized  Presence  Recent Ir  Stunted C  Other (Ex	ained Leaver And Alex (B11) Invertebrate Sulfide Con Reduction Reduction Stressed Relain in Releases:	es (B13) Dodor (C1) Deres along ed Iron (Colion in Tille d Plants (Demarks)	Living Roo 4) d Soils (C6	RA [	Water	er-Stained Leaves (B9 4A, and 4B) Inage Patterns (B10) Season Water Table ( Juration Visible on Aeria Demorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) Sed Ant Mounds (D6) (I	C2) (MLRA 1, 2, C2) (C9)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Water Table	cators (minimum of cators (minimum of cators (minimum of water (A1)) ater Table (A2) on (A3) larks (B1) on Deposits (B2) osits (B3) at or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concar or vations: ter Present?	I Imagery ave Surface Yes  Yes	(B7) te (B8) No 🗵	Water-Sta 1, 2, 4  Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted of Other (Ex	ained Leaver 4A, and 4E	es (B13) codor (C1) eres along ed Iron (C- ion in Tille d Plants (D- emarks)	Living Roo 4) d Soils (C6 11) (LRR A)	RA [	Wat Dra Dry Satu Gec Sha FAC Rais	er-Stained Leaves (B9 4A, and 4B) nage Patterns (B10) Season Water Table ( uration Visible on Aeria morphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (I st-Heave Hummocks (I	(MLRA 1, 2, C2) Il Imagery (C9) LRR A) D7)
Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	drology Indicator cators (minimum of water (A1) ater Table (A2) on (A3) darks (B1) on Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria v Vegetated Concarvations:  ter Present?  Present?  Present?  Present?	al Imagery ve Surface Yes  Yes  Yes  Yes  Yes  Yes  Yes	(B7) ce (B8) No 🗵 No 🗵	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted co Other (Ex	ained Leav  4A, and 4E  it (B11)  nvertebrate  n Sulfide O  Rhizosphe  e of Reduct  on Reduct  or Stressed  xplain in Re  es):  es):  es):	es (B13) bdor (C1) eres along ed Iron (C- ion in Tille d Plants (D- emarks)	Living Roo 4) d Soils (C6 01) (LRR A)	RA [	Wat  □ Drai  □ Dryy  □ Satu □ Gec □ Sha □ FAC □ Rais □ Fros	er-Stained Leaves (B9 4A, and 4B) nage Patterns (B10) Season Water Table ( uration Visible on Aeria morphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (I st-Heave Hummocks (I	C2) (MLRA 1, 2, C2) (C9)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Water Table Saturation P (includes cal	cators (minimum of cators (minimum of cators (minimum of water (A1)) ater Table (A2) on (A3) larks (B1) on Deposits (B2) osits (B3) at or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concators ter Present? Present?	al Imagery ve Surface Yes  Yes  Yes  Yes  Yes  Yes  Yes	(B7) ce (B8) No 🗵 No 🗵	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted co Other (Ex	ained Leav  4A, and 4E  it (B11)  nvertebrate  n Sulfide O  Rhizosphe  e of Reduct  on Reduct  or Stressed  xplain in Re  es):  es):  es):	es (B13) bdor (C1) eres along ed Iron (C- ion in Tille d Plants (D- emarks)	Living Roo 4) d Soils (C6 01) (LRR A)	RA [	Wat  □ Drai  □ Dryy  □ Satu  □ Gec  □ Sha  □ FAC  □ Rais  □ Fros	er-Stained Leaves (B9 4A, and 4B) nage Patterns (B10) Season Water Table ( uration Visible on Aeria morphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (I st-Heave Hummocks (I	(C2) (MLRA 1, 2, C2) (C9) (C9) (C9) (C9) (C9) (C9) (C9) (C9
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Project/Site: 1077.0012 - South Hill Data Center	(	City/County	<sub>y:</sub> Puyallu	ıp/Pierce	Sampling Date: 9/13/16
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-3
				ownship, Range: <u>03, 19,</u>	
Landform (hillslope, terrace, etc.): Valley Floor		Local relie	ef (concave,	, convex, none): Concav	<u>e</u> Slope (%): 0
Subregion (LRR): A2	_ Lat: <u>47.</u> ′	15582		Long: -122.27858	Datum: WGS84
Soil Map Unit Name: Indianola Loamy Sand				NWI classifica	tion: N/A
Are climatic / hydrologic conditions on the site typical for this	time of yea	r? Yes 🗷	No ☐ (I	f no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology sign	ificantly dist	urbed?	Are "No	ormal Circumstances" pres	ent? Yes 🗷 No 🗌
Are Vegetation, Soil, or Hydrology natu	rally problen	natic?	(If need	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point le	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☐ No 🗵					
Hydric Soil Present? Yes ☐ No 🗵			e Sampled		
Wetland Hydrology Present? Yes ☐ No 🗵		with	in a Wetlar	nd? Yes □ N	o 🔀
Remarks:					
Data point collected east of Wetla	ınd A bo	undary.	,		
VEGETATION – Use scientific names of plant	s.				
		Dominant	Indicator	Dominance Test works	sheet:
Tree Stratum (Plot size: 30 ft)	% Cover	Species? Yes	Status FAC	Number of Dominant Sp	
1. Alnus rubra	80			That Are OBL, FACW, o	or FAC: <u>2</u> (A)
2				Total Number of Domina Species Across All Strat	_
4				Species Across Air Strat	а. <u>Э</u> (В)
	80	= Total C	over	Percent of Dominant Spartners of Dominant Sp	
Sapling/Shrub Stratum (Plot size: 15 ft)	20	V	E4011		
1. Vaccinium ovatum	30	Yes	FACU	Prevalence Index work	
2. Rubus spectabilis	30	Yes	FAC	Total % Cover of:	
3					x 1 = 0 $x 2 = 0$
4					x = 0 x = 330
5	60	Total C			x = 300 x = 280
Herb Stratum (Plot size: 5 ft)	00	= Total C	over		x = 5 = 5
1. Polystichum munitum	30	Yes	FACU	Column Totals: 180	(A) 610 (B)
2. Pteridium aquilinum	10	Yes	FACU		
3				Prevalence Index	$= B/A = \underline{3.39}$
4				Hydrophytic Vegetation	n Indicators:
5				Rapid Test for Hydro	· ·
6				Dominance Test is >	
7				☐ Prevalence Index is	
8					tations <sup>1</sup> (Provide supporting or on a separate sheet)
9				☐ Wetland Non-Vascu	• • • • • • • • • • • • • • • • • • • •
10				☐ Problematic Hydroph	hytic Vegetation¹ (Explain)
11	40				and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)	40	= Total C	over	be present, unless distu	rbed or problematic.
1				Hydrophytic	
2				Vegetation	
% Bare Ground in Herb Stratum 60	0	= Total C	over	Present? Yes	s □ No ⊠
Pomarke:					
FACU-FAC vegetation observed.					

Depth (inches)	Color (moist)	%	Colo	or (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 3/3	99		YR 4/6	1	CS	M	LoSa	Loamy Sand
4-6	10YR 4/6	100			-		_	LoSa	Loamy Sand
6-16	10YR 3/4	99	10`	YR 4/6	1	CS	M	LoSa	Loamy Sand
	oncentration, D=D Indicators: (Appl						ted Sand G		<sup>2</sup> Location: PL=Pore Lining, M=Matrix. icators for Problematic Hydric Soils <sup>3</sup> :
Histosol				Sandy Redox		,			2 cm Muck (A10)
	pipedon (A2)			Stripped Matrix					Red Parent Material (TF2)
Black Hi				Loamy Mucky	. ,	F1) (excen	t MLRA 1)		Very Shallow Dark Surface (TF12)
	n Sulfide (A4)			Loamy Gleyed					Other (Explain in Remarks)
	d Below Dark Surfa	ace (A11)		Depleted Matri		_,			Carlor (Explain in Normanie)
	ark Surface (A12)	200 (7111)		Redox Dark Si		6)		3Inc	licators of hydrophytic vegetation and
_	lucky Mineral (S1)			Depleted Dark	`	,			wetland hydrology must be present,
	lleyed Matrix (S4)			Redox Depres					unless disturbed or problematic.
	Layer (if present)	•	<u>' ' '</u>	redox pepies	SIONS (FC	"		<u> </u>	unices disturbed of problematic.
Type: Gr		•		_					
	40							1	Call Brancost 2 Van D Na W
Depth (in	ches): <u>12</u>							Hydric	Soil Present? Yes ☐ No 🗵
emarks:	soil indicators o	observe	d.					Hydric	Soil Present? Yes   No K
demarks: o hydric s	soil indicators o		d.					Hydric	Soil Present? Yes   No K
Remarks:  o hydric s  YDROLO  Vetland Hy	soil indicators of GY drology Indicator	's:		eck all that ap	ply)				
emarks: o hydric :  /DROLO /etland Hy /rimary India	soil indicators of GY drology Indicator cators (minimum o	's:				ayes (BQ) (	avcent MI		Secondary Indicators (2 or more required)
emarks:  O hydric s  O DROLO  /etland Hy rimary India    Surface	soil indicators of GY drology Indicator	's:		☐ Water-Sta			except ML		
emarks: o hydric :  'DROLO  'etland Hy rimary India ] Surface ] High Wa	soil indicators of the soil indicators of the soil indicators of the soil indicator of the soil indicators of the	's:		☐ Water-Sta	ained Lea <b>4A, and</b> 4		except ML		Secondary Indicators (2 or more required) ☐ Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)
emarks: O hydric : O h	oGY drology Indicators cators (minimum o Water (A1) tter Table (A2) on (A3)	's:		☐ Water-Sta 1, 2, 4 ☐ Salt Crus	ained Lea <b>4A, and</b> 4 t (B11)	IB)	except ML	<u>S</u>	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)
emarks: O hydric : O h	GY drology Indicators cators (minimum o Water (A1) tter Table (A2) on (A3) arks (B1)	's:		☐ Water-Sta  1, 2, 4 ☐ Salt Crus ☐ Aquatic Ir	ained Lea <b>4A, and 4</b> t (B11) nvertebra	<b>IB)</b> tes (B13)	except ML	RA [	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)
emarks:  O hydric s  I broke s  O hydric s	drology Indicators of the cators (minimum of the cators (minimum of the cators (Management)) arks (B1) arks (B2)	's:		Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger	ained Lea 4A, and 4 t (B11) nvertebra n Sulfide (	tes (B13) Odor (C1)		RA [	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS
emarks: o hydric s  /DROLO /etland Hy rimary India   Surface   High Wa   Saturatio   Water M   Sedimer   Drift Dep	drology Indicators of the cators (minimum of the Table (A2) on (A3) arks (B1) on the Deposits (B2) on the cators (B3)	's:		Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized	ained Lea 4A, and 4 t (B11) nvertebra n Sulfide ( Rhizosph	tes (B13) Odor (C1) neres along	Living Ro	RA [	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)
emarks: o hydric :  O hydric :	drology Indicators of the Cators (minimum of the Table (A2) on (A3) arks (B1) on the Deposits (B2) on the Cators (B3) art or Crust (B4)	's:		Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence	ained Lea 4A, and 4 t (B11) nvertebra n Sulfide ( Rhizosph e of Redu	tes (B13) Odor (C1) heres along ced Iron (C	Living Roo	RA [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)
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emarks: o hydric : O h	dGY drology Indicators of cators (minimum of cators	's: f one requ	uired; che	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted o	ained Lea 4A, and 4 t (B11) nvertebra n Sulfide ( Rhizosph e of Reduction Reduct	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille ed Plants (E	Living Roo 4) ed Soils (Co	E COSTO COST	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
emarks: o hydric : O h	drology Indicators of the cators (minimum of	s: f one requ	uired; che	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir	ained Lea 4A, and 4 t (B11) nvertebra n Sulfide ( Rhizosph e of Reduction Reduct	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille ed Plants (E	Living Roo 4) ed Soils (Co	E COSTO COST	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
emarks: o hydric s  /DROLO /etland Hy rimary India   Surface   High Wa   Saturatio   Water M   Sedimer   Drift Dep   Algal Ma   Iron Dep   Surface   Inundatio   Sparsely	degy drology Indicators of the cators (minimum of the cators (minimu	s: f one requ	uired; che	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted o	ained Lea 4A, and 4 t (B11) nvertebra n Sulfide ( Rhizosph e of Reduction Reduct	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille ed Plants (E	Living Roo 4) ed Soils (Co	E COSTO COST	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
emarks: o hydric s  /DROLO /etland Hy rimary India   Surface   High Wa   Saturatio   Water M   Sedimer   Drift Dep   Algal Ma   Iron Dep   Surface   Inundatio   Sparsely	degy drology Indicators of the cators (minimum of the cators (minimu	s: f one requ	uired; che	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted o	ained Lea 4A, and 4 t (B11) nvertebra n Sulfide ( Rhizosph e of Reduction Reduct	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille ed Plants (E	Living Roo 4) ed Soils (Co	E COSTO COST	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
emarks: o hydric : o h	degy drology Indicators of the cators (minimum of the cators (minimu	s: f one requ	uired; che	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted o	ained Lea 4A, and 4 t (B11) nvertebra n Sulfide o Rhizosph e of Reduc on Reduc or Stresse xplain in F	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille d Plants (E Remarks)	Living Roo 4) ed Soils (Co	E COSTO COST	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
rimary India Surface High Wa Sedimer Drift Dep Algal Ma Iron Dep Surface Inundation Sparsely ield Obser	drology Indicators of the cators (minimum of	rs:  If one required the second of the secon	uired; cho	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted of	ained Lea  4A, and 4  t (B11)  nvertebra  n Sulfide o  Rhizosph  e of Reduct  on Reduct  or Stresse  xplain in F	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille ed Plants (E Remarks)	Living Roo 4) ed Soils (Co	E COSTO COST	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Gurface Water Table Saturation P	drology Indicators of cators (minimum of water (A1) on (A3) arks (B1) on Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concarvations:  The Present?  Present?	f one required in the second of the second o	uired; che (B7) te (B8)	Water-Sta  1, 2, 4  Salt Crus  Aquatic Ir  Hydroger  Oxidized  Presence  Recent Ir  Stunted of  Other (Ex	ained Lea  4A, and 4  t (B11)  nvertebra  n Sulfide ( Rhizosph  of Reduction Reduction Reduction Reduction Reduction Reduction Reduction Stresses  explain in Figure (B)  ess):	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille ed Plants (E Remarks)	Living Roo 4) ed Soils (Co 01) (LRR A	RA [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Primary India Surface High Wa Saturatio Vater M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Water Table Saturation Pencludes ca	drology Indicators of Cators (minimum of Cators (mi	I Imagery ve Surface Yes  Yes  Yes  Yes  Yes  Yes  Yes  Yes	uired; che (B7) te (B8) No 🗵 No 🗵	Water-Sta  1, 2, 4  Salt Crus  Aquatic Ir  Hydroger  Oxidized  Presence  Recent Ir  Stunted of  Other (Ex	ained Lea  4A, and 4  t (B11)  nvertebra  n Sulfide o  Rhizosph  e of Reduct  on Reduct  or Stresse  xplain in F  es):  es):  es):	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille ed Plants (E Remarks)	Living Roo 4) ed Soils (Co 01) (LRR A	S   S   C   C   C   C   C   C   C   C	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)  Frost-Heave Hummocks (D7)
Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Water Table Saturation P Includes ca	dGY drology Indicators of cators (minimum of water (A1) atter Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concarvations:  ter Present?  Present?  present?	I Imagery ve Surface Yes  Yes  Yes  Yes  Yes  Yes  Yes  Yes	uired; che (B7) te (B8) No 🗵 No 🗵	Water-Sta  1, 2, 4  Salt Crus  Aquatic Ir  Hydroger  Oxidized  Presence  Recent Ir  Stunted of  Other (Ex	ained Lea  4A, and 4  t (B11)  nvertebra  n Sulfide o  Rhizosph  e of Reduct  on Reduct  or Stresse  xplain in F  es):  es):  es):	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille ed Plants (E Remarks)	Living Roo 4) ed Soils (Co 01) (LRR A	S   S   C   C   C   C   C   C   C   C	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)  Frost-Heave Hummocks (D7)
Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely ield Obser furface Water Table staturation P includes ca Describe Re	dGY drology Indicators of cators (minimum of water (A1) atter Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concarvations:  ter Present?  Present?  present?	f one required in the second of the second o	uired; che (B7) te (B8) No 🗵 No 🗵 No 🗵	Water-Sta  1, 2, 4  Salt Crus  Aquatic Ir  Hydroger  Oxidized  Presence  Recent Ir  Stunted of  Other (Ex	ained Lea  4A, and 4  t (B11)  nvertebra  n Sulfide o  Rhizosph  e of Reduct  on Reduct  or Stresse  xplain in F  es):  es):  I photos,	tes (B13) Odor (C1) neres along ced Iron (C ction in Tille ed Plants (E Remarks)	Living Roo 4) ed Soils (Co 01) (LRR A	S   S   C   C   C   C   C   C   C   C	Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (CS)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)  Frost-Heave Hummocks (D7)

Project/Site: 1077.0012 - South Hill Data Center	(	City/Count	<sub>y:</sub> Puyallu	ıp/Pierce	Sampling Date: 9/13/16
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-4
				ownship, Range: <u>03, 19,</u>	
Landform (hillslope, terrace, etc.): Valley Floor		Local reli	ef (concave,	, convex, none): Concav	<u>e</u> Slope (%): 0
Subregion (LRR): A2	_ <sub>Lat:</sub> <u>47.</u> ′	15563		Long: -122.27630	Datum: WGS84
Soil Map Unit Name: Indianola Loamy Sand				NWI classifica	
Are climatic / hydrologic conditions on the site typical for this	time of yea	ır? Yes 🗵	] No □ (I	f no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology sign	ificantly dist	turbed?	Are "No	ormal Circumstances" pres	ent? Yes 🗷 No 🗌
Are Vegetation, Soil, or Hydrology natu	rally problen	natic?	(If need	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point le	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐					
Hydric Soil Present? Yes ☒ No ☐			ne Sampled		
Wetland Hydrology Present? Yes ☒ No ☐		with	nin a Wetlar	nd? Yes ເເ N	0 📙
Remarks:					
Data collected in Wetland B.					
VEGETATION – Use scientific names of plant	ts.				
- C			Indicator	Dominance Test works	sheet:
Tree Stratum (Plot size: 30 ft)  1. Alnus rubra	<u>% Cover</u> 80	Yes	FAC	Number of Dominant Sp That Are OBL, FACW, o	
2.					
3				Total Number of Domina Species Across All Strat	_
4				Percent of Dominant Sp	acies ,
Sapling/Shrub Stratum (Plot size: 15 ft)	80	= Total C	Cover	That Are OBL, FACW, o	
1. Salix sitchensis	10	Yes	FACW	Prevalence Index work	sheet:
2. Rubus spectabilis	10	Yes	FAC	Total % Cover of:	
3					x 1 = <u>80</u>
4				FACW species 10	
5.				FAC species 90	x 3 = <u>270</u>
	20	= Total C	Cover	FACU species 0	x 4 = 0
Herb Stratum (Plot size: 5 ft)	50	V	ODI	UPL species 0	x 5 = 0
1. Lysichiton americanus	50 30	Yes Yes	OBL	Column Totals: 180	(A) <u>370</u> (B)
2. Oenanthe sarmentosa			OBL	Prevalence Index	= B/A = 2.06
3				Hydrophytic Vegetatio	
5				☐ Rapid Test for Hydro	
6.				■ Dominance Test is >	•50%
7				▼ Prevalence Index is	≤3.0 <sup>1</sup>
8					tations <sup>1</sup> (Provide supporting
9					or on a separate sheet)
10				☐ Wetland Non-Vascu	
11					hytic Vegetation <sup>1</sup> (Explain) and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)	80	= Total C	Cover	be present, unless distu	
1					
2				Hydrophytic Vegetation	
	0	= Total C	Cover		i⊠ No □
% Bare Ground in Herb Stratum 80  Remarks:					
FAC-OBL vegetation observed.					

Profile Desc	cription: (Describe	e to the c	lepth ne	eded to docu	ment the	indicator	or confirm	n the ab	sence o	of indicators.)	
Depth	Matrix			Red	ox Feature	es.					
(inches)	Color (moist)	%	Colo	or (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Textu	re	Remarks	
0-16	5YR 2.5/1	100			-	-		Muck	k	Organic peat/muck	_
						-		-			-
					_						-
											_
		_									-
					_						-
											-
											_
<sup>1</sup> Type: C=C	oncentration, D=De	pletion. F	RM=Red	uced Matrix. C	S=Covere	d or Coat	ed Sand Gi	rains.	<sup>2</sup> Loca	ation: PL=Pore Lining, M=Matrix.	
	Indicators: (Appli									rs for Problematic Hydric Soils <sup>3</sup> :	
× Histosol	(A1)		П	Sandy Redox (	S5)	-		Г	7 2 cm	Muck (A10)	
	ipedon (A2)			Stripped Matrix						Parent Material (TF2)	
☐ Black Hi				Loamy Mucky	, ,	1) (except	MLRA 1)			Shallow Dark Surface (TF12)	
	n Sulfide (A4)			Loamy Gleyed			,		] Other	(Explain in Remarks)	
☐ Depleted	Below Dark Surface	ce (A11)		Depleted Matri							
☐ Thick Da	rk Surface (A12)			Redox Dark Su	ırface (F6)			3	ndicator	s of hydrophytic vegetation and	
☐ Sandy M	lucky Mineral (S1)			Depleted Dark	Surface (F	7)			wetlan	nd hydrology must be present,	
	leyed Matrix (S4)			Redox Depress	sions (F8)				unless	disturbed or problematic.	
	Layer (if present):										
Type:				-							
Depth (in	ches):							Hydr	ic Soil F	Present? Yes 🗵 No 🗌	
Remarks:											
Hydric soil	indicator F3 ob	served									
',											
HYDROLO	GY										
Wetland Hy	drology Indicators	s:									
Primary Indi	cators (minimum of	one requ	ired; che	eck all that app	oly)				Second	dary Indicators (2 or more required)	
☐ Surface	Water (A1)			☐ Water-Sta	ined Leav	es (B9) ( <b>e</b>	xcept MLF	RA	<b>X</b> Wa	ater-Stained Leaves (B9) (MLRA 1, 2,	
★ High Wa	ter Table (A2)			1, 2, 4	A, and 4B	3)				4A, and 4B)	
■ Saturation	on (A3)			☐ Salt Crust	(B11)				☐ Dra	ainage Patterns (B10)	
■ Water M	arks (B1)			☐ Aquatic In	vertebrate	s (B13)			☐ Dry	/-Season Water Table (C2)	
☐ Sedimer	t Deposits (B2)				Sulfide O	dor (C1)			☐ Sat	turation Visible on Aerial Imagery (C9)	)
☐ Drift Dep	osits (B3)			☐ Oxidized I	Rhizosphe	res along	Living Roo	ts (C3)	☐ Ge	omorphic Position (D2)	
☐ Algal Ma	t or Crust (B4)			☐ Presence		_	_			allow Aquitard (D3)	
	osits (B5)						d Soils (C6	i)	☐ FA	C-Neutral Test (D5)	
	Soil Cracks (B6)						1) ( <b>LRR A</b> )	•		ised Ant Mounds (D6) (LRR A)	
	on Visible on Aerial	Imagery	(B7)	Other (Ex			, , ,			ost-Heave Hummocks (D7)	
	Vegetated Concav			_		,			_	,	
Field Obser			,								
Surface Wat	er Present?	Yes 🗌	No 🗷	Depth (inche	es):						
Water Table			No 🗆	Depth (inche	_						
Saturation P			No 🗆	Depth (inche			Wot	and Uv	drology	Brocont? Voc V No 🗆	
	oillary fringe)	res 🔼	МО	Deptii (inche	:S). <u> </u>		well	ани пус	urology	Present? Yes ⊠ No □	
	corded Data (stream	m gauge,	monitor	ing well, aerial	photos, p	revious in:	spections),	if availa	able:		
Remarks:											
Hydrologic	indicators A2,	A3. B1.	and C	1 observed							
,		-,,									
i											

Project/Site: 1077.0012 - South Hill Data Center	(	City/Count	<sub>y:</sub> Puyallu	ıp/Pierce	Sampling Date: 9/13/16
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-5
				ownship, Range: <u>03, 19,</u>	
Landform (hillslope, terrace, etc.): Slope		Local reli	ef (concave,	convex, none): Concav	e Slope (%): 20
Subregion (LRR): A2	_ <sub>Lat:</sub> <u>47.</u> ′	15550		Long: -122.27639	Datum: WGS84
Soil Map Unit Name: Indianola Loamy Sand				NWI classificat	tion: N/A
Are climatic / hydrologic conditions on the site typical for this	time of yea	r? Yes 🗵		f no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology sign	ificantly dist	urbed?	Are "No	ormal Circumstances" pres	ent? Yes 🗷 No 🗌
Are Vegetation, Soil, or Hydrology natu	rally problen	natic?	(If neede	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplir	ng point le	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐					
Hydric Soil Present? Yes ☐ No 🗵			he Sampled		
Wetland Hydrology Present? Yes ☐ No 🗵		With	nin a Wetlar	nd? Yes ☐ No	o 🔀
Remarks:					
Data point collected east of Wetla	ınd B bo	undary	•		
VEGETATION – Use scientific names of plant					
Francisco de Constituto de Prantico de Prantico		Dominan	t Indicator	Dominance Test works	sheet:
Tree Stratum (Plot size: 30 ft)	% Cover			Number of Dominant Sp	
1. Alnus rubra	60	Yes	FAC	That Are OBL, FACW, o	r FAC: <u>4</u> (A)
2. Thuja plicata	20	Yes	FAC	Total Number of Domina	ant
3				Species Across All Strate	a: <u>6</u> (B)
4				Percent of Dominant Spo	ecies
Sapling/Shrub Stratum (Plot size: 15 ft)	80	= Total C	Cover	That Are OBL, FACW, o	r FAC: <u>67%</u> (A/B)
1. Rubus spectabilis	30	Yes	FAC	Prevalence Index work	sheet:
2. Rubus armeniacus	10	Yes	FAC	Total % Cover of:	Multiply by:
3.					x 1 = 0
4				FACW species 0	x 2 = 0
5.				FAC species 120	x 3 = <u>360</u>
	40	= Total C	Cover	FACU species 20	x 4 = <u>80</u>
Herb Stratum (Plot size: 5 ft)	40	V	FAOLI	UPL species 0	x 5 = 0
1. Polystichum munitum	10		FACU	Column Totals: 140	(A) <u>440</u> (B)
2. Rubus ursinus	10	Yes	FACU	Prevalence Index	- B/A - 314
3			-	Hydrophytic Vegetation	
4				Rapid Test for Hydro	
5				Dominance Test is >	· ·
6				☐ Prevalence Index is:	
7				_	tations <sup>1</sup> (Provide supporting
8 9					or on a separate sheet)
10				☐ Wetland Non-Vascul	ar Plants <sup>1</sup>
11.				☐ Problematic Hydroph	nytic Vegetation1 (Explain)
	20	= Total 0	Cover		and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)				be present, unless distur	bed of problematic.
1				Hydrophytic	
2				Vegetation	
% Bare Ground in Herb Stratum 80	0	= Total C	Cover	Present? Yes	I ⊠ No □
Remarks:					
FACU-FAC vegetation observed.					

Profile Descri Depth	Matrix		-		lox Featur					or maneators.
	Color (moist)	%	Colo	or (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Textur	e	Remarks
	10YR 3/3	99		YR 3/6	1	CS	M	LoSa		Loamy Sand
		_								
								-		
<sup>1</sup> Type: C=Con	ncentration, D=De	pletion,	RM=Red	duced Matrix, C	CS=Cover	ed or Coat	ed Sand G	rains.	<sup>2</sup> Loc	ation: PL=Pore Lining, M=Matrix.
	dicators: (Appli									s for Problematic Hydric Soils <sup>3</sup> :
☐ Histosol (A	<b>\1</b> )			Sandy Redox	(S5)				] 2 cm	Muck (A10)
☐ Histic Epip	pedon (A2)			Stripped Matrix					Red F	Parent Material (TF2)
☐ Black Histi				Loamy Mucky	Mineral (F	1) (excep	t MLRA 1)		] Very	Shallow Dark Surface (TF12)
	Sulfide (A4)			Loamy Gleyed		2)			] Other	(Explain in Remarks)
-	Below Dark Surfac	ce (A11)		Depleted Matri				2.		
	Surface (A12)			Redox Dark Si	•	•		³Ir		rs of hydrophytic vegetation and
·	cky Mineral (S1) eyed Matrix (S4)			Depleted Dark Redox Depres		,				nd hydrology must be present, s disturbed or problematic.
	ayer (if present):			Redux Deples	SIONS (FO)	1			uniess	s disturbed of problematic.
Type: Roo										
Depth (inch				_				Llvdri	io Soil I	Bracont? Voc 🗆 No 🔽
, ,				-				пуагі	C 3011	Present? Yes No 🗵
Remarks:										
No hydric so	oil indicators of	bserve	d.							
HYDROLOG	SY									
HYDROLOG Wetland Hydr	GY rology Indicators	::								
Wetland Hydr			uired; ch	eck all that app	ply)				Secon	dary Indicators (2 or more required)
Wetland Hydr	rology Indicators ators (minimum of		uired; ch	eck all that app		ves (B9) ( <b>•</b>	except MLF	RA		dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydro	rology Indicators ators (minimum of		uired; ch	☐ Water-Sta			except MLI	RA		<u> </u>
Wetland Hydro	rology Indicators ators (minimum of atter (A1) or Table (A2)		uired; ch	☐ Water-Sta	ained Lea 4 <b>A, and 4</b>		except MLF	RA	☐ Wa	ater-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydromann Indicated With Surface With High Water	rology Indicators ators (minimum of dater (A1) or Table (A2) (A3)		uired; ch	☐ Water-Sta	ained Lea <b>4A, and 4</b> t (B11)	В)	except MLF		☐ Wa	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hydroman Primary Indicated Surface William High Water Saturation Water Mark	rology Indicators ators (minimum of dater (A1) or Table (A2) (A3)		uired; ch	☐ Water-Sta 1, 2, 4 ☐ Salt Crus	ained Lea <b>4A, and 4</b> t (B11) nvertebrat	<b>B)</b> es (B13)	except MLI		☐ Wa	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10)
Wetland Hydroman Primary Indicated Surface William High Water Saturation Water Mark	rology Indicators ators (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2)		uired; ch	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger	ained Lea 4A, and 4 t (B11) nvertebrat n Sulfide C	es (B13) Odor (C1)	except MLI		☐ Wa	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2)
Wetland Hydroman Primary Indicated Surface Working High Water Saturation Water Marl Sediment In Drift Deposit	rology Indicators ators (minimum of vater (A1) er Table (A2) (A3) rks (B1) Deposits (B2)		uired; ch	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger	ained Lea 4A, and 4 t (B11) nvertebrat n Sulfide C Rhizosph	es (B13) Odor (C1) eres along	Living Roc		☐ Wa	atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (C9)
Wetland Hydroman Primary Indicated Surface Working High Water Saturation Water Marl Sediment In Drift Deposit	rology Indicators stors (minimum of rater (A1) er Table (A2) (A3) eks (B1) Deposits (B2) sits (B3) or Crust (B4)		uired; ch	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence	ained Lea 4A, and 4 t (B11) nvertebrat n Sulfide C Rhizospho e of Reduc	es (B13) Odor (C1) eres along red Iron (C	Living Roc	ots (C3)	☐ Wa	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2)
Wetland Hydroman Primary Indicated Surface William High Water Saturation Water Mark Sediment In Drift Deposed Iron Deposed	rology Indicators stors (minimum of rater (A1) er Table (A2) (A3) eks (B1) Deposits (B2) sits (B3) or Crust (B4)		uired; ch	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir	ained Lead 4A, and 4B t (B11) Envertebrate a Sulfide C Rhizosphe of Reduct on Reduct	es (B13) Odor (C1) eres along red Iron (C	Living Roc 4)	ots (C3)	Dra Dra Sa Ge	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (C9) ecomorphic Position (D2) allow Aquitard (D3)
Wetland Hydroman Primary Indicated Surface William Saturation Water Mark Sediment In Drift Deposed Inon Deposed Surface Scott	rology Indicators stors (minimum of later (A1) er Table (A2) (A3) eks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)	one requ		Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir	ained Lea 4A, and 4 t (B11) nvertebrat n Sulfide C Rhizosph e of Reduct on Reduct or Stresse	es (B13) Odor (C1) eres along ed Iron (C tion in Tille d Plants (E	Living Roc 4) ed Soils (C6	ots (C3)	Dra Dry Sa Ge Sh Ra	Atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  ainage Patterns (B10)  y-Season Water Table (C2)  turation Visible on Aerial Imagery (C9)  comorphic Position (D2)  allow Aquitard (D3)  C-Neutral Test (D5)
Wetland Hydromary Indicated Surface William Saturation Water Marle Sediment In Drift Deposed Iron Deposed Inundation	rology Indicators stors (minimum of dater (A1) er Table (A2) (A3) eks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6)	one requ	(B7)	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir	ained Lea 4A, and 4 t (B11) nvertebrat n Sulfide C Rhizosph e of Reduct on Reduct or Stresse	es (B13) Odor (C1) eres along ed Iron (C tion in Tille d Plants (E	Living Roc 4) ed Soils (C6	ots (C3)	Dra Dry Sa Ge Sh Ra	atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A)
Wetland Hydromary Indicated Surface William Saturation Water Marle Sediment In Drift Deposed Iron Deposed Inundation	rology Indicators stors (minimum of rater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) a Visible on Aerial regetated Concav	one requ	(B7)	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir	ained Lea 4A, and 4 t (B11) nvertebrat n Sulfide C Rhizosph e of Reduct on Reduct or Stresse	es (B13) Odor (C1) eres along ed Iron (C tion in Tille d Plants (E	Living Roc 4) ed Soils (C6	ots (C3)	Dra Dry Sa Ge Sh Ra	atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A)
Wetland Hydroman Primary Indicators   Surface With High Water   Saturation   Water Mark   Sediment   Drift Depos   Algal Mat or Iron Depos   Surface So   Inundation   Sparsely With Primary   Sparsely With Primary   Surface So   Inundation   Sparsely With Surface   Wetland   Sparsely With Primary   Surface   Surface	rology Indicators stors (minimum of later (A1) er Table (A2) (A3) eks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) a Visible on Aerial legetated Concav lations:	one requ	(B7)	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir	ained Lea 4A, and 4 t (B11) nvertebrat n Sulfide C Rhizospho e of Reduct on Reduct or Stressed xplain in R	es (B13) Ddor (C1) eres along ed Iron (C tion in Tille d Plants (E emarks)	Living Roc 4) ed Soils (C6	ots (C3)	Dra Dry Sa Ge Sh Ra	atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A)
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Wetland Hydromary Indicated Surface Water Mark Drift Deposed Inundation Sparsely V Field Observal Surface Water Table Posaturation President Control of the	rology Indicators stors (minimum of later (A1) er Table (A2) (A3) eks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) a Visible on Aerial legetated Concav ations: er Present? ersent?	Imagery e Surface Yes  Yes  Yes  Yes  Yes  Yes	(B7) te (B8)  No 🗵 No 🗵 No 🗵	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted of Other (Ex	ained Lea  4A, and 4  t (B11)  nvertebrat  n Sulfide C  Rhizosph  e of Reduct  on Reduct  or Stresse  xplain in R  es):  es):  es):	es (B13) Ddor (C1) eres along ed Iron (C tion in Tille d Plants (E emarks)	Living Roc 4) ed Soils (C6 01) (LRR A	ots (C3) S) )	☐ Wa ☐ Dra ☐ Dny ☐ Sa ☐ Ge ☐ Sh ☐ FA ☐ Fro	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Wetland Hydromary Indicated Surface Water Mark Drift Deposed Inundation Sparsely V Field Observal Surface Water Table Posaturation President Control of the	rology Indicators stors (minimum of later (A1) er Table (A2) (A3) eks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) a Visible on Aerial legetated Concav ations: r Present? eresent? elary fringe)	Imagery e Surface Yes  Yes  Yes  Yes  Yes  Yes	(B7) te (B8)  No 🗵 No 🗵 No 🗵	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydroger Oxidized Presence Recent Ir Stunted of Other (Ex	ained Lea  4A, and 4  t (B11)  nvertebrat  n Sulfide C  Rhizosph  e of Reduct  on Reduct  or Stresse  xplain in R  es):  es):  es):	es (B13) Ddor (C1) eres along ed Iron (C tion in Tille d Plants (E emarks)	Living Roc 4) ed Soils (C6 01) (LRR A	ots (C3) S) )	☐ Wa ☐ Dra ☐ Dny ☐ Sa ☐ Ge ☐ Sh ☐ FA ☐ Fro	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
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Project/Site: 1077.0012 - South Hill Data Center	(	City/Co	unty: Puya	allup/Pierce	Sampling Date: 9/14/16
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-6
				Township, Range: 03, 19,	
Landform (hillslope, terrace, etc.): Valley Floor		Local	relief (conca	ve, convex, none): Concav	/e Slope (%): 2
Subregion (LRR): A2	_ <sub>Lat:</sub> <u>47.</u>	15753	}	Long: -122.27711	Datum: WGS84
Soil Map Unit Name: Indianola Loamy Sand				NWI classifica	ation: PFOC
Are climatic / hydrologic conditions on the site typical for this	time of yea	ır? Yes	× No □	(If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology sign	nificantly dist	turbed?	Are	"Normal Circumstances" pres	sent? Yes 🗵 No 🗌
Are Vegetation, Soil, or Hydrology natu	rally problen	natic?	(If ne	eded, explain any answers in	n Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samp	ling poin	t locations, transects,	, important features, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐					
Hydric Soil Present? Yes ☒ No ☐			s the Samp		. =
Wetland Hydrology Present? Yes ☒ No ☐		٧	vithin a We	tland? Yes 🗷 N	io [_]
Remarks:		l .			
Data point collected in interior of	Wetland	1 C			
VEGETATION – Use scientific names of plan		Damia		Dominones Test week	
Tree Stratum (Plot size: 30 ft)	Absolute % Cover		ant Indicato es? Status		
1. Acer macrophyllum	15	Yes		- I Number of Dominant St	
2. Frangula purshiana	5	Yes	FAC		
3. Pseudotsuga menziesii	5	Yes	FACL	Total Number of Domina Species Across All Strategies	_
4				- Demonst of Demonstrant Co	, ,
	25	= Tota	al Cover	Percent of Dominant Sp That Are OBL, FACW, of	
Sapling/Shrub Stratum (Plot size: 15 ft)  1. Alnus rubra	20	Yes	FAC	Prevalence Index work	kohooti
				Total % Cover of:	
2				_	x 1 = 0
					x = 200
4 5				_	$x = \frac{75}{}$
0	20	= Tota	al Cover		x 4 = 80
Herb Stratum (Plot size: 5 ft)		- 100	ai Oovei	-	x 5 = 0
1. Phalaris arundinacea	100	Yes	FACV	Column Totals: 145	(A) <u>355</u> (B)
2				_	
3				Prevalence Index	
4				Hydrophytic Vegetatio	
5				Rapid Test for Hydro	· ·
6				Prevalence Index is	
7				-   -	otations <sup>1</sup> (Provide supporting
8					s or on a separate sheet)
9 10				─	ılar Plants <sup>1</sup>
				Problematic Hydrop	hytic Vegetation <sup>1</sup> (Explain)
11	100	= Tota	al Cover	<sup>1</sup> Indicators of hydric soil	and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)		_ 100	ai 0010i	be present, unless distu	rbed or problematic.
1				Hydrophytic	
2				<ul> <li>Vegetation</li> </ul>	
% Bare Ground in Herb Stratum 0	0	= Tota	al Cover	Present? Yes	s⊠ No□
Remarks:					
FACU-FACW vegetation observed.					

(inches)	Matrix Color (moist)	%	Colo	r (moist)	dox Featur %	Type <sup>1</sup>	Loc <sup>2</sup>	Textu	re	Remarks	
0-6	10YR 2/1	100				-		LoSa	a L	oamy Sand	
6-12	10YR 3/2	90	10`	YR 3/6	10	CS	М	LoSa	a L	oamy Sand	
12-18	10YR 4/2	90	10`	YR 4/6	10	CS	M	LoSa	a L	oamy Sand	
										•	-
					·		-				
					<del></del>						
											<u> </u>
¹Type: C=C	Concentration, D=D	epletion, F	RM=Red	uced Matrix,	CS=Cover	ed or Coat	ed Sand G	rains.	<sup>2</sup> Locatio	on: PL=Pore Lining, I	M=Matrix.
	Indicators: (App									or Problematic Hyd	
☐ Histosol	I (A1)			Sandy Redox	(S5)				] 2 cm Mu	uck (A10)	
	pipedon (A2)			Stripped Matr	, ,					ent Material (TF2)	
	istic (A3)			_oamy Mucky			t MLRA 1)			allow Dark Surface (T	TF12)
	en Sulfide (A4) d Below Dark Surfa	aca (Δ11)		_oamy Gleye Depleted Mat		<b>2</b> )		L	_ Other (E	Explain in Remarks)	
	ark Surface (A12)	acc (ATT)		Redox Dark S		)		3	ndicators of	of hydrophytic vegetat	tion and
	Mucky Mineral (S1)			Depleted Dar	,	•				hydrology must be pre	
☐ Sandy C	Gleyed Matrix (S4)			Redox Depre	ssions (F8)				unless di	sturbed or problemat	ic.
	Layer (if present)										
Depth (ir	nches):							Hydr	ic Soil Pre	esent? Yes 🗵 N	o 🗌
Remarks:											
HYDDOLO											
	)CV										
		re-									
_	drology Indicator		uired: ch	eck all that ar	volaci				Seconda	ry Indicators (2 or mo	re required)
Wetland Hy	drology Indicator		uired; ch			/es (B9) (e	except MI I			ry Indicators (2 or mo	
Wetland Hy Primary Indi ☐ Surface	ydrology Indicator icators (minimum o Water (A1)		uired; ch	☐ Water-S	tained Leav	` , `	except MLI	RA	☐ Wate	r-Stained Leaves (B9	
Wetland Hy Primary Indi Surface High Wa	ydrology Indicator icators (minimum o Water (A1) ater Table (A2)		uired; ch	☐ Water-S	tained Leav	` , `	except MLI	RA	☐ Wate	r-Stained Leaves (B9 <b>A, and 4B)</b>	
Wetland Hy Primary Indi ☐ Surface	ydrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3)		iired; ch	☐ Water-S 1, 2,	tained Leaver tained Leaver tained Leaver tail tail tail tail tail tail tail tail	3)	except MLI	RA	☐ Water	r-Stained Leaves (B9	) (MLRA 1, 2,
Wetland Hy Primary Indi Surface High Wa Saturati Water M	ydrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3)		uired; ch	☐ Water-S 1, 2, ☐ Salt Crus	tained Leaver 4A, and 4I st (B11) Invertebrate	<b>3)</b> es (B13)	except MLI	RA	Water  4/  Drain	r-Stained Leaves (B9 A, and 4B) age Patterns (B10)	) (MLRA 1, 2,
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimen	ydrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) Marks (B1)		uired; che	☐ Water-S 1, 2, ☐ Salt Crus ☐ Aquatic ☐ Hydroge	tained Leaver 4A, and 4I st (B11) Invertebrate	es (B13) Odor (C1)	·		Water  4/ Drain  Dry-S  Satur	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) teason Water Table (	) (MLRA 1, 2,
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimed	ydrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)		uired; ch	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized	tained Leaver 4A, and 4I st (B11) Invertebraten Sulfide C	es (B13) odor (C1) eres along	Living Roc		Water  4/ Drain  Dry-S  Satur  Geom	r-Stained Leaves (B9 <b>A, and 4B)</b> age Patterns (B10) season Water Table ( ation Visible on Aeria	) (MLRA 1, 2,
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimei Drift Dej Algal Ma	ydrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3)		uired; ch	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presence	tained Leaver 4A, and 4I st (B11) Invertebrate n Sulfide C	es (B13) odor (C1) eres along ed Iron (C	Living Roo 4)	ots (C3)	Water  4/ Drain Dry-S Satur Geom Shalld FAC-I	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) season Water Table (Gation Visible on Aeria norphic Position (D2) ow Aquitard (D3) Neutral Test (D5)	) (MLRA 1, 2, C2) I Imagery (C9)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der	vdrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)	of one requ		Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted	4A, and 4I st (B11) Invertebrate n Sulfide C I Rhizosphe e of Reduct ron Reduct or Stressed	es (B13) odor (C1) eres along ed Iron (Cion in Tille d Plants (D	Living Roc 4) d Soils (C6	ots (C3)	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aeria norphic Position (D2) bow Aquitard (D3) Neutral Test (D5) dd Ant Mounds (D6) (I	) (MLRA 1, 2, C2) I Imagery (C9)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface	ydrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria	of one requ	(B7)	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted	tained Leav  4A, and 4I st (B11) Invertebrate In Sulfide C I Rhizosphe I Reduct	es (B13) odor (C1) eres along ed Iron (Cion in Tille d Plants (D	Living Roc 4) d Soils (C6	ots (C3)	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) season Water Table (Gation Visible on Aeria norphic Position (D2) ow Aquitard (D3) Neutral Test (D5)	) (MLRA 1, 2, C2) I Imagery (C9)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface Inundati	widrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca	of one requ	(B7)	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted	4A, and 4I st (B11) Invertebrate n Sulfide C I Rhizosphe e of Reduct ron Reduct or Stressed	es (B13) odor (C1) eres along ed Iron (Cion in Tille d Plants (D	Living Roc 4) d Soils (C6	ots (C3)	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aeria norphic Position (D2) bow Aquitard (D3) Neutral Test (D5) dd Ant Mounds (D6) (I	) (MLRA 1, 2, C2) I Imagery (C9)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface Inundati Sparsel	vdrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Concar rvations:	of one requal Imagery	(B7) e (B8)	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	tained Leaver 4A, and 4I st (B11) Invertebrate n Sulfide Coll Rhizosphe e of Reduction	es (B13) Dodor (C1) Deres along ed Iron (Cition in Tille d Plants (Citemarks)	Living Roc 4) d Soils (C6	ots (C3)	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aeria norphic Position (D2) bow Aquitard (D3) Neutral Test (D5) dd Ant Mounds (D6) (I	) (MLRA 1, 2, C2) I Imagery (C9)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface Inundati Sparsely Field Obset	widrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca rvations: tter Present?	al Imagery ave Surfac	(B7) e (B8) No ⊠	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	4A, and 4I st (B11) Invertebrate In Sulfide C I Rhizosphe I Reduct	es (B13) dor (C1) eres along ed Iron (C- ion in Tille d Plants (D- emarks)	Living Roc 4) d Soils (C6	ots (C3)	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aeria norphic Position (D2) bow Aquitard (D3) Neutral Test (D5) dd Ant Mounds (D6) (I	) (MLRA 1, 2, C2) I Imagery (C9)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimel Drift Dep Algal Ma Iron Dep Surface Inundati Sparsely Field Obser Surface Wa Water Table	widrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria by Vegetated Concar rvations: ater Present?	al Imagery ave Surfac Yes  Yes	(B7) e (B8) No ⊠ No ⊠	Water-S 1, 2, Salt Crue Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	tained Leaver AA, and 4I and 4	es (B13) clor (C1) eres along ed Iron (C ion in Tille d Plants (C emarks)	Living Roc 4) d Soils (C6 11) (LRR A	ots (C3)	Water  4/ Drain: Dry-S Satur. Geom Shalld FAC- Raise Frost-	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aerianorphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ded Ant Mounds (D6) (Index of the August (D5) ded Heave Hummocks (D6)	(MLRA 1, 2, C2) I Imagery (C9) LRR A)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface Inundati Sparsely Field Obser Surface Wa Water Table Saturation F	ydrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca rvations: ater Present? Present?	al Imagery ave Surfac Yes  Yes	(B7) e (B8) No ⊠	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	tained Leaver AA, and 4I and 4	es (B13) clor (C1) eres along ed Iron (C ion in Tille d Plants (C emarks)	Living Roc 4) d Soils (C6 11) (LRR A	ots (C3)	Water  4/ Drain: Dry-S Satur. Geom Shalld FAC- Raise Frost-	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (deation Visible on Aerial norphic Position (D2) downward (D3) Neutral Test (D5) down Ant Mounds (D6) (Index of the Ant Mounds (D6)	) (MLRA 1, 2, C2) I Imagery (C9)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface Inundati Sparsely Field Obset Saturation F (includes ca	widrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria by Vegetated Concar rvations: ater Present?	al Imagery ave Surfac  Yes  Yes  Yes  Yes  Yes  Yes	(B7) e (B8)  No 🗵 No 🗵 No 🗵	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	tained Leav 4A, and 4I st (B11) Invertebrate In Sulfide C I Rhizosphe e of Reduct ron Reduct or Stressed xxplain in R  less): less): less):	es (B13) ador (C1) ares along ed Iron (C- ion in Tille d Plants (D- emarks)	Living Roc 4) d Soils (C6 1) (LRR A	ots (C3) S) )	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise Frost-	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aerianorphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ded Ant Mounds (D6) (Index of the August (D5) ded Heave Hummocks (D6)	(MLRA 1, 2, C2) I Imagery (C9) LRR A) D7)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface Inundati Sparsely Field Obset Saturation F (includes ca	ydrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca rvations: ter Present? e Present? publicators (Minimum of present (Minimum of present)	al Imagery ave Surfac  Yes  Yes  Yes  Yes  Yes  Yes	(B7) e (B8)  No 🗵 No 🗵 No 🗵	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	tained Leav 4A, and 4I st (B11) Invertebrate In Sulfide C I Rhizosphe e of Reduct ron Reduct or Stressed xxplain in R  less): less): less):	es (B13) ador (C1) ares along ed Iron (C- ion in Tille d Plants (D- emarks)	Living Roc 4) d Soils (C6 1) (LRR A	ots (C3) S) )	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise Frost-	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aerianorphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ded Ant Mounds (D6) (Index of the August (D5) ded Heave Hummocks (D6)	(MLRA 1, 2, C2) I Imagery (C9) LRR A)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface Inundati Sparsely Field Obset Saturation F (includes ca	ydrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca rvations: ter Present? e Present? publicators (Minimum of present (Minimum of present)	al Imagery ave Surfac  Yes  Yes  Yes  Yes  Yes  Yes	(B7) e (B8)  No 🗵 No 🗵 No 🗵	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	tained Leav 4A, and 4I st (B11) Invertebrate In Sulfide C I Rhizosphe e of Reduct ron Reduct or Stressed xxplain in R  less): less): less):	es (B13) ador (C1) ares along ed Iron (C- ion in Tille d Plants (D- emarks)	Living Roc 4) d Soils (C6 1) (LRR A	ots (C3) S) )	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise Frost-	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aerianorphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ded Ant Mounds (D6) (Index of the August (D5) ded Heave Hummocks (D6)	(MLRA 1, 2, C2) I Imagery (C9) LRR A)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Algal Ma Iron Dep Surface Inundati Sparsely Field Obset Saturation F (includes ca Describe Re	ydrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca rvations: ter Present? e Present? publicators (Minimum of present (Minimum of present)	al Imagery ave Surfac Yes Yes Yes am gauge,	(B7) e (B8)  No ☑ No ☑ No ☑ monitor	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	tained Leaver 4A, and 4I st (B11) Invertebrate in Sulfide Color Reduction Reduction Reduction Stressed explain in Reduction Stressed explain in Reduction Reduction Stressed explain in Reduction Reduction Reduction Stressed explain in Reduction Re	es (B13) dor (C1) eres along ed Iron (C- ion in Tille d Plants (Demarks)	Living Roo 4) d Soils (C6 1) (LRR A Wet	ots (C3) S) )  land Hyo if availa	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise Frost-	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aerianorphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ded Ant Mounds (D6) (Index of the August (D5) ded Heave Hummocks (D6)	(MLRA 1, 2, C2) I Imagery (C9) LRR A) D7)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Algal Ma Iron Dep Iron Dep Inundati Sparsely Field Obset Surface Wa Water Table Saturation F (includes ca Describe Re	ydrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria by Vegetated Conca rvations: ater Present? Present? apillary fringe) ecorded Data (streat	al Imagery ave Surfac Yes Yes Yes am gauge,	(B7) e (B8)  No ☑ No ☑ No ☑ monitor	Water-S 1, 2, Salt Crus Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	tained Leaver 4A, and 4I st (B11) Invertebrate in Sulfide Color Reduction Reduction Reduction Stressed explain in Reduction Stressed explain in Reduction Reduction Stressed explain in Reduction Reduction Reduction Stressed explain in Reduction Re	es (B13) dor (C1) eres along ed Iron (C- ion in Tille d Plants (Demarks)	Living Roo 4) d Soils (C6 1) (LRR A Wet	ots (C3) S) )  land Hyo if availa	Water  4/ Drain Dry-S Satur Geom Shalld FAC- Raise Frost-	r-Stained Leaves (B9 A, and 4B) age Patterns (B10) deason Water Table (Gation Visible on Aerianorphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ded Ant Mounds (D6) (Index of the August (D5) ded Heave Hummocks (D6)	(MLRA 1, 2, C2) I Imagery (C9) LRR A)

Project/Site: 1077.0012 - South Hill Data Center	(	City/Coun	<sub>ty:</sub> Puyallu	ıp/Pierce	Sampling Date: 9/14/16
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-7
				ownship, Range: <u>03, 19,</u>	
Landform (hillslope, terrace, etc.): Valley Floor		Local reli	ef (concave,	, convex, none): Concav	'e Slope (%): 0
Subregion (LRR): A2	_ Lat: 47.	15753		_ Long: -122.27711	Datum: WGS84
Soil Map Unit Name: Indianola Loamy Sand				NWI classifica	tion: N/A
Are climatic / hydrologic conditions on the site typical for this	time of yea	r? Yes 🗵	No □ (I	f no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology sign	ificantly dist	turbed?	Are "No	ormal Circumstances" pres	ent? Yes 🗷 No 🗌
Are Vegetation, Soil, or Hydrology natu	rally problen	natic?	(If need	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplir	ng point le	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☐ No 🗵					
Hydric Soil Present? Yes ☐ No 🗵			he Sampled		
Wetland Hydrology Present? Yes ☐ No 🗵		Witi	hin a Wetlar	nd? Yes □ N	o 🔀
Remarks:	_	L L			-
Data collected upland of Wetland	. <b>C</b>				
VEGETATION – Use scientific names of plant	rs.				
	Absolute	Dominan	t Indicator	Dominance Test works	sheet:
Tree Stratum (Plot size: 30 ft)	% Cover			Number of Dominant Sp	ecies
1. Acer macrophyllum	50	Yes	FACU	That Are OBL, FACW, o	r FAC: <u>3</u> (A)
2. Alnus rubra	25	Yes	FAC	Total Number of Domina	ant
3. Pseudotsuga menziesii	25	Yes	FACU	Species Across All Strat	a: <u>8</u> (B)
4	100			Percent of Dominant Sp	ecies
Sapling/Shrub Stratum (Plot size: 15 ft)	100	= Total (	Cover	That Are OBL, FACW, o	
1. Rubus spectabilis	30	Yes	FAC	Prevalence Index work	
2. Ilex aquifolium	10	Yes	FACU	Total % Cover of:	
3. Frangula purshiana	10	Yes	FAC		x 1 = 0
4					x 2 = 0
5.					x 3 = 210
o	50	= Total (	Cover		x 4 = 520
Herb Stratum (Plot size: 5 ft)				· ·	x 5 = 0
1. Polystichum munitum	30		FACU		(A) <u>730</u> (B)
2. Pteridium aquilinum	15	Yes	FACU		
3. Rubus armeniacus	5	No	FAC	Prevalence Index	
4				Hydrophytic Vegetation	
5				Rapid Test for Hydro	· ·
6				☐ Dominance Test is >	
7				☐ Prevalence Index is	
8					tations <sup>1</sup> (Provide supporting or on a separate sheet)
9				☐ Wetland Non-Vascu	
10				☐ Problematic Hydroph	hytic Vegetation¹ (Explain)
11	50			<sup>1</sup> Indicators of hydric soil	and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)	30	= Total (	Cover	be present, unless distu	rbed or problematic.
1			. <u></u>	Hydrophytic	
2				Vegetation	
8.5 0 1.11.5 50	0	= Total 0	Cover		i □ No ⊠
% Bare Ground in Herb Stratum 50					
Remarks: FAC-FACU vegetation observed.					

	cription: (Describe	e to the d	epth ne				or confirn	n the ab	sence	of indicators.)
Depth (inches)	Matrix Color (moist)	%	Colo	r (moist)	ox Feature %	<u>s</u> Type¹	Loc <sup>2</sup>	Textu	re	Remarks
0-12	10YR 3/6	100	-	. (		-	-	GrSa		Gravelly sand
								-		
<u> </u>	-									
					_					
1Type: C-C	oncentration, D=De	nletion P	M-Rad	uced Matrix C	S-Covere	d or Coate	ad Sand Gi	raine	21.00	cation: PL=Pore Lining, M=Matrix.
	Indicators: (Appli						eu Sanu Gi			ors for Problematic Hydric Soils <sup>3</sup> :
☐ Histosol				Sandy Redox (		·,				Muck (A10)
	ipedon (A2)			Stripped Matrix						Parent Material (TF2)
☐ Black His				oamy Mucky N	, ,	) (except	MLRA 1)			Shallow Dark Surface (TF12)
	n Sulfide (A4)			oamy Gleyed			,	Ē	-	er (Explain in Remarks)
	Below Dark Surfac	ce (A11)		Depleted Matrix				_	_	,
☐ Thick Da	rk Surface (A12)		□ F	Redox Dark Su	rface (F6)			3	ndicato	ors of hydrophytic vegetation and
☐ Sandy M	lucky Mineral (S1)			Depleted Dark	Surface (F	7)			wetla	nd hydrology must be present,
-	leyed Matrix (S4)		☐ F	Redox Depress	ions (F8)				unles	s disturbed or problematic.
	Layer (if present):									
Type:										
Depth (in	ches):							Hydr	ic Soil	Present? Yes ☐ No ⊠
Remarks:								ı		
No hydric	soil indicators of	hserved								
No riyano s	John maladiatora of	ooci vca	•							
HYDROLO	GY									
_	drology Indicators									
Primary Indi	cators (minimum of	one requi	red; che	eck all that app	ly)				Secor	ndary Indicators (2 or more required)
☐ Surface	Water (A1)			☐ Water-Sta	ined Leave	es (B9) ( <b>e</b>	xcept MLF	RA	$\square$ W	ater-Stained Leaves (B9) (MLRA 1, 2,
☐ High Wa	ter Table (A2)			1, 2, 4	A, and 4B	)				4A, and 4B)
☐ Saturation	on (A3)			☐ Salt Crust	(B11)				☐ Di	rainage Patterns (B10)
☐ Water M	arks (B1)			☐ Aquatic In	vertebrate	s (B13)			☐ Di	ry-Season Water Table (C2)
☐ Sedimer	t Deposits (B2)			☐ Hydrogen	Sulfide Od	dor (C1)			☐ Sa	aturation Visible on Aerial Imagery (C9)
☐ Drift Dep	osits (B3)			☐ Oxidized F	Rhizosphei	es along	Living Roo	ts (C3)	☐ G	eomorphic Position (D2)
☐ Algal Ma	t or Crust (B4)			☐ Presence	of Reduce	d Iron (C4	<b>1</b> )		☐ Sh	nallow Aquitard (D3)
☐ Iron Dep	osits (B5)			☐ Recent Iro	n Reductio	on in Tille	d Soils (C6	5)	☐ FA	AC-Neutral Test (D5)
☐ Surface	Soil Cracks (B6)			☐ Stunted or	Stressed	Plants (D	1) (LRR A)	)	☐ Ra	aised Ant Mounds (D6) (LRR A)
	on Visible on Aerial	Imagery (	B7)	Other (Exp		•	,			rost-Heave Hummocks (D7)
☐ Sparsely	Vegetated Concav	e Surface	(B8)							
Field Obser										
Surface Wat	er Present?	Yes 🔲 🗆	No 🗷	Depth (inches	s):					
Water Table			No 🗵	Depth (inches						
Saturation P		_	No 🗵	Depth (inches			Wetl	and Hw	drolog	y Present? Yes □ No ⊠
(includes ca		163 🔲	10 🖸	Deptil (illiche	3)		Well	and my	urolog	y resent: res - No M
Describe Re	corded Data (strear	n gauge, i	monitor	ing well, aerial	photos, pr	evious in	spections),	if availa	ıble:	
Remarks:										
	or secondary i	ndicator	s of h	vdrology ob	served					
proary			· · · ·	,						

Project/Site: 1077.0012 - South Hill Data Center		City/Co	ounty: F	Puyallu	p/Pierce	Sampling Date: 9/14/	/16
Applicant/Owner: Benaroya Capital Company					State: WA	Sampling Point: DP-	8
					ownship, Range: 03, 19,		
Landform (hillslope, terrace, etc.): Slope							): 5
Subregion (LRR): A2							
Soil Map Unit Name: Indianola Loamy Sand					NWI classificat		
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrology sign	nificantly dis	turbed?	?	Are "No	ormal Circumstances" pres	ent? Yes 🗵 No 🗌	
Are Vegetation, Soil, or Hydrology natu	rally probler	matic?		(If neede	ed, explain any answers in	Remarks.)	
SUMMARY OF FINDINGS - Attach site map	showing	samp	oling p	point lo	ocations, transects,	important feature	es, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐							
Hydric Soil Present? Yes ⊠ No □				Sampled		_	
Wetland Hydrology Present? Yes ☒ No ☐		V	within a	a Wetlan	nd? Yes ☒ No	o 📙	
Remarks:	1 D	ı					
Data collected in interior of Wetla	ına D.						
VEGETATION – Use scientific names of plan	ts.					_	
	Absolute		nant In		Dominance Test works	heet:	
Tree Stratum (Plot size: 30 ft)  1. Populus balsamifera	<u>% Cover</u> 50	Yes		Status AC	Number of Dominant Sp		(4)
2. Alnus rubra	20	Yes		AC	That Are OBL, FACW, o	r FAC: <u>8</u>	(A)
3. Salix lucida	20	Yes		ACW	Total Number of Domina	^	
3. Calix Idolda	20	163	<u> </u>	ACVV	Species Across All Strata	a: <u>8</u>	(B)
4	90		-1 0		Percent of Dominant Spe		
Sapling/Shrub Stratum (Plot size: 15 ft)	30	= 100	al Cove	er	That Are OBL, FACW, o	r FAC: <u>100%</u>	(A/B)
1. Rubus armeniacus	25	Yes	F	AC	Prevalence Index work	sheet:	
2. Rubus spectabilis	15	Yes	F	AC	Total % Cover of:	Multiply by:	
3.					OBL species 5	x 1 = <u>5</u>	
4					FACW species 20		
5.					FAC species 120	x 3 = <u>360</u>	
	40	= Tota	al Cove	er	FACU species 0	x 4 = 0	
Herb Stratum (Plot size: 5 ft)					UPL species 0	x 5 = 0	
1. Equisetum arvense	5				Column Totals: 145	(A) <u>405</u>	(B)
2. Glyceria striata	5	Yes		DBL_	Daniela da la dani	D/A 2.70	
3. Ranunculus repens		Yes		AC	Prevalence Index		
4					Hydrophytic Vegetation		
5					Rapid Test for Hydro		
6					<ul><li>✓ Dominance Test is &gt;</li><li>✓ Prevalence Index is :</li></ul>		
7						≤3.0 tations¹ (Provide suppo	rting
8						or on a separate sheet	0
9					☐ Wetland Non-Vascul	lar Plants <sup>1</sup>	
10					☐ Problematic Hydroph	nytic Vegetation <sup>1</sup> (Expla	ain)
11	15	Total	ol Cove		<sup>1</sup> Indicators of hydric soil		must
Woody Vine Stratum (Plot size: 30 ft)		= 1018	al Cove	<del>)</del> [	be present, unless distur	bed or problematic.	
1							
2					Hydrophytic Vegetation		
	^	= Tota	al Cove	er	_	⊠ No □	
% Bare Ground in Herb Stratum 85							
Remarks: FAC-OBL vegetation observed.							
1							

Depth (inches)	Color (moist)	%	Colo	Red	dox Featur %	<u>es</u> Type¹	Loc <sup>2</sup>	Tevturo	Remarks
(inches) 0-4	Color (moist) 7.5YR 2.5/1	100	<u>-</u>	r (moist)	<u>%</u> -	<u>rype</u> -		<u>Texture</u> Silt	Silt muck
4-7	10YR 4/2	93	10	YR 4/6	7	С	M	CILo	Clay Loam
7-16	10YR 2/1	98		YR 5/8	2	_ <del></del>	M	Silt	Silt muck
7 10	1011(2/1		10	110,0			101	Ont	- Oilt Hidok
								-	
			· -					-	
1Type: C=C	Concentration, D=D	enletion P	M-Rad	uced Matrix	CS-Cover	ed or Coat	ed Sand G	trains 21	ocation: PL=Pore Lining, M=Matrix.
	Indicators: (App						eu Sanu G		ntors for Problematic Hydric Soils <sup>3</sup> :
☐ Histoso	I (A1)			Sandy Redox	(S5)			□ 20	cm Muck (A10)
☐ Histic E	pipedon (A2)			Stripped Matri	ix (S6)			☐ Re	ed Parent Material (TF2)
	istic (A3)		□ I	_oamy Mucky	Mineral (F	-1) (excep	t MLRA 1)	□ Ve	ery Shallow Dark Surface (TF12)
	en Sulfide (A4)			_oamy Gleyed		2)		☐ Ot	her (Explain in Remarks)
	d Below Dark Surfa	ace (A11)		Depleted Mati	. ,				
	ark Surface (A12)			Redox Dark S	•	•			ators of hydrophytic vegetation and
	Mucky Mineral (S1)			Depleted Dark					tland hydrology must be present,
	Gleyed Matrix (S4)			Redox Depres	ssions (F8)	)		unl	ess disturbed or problematic.
Type:	Layer (if present)								
,,	nches):							Uvdrio C	oil Present? Yes ⊠ No □
Remarks:								nyunc so	DIFFESERIC FES NO
, ,	I indicator A11								
HYDROLO	OGY								
	ydrology Indicator	s:							
Primary Ind	icators (minimum o	f one requi	red; che	eck all that ap	ply)			Sec	condary Indicators (2 or more required)
☐ Surface	Water (A1)			■ Water-St	ained Lea	ves (B9) (	except ML	RA 🗵	Water-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)				4A, and 4		•		4A, and 4B)
■ Saturati	` '			☐ Salt Crus	st (B11)	•			Drainage Patterns (B10)
	/larks (B1)			Aquatic I	, ,	es (B13)			Dry-Season Water Table (C2)
	nt Deposits (B2)			☐ Hydroge		. ,			Saturation Visible on Aerial Imagery (C9)
	posits (B3)			Oxidized			Livina Roo		Geomorphic Position (D2)
	at or Crust (B4)			Presence	•	-	•		Shallow Aquitard (D3)
☐ Iron De				☐ Recent II					FAC-Neutral Test (D5)
	Soil Cracks (B6)						01) (LRR A	, –	Raised Ant Mounds (D6) (LRR A)
	ion Visible on Aeria	l Imagery (	B7)		xplain in R	•	,, ( <b>=</b> 1117)	•	Frost-Heave Hummocks (D7)
	y Vegetated Conca				Apiani iii i	omano,			Treet Fleave Flammoske (E7)
Field Obse			(20)						
	iter Present?	Yes 🔲 🗆	No 🗷	Depth (inch	es).				
Water Table		_	No 🗵	Depth (inch					
Saturation F			No 🔲	Depth (inch			Wot	land Hydrold	ogy Present? Yes ⊠ No □
(includes ca	apillary fringe)								ogy Present? Yes ⊠ No □
Describe Re	ecorded Data (strea	am gauge, i	monitor	ing well, aeria	al photos, p	orevious in	spections)	, if available:	
Remarks:									
Primary h	ydrologic indica	tors A3.	B4, ar	nd B9 obse	rved.				
- ,	,								
-									
-									

Project/Site: 1077.0012 - South Hill Data Center		City/Co	ounty:	Puyallu	p/Pierce	Sampling Date: 9/14/	/16
Applicant/Owner: Benaroya Capital Company					State: WA		
Investigator(s): Richard Peel, Matthew DeCaro					ownship, Range: 03, 19,		
Landform (hillslope, terrace, etc.): Slope					· -		): 5
Subregion (LRR): A2							
Soil Map Unit Name: Indianola Loamy Sand					NWI classificat		
Are climatic / hydrologic conditions on the site typical for thi							
Are Vegetation, Soil, or Hydrology sig	nificantly dis	turbed?	?	Are "No	ormal Circumstances" pres	ent? Yes 🗷 No 🗌	
Are Vegetation, Soil, or Hydrology nat	urally proble	matic?		(If neede	ed, explain any answers in	Remarks.)	
SUMMARY OF FINDINGS - Attach site map	showing	samp	oling	point lo	ocations, transects,	important feature	es, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐							
Hydric Soil Present? Yes ☐ No 🗵				Sampled			
Wetland Hydrology Present? Yes ☐ No ☒		'	withir	n a Wetlan	nd? Yes ☐ No	o 🔀	
Remarks:	1.0	ı					
Data collected upland of Wetland	ıD.						
VEGETATION – Use scientific names of plan	its.						
	Absolute			ndicator	Dominance Test works	heet:	
Tree Stratum (Plot size: 30 ft)	% Cover				Number of Dominant Sp		
1. Populus balsamifera	35	Yes		FAC	That Are OBL, FACW, o	r FAC: <u>5</u>	(A)
2. Alnus rubra	<u>25</u> 5	Yes		FAC	Total Number of Domina	ınt	
3. Salix lucida	5	No		<u>FACW</u>	Species Across All Strata	a: <u>6</u>	(B)
4	GE.				Percent of Dominant Spe		
Sapling/Shrub Stratum (Plot size: 15 ft)	65	= Tot	tal Co	ver	That Are OBL, FACW, o	r FAC: <u>83%</u>	(A/B)
1. Rubus spectabilis	25	Yes	6	FAC	Prevalence Index work	sheet:	
2. Rubus armeniacus	15	Yes		FAC	Total % Cover of:	Multiply by:	
3. Physocarpus capitatus	5	No		FACW		x 1 = 0	
4. Salix sitchensis	5	No		FACW	FACW species 20		
5.					FAC species 130	x 3 = <u>390</u>	
	50	= Tot	tal Co	ver	FACU species 50	x 4 = <u>200</u>	<u></u>
Herb Stratum (Plot size: 5 ft)					UPL species 0	x 5 = 0	
1. Rubus ursinus	40				Column Totals: 200	(A) <u>630</u>	(B)
2. Ranunculus repens	20	Yes		FAC		2.1 <i>E</i>	
3. Geranium robertianum	10	No		FACU	Prevalence Index		
4. Equisetum arvense	10	No		FAC VA	Hydrophytic Vegetation		
5. Dicentra formosa	5	No		<u>FACW</u>	Rapid Test for Hydro		
6					<ul><li>✓ Dominance Test is &gt;</li><li>✓ Prevalence Index is:</li></ul>		
7					<u> </u>		etio a
8						tations¹ (Provide suppo or on a separate sheet	
9					☐ Wetland Non-Vascul	lar Plants <sup>1</sup>	•
10					☐ Problematic Hydroph	nytic Vegetation <sup>1</sup> (Expla	ain)
11	85				<sup>1</sup> Indicators of hydric soil		must
Woody Vine Stratum (Plot size: 30 ft)	00	= 100	tal Co	ver	be present, unless distur	bed or problematic.	
1	-						
2					Hydrophytic Vegetation		
	^	= Tot	tal Co	ver	_	No □	
% Bare Ground in Herb Stratum 15							
Remarks: FAC-OBL vegetation observed.							

Depth	Matrix	K		Red	ox Feature	<u>es</u>			
(inches)	Color (moist)	%	Colc	or (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	
0-18	10YR 3/2	100	<u>-</u>					Sand	Coarse sand
18-24	10YR 3/2	100	-		-	-	-	GrSa	Gravelly sand
					<del></del>				
									<del></del>
	-								
1Tymov C C	`anaantration D F	Doplotion F		lugad Matrix C	Covere	d or Coot		raina	21 continue DL Doro Lining M Matrix
	Concentration, D=D Indicators: (App						eu Sanu Gi		<sup>2</sup> Location: PL=Pore Lining, M=Matrix. licators for Problematic Hydric Soils <sup>3</sup> :
☐ Histosol				Sandy Redox (		,			2 cm Muck (A10)
	pipedon (A2)			Stripped Matrix				П	,
☐ Black Hi	. ,			Loamy Mucky	` '	1) (excep	t MLRA 1)		Very Shallow Dark Surface (TF12)
	en Sulfide (A4)			Loamy Gleyed					Other (Explain in Remarks)
□ Depleted	d Below Dark Surf	ace (A11)		Depleted Matri	x (F3)				
	ark Surface (A12)			Redox Dark Sເ	` '				dicators of hydrophytic vegetation and
-	Mucky Mineral (S1)			Depleted Dark		<del>-</del> 7)			wetland hydrology must be present,
	Bleyed Matrix (S4)			Redox Depress	sions (F8)			1	unless disturbed or problematic.
	Layer (if present)								
	nches):								0-11 B
				-				Hydric	Soil Present? Yes No 🗵
Remarks:									
No hydric	soil indicators	observed	1.						
HYDROLO									
	)GY								
	OGY odrology Indicato	rs:							
Wetland Hy	drology Indicato		ired; ch	eck all that app	oly)				Secondary Indicators (2 or more required)
Wetland Hy Primary Indi	drology Indicato		ired; ch			es (B9) ( <b>e</b>	except MLF		Secondary Indicators (2 or more required)  Water-Stained Leaves (B9) (MI RA 1 2
Wetland Hy Primary Indi ☐ Surface	vdrology Indicato icators (minimum o Water (A1)		ired; ch	☐ Water-Sta	ained Leav		except MLF		Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hy Primary Indi Surface High Wa	rdrology Indicato icators (minimum o Water (A1) ater Table (A2)		ired; ch	☐ Water-Sta	ained Leav		except MLF	RA	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hy Primary Indi ☐ Surface ☐ High Wa ☐ Saturation	rdrology Indicato icators (minimum o Water (A1) ater Table (A2) on (A3)		ired; ch	☐ Water-Sta 1, 2, 4 ☐ Salt Crust	ained Leav I <b>A, and 4E</b> I (B11)	3)	except MLF	RA	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Wetland Hy Primary Indi Surface High Wa Saturatio Water M	rdrology Indicato icators (minimum o Water (A1) ater Table (A2) on (A3) farks (B1)		ired; ch	☐ Water-Sta  1, 2, 4 ☐ Salt Crust ☐ Aquatic In	ained Leav I <b>A, and 4E</b> t (B11) overtebrate	s (B13)	except MLF	RA	<ul> <li>Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</li> <li>□ Drainage Patterns (B10)</li> <li>□ Dry-Season Water Table (C2)</li> </ul>
Wetland Hy Primary Indi Surface High Wa Saturatio Water M Sedimer	rdrology Indicato icators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) nt Deposits (B2)		ired; cho	Water-Sta 1, 2, 4 Salt Crust Aquatic In Hydrogen	ained Leav IA, and 4E t (B11) overtebrate Sulfide O	es (B13) dor (C1)		RA	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9
Wetland Hy Primary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep	rdrology Indicato icators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)		ired; ch	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized	ained Leav IA, and 4E t (B11) overtebrate Sulfide O Rhizosphe	es (B13) dor (C1) eres along	Living Roo	RA ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)
Wetland Hy Primary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	rdrology Indicatoricators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) and Deposits (B2) posits (B3) at or Crust (B4)		ired; cho	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence	nined Leaver A.A., and 4E to (B11) invertebrate Sulfide O Rhizosphe of Reduce	es (B13) dor (C1) eres along ed Iron (C4	Living Roo 4)	RA ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)
Wetland Hy Primary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma	rdrology Indicatoricators (minimum of Water (A1) ater Table (A2) on (A3) flarks (B1) and Deposits (B2) posits (B3) at or Crust (B4) posits (B5)		ired; che	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Iro	ained Leave IA, and 4E t (B11) Invertebrate Sulfide O Rhizosphe of Reduce on Reduce	es (B13) dor (C1) eres along ed Iron (C4 on in Tille	Living Roo 4) d Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Wetland Hy Primary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	rdrology Indicatoricators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) and Deposits (B2) posits (B3) at or Crust (B4)	of one requ		Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Iro	nined Leav IA, and 4E t (B11) Invertebrate Sulfide O Rhizosphe of Reduce on Reducet r Stressec	es (B13) dor (C1) eres along ed Iron (Co on in Tille Plants (D	Living Roo 4)	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)
Wetland Hy Primary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	rdrology Indicatoricators (minimum of Water (A1) ater Table (A2) on (A3) aters (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)	of one requ	(B7)	Water-Star 1, 2, 4  1, 2, 4  Salt Crust  Aquatic Ir  Hydrogen  Oxidized  Presence  Recent Iro  Stunted o	nined Leav IA, and 4E t (B11) Invertebrate Sulfide O Rhizosphe of Reduce on Reducet r Stressec	es (B13) dor (C1) eres along ed Iron (Co on in Tille Plants (D	Living Roo 4) d Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	rdrology Indicatoricators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria	of one requ	(B7)	Water-Star 1, 2, 4  1, 2, 4  Salt Crust  Aquatic Ir  Hydrogen  Oxidized  Presence  Recent Iro  Stunted o	nined Leav IA, and 4E t (B11) Invertebrate Sulfide O Rhizosphe of Reduce on Reducet r Stressec	es (B13) dor (C1) eres along ed Iron (Co on in Tille Plants (D	Living Roo 4) d Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatic Sparsely	rdrology Indicatoricators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria	of one requi	(B7)	Water-Star 1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Iro Stunted o	ained Leave IA, and 4E it (B11) avertebrate Sulfide O Rhizosphe of Reduce on Reduct r Stressed plain in Re	es (B13) dor (C1) eres along ed Iron (Co on in Tille Plants (D emarks)	Living Roo 4) d Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatic Sparsely	rdrology Indicatoricators (minimum of water (A1) ater Table (A2) on (A3) ater Table (B1) on to Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerically Vegetated Concervations:	al Imagery ave Surface	(B7) ∋ (B8)	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex	ained Leav IA, and 4E I (B11) Invertebrate Sulfide O Rhizosphe of Reduct on Reduct r Stressed plain in Re	es (B13) dor (C1) eres along ed Iron (C- on in Tille Plants (D emarks)	Living Roo 4) d Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Water Table	rdrology Indicatoricators (minimum of Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Concarvations: ter Present?	al Imagery ave Surface Yes  Yes	(B7) e (B8) No X No X	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Irc Stunted o Other (Ex	ained Leaven A, and 4E (B11) avertebrate Sulfide O Rhizosphe of Reduction Reduction Reduction Region in Research Stressed Splain in Research Ses):	es (B13) dor (C1) eres along ed Iron (C- on in Tille Plants (D emarks)	Living Roo 4) d Soils (C6 1) (LRR A)	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)  Frost-Heave Hummocks (D7)
Wetland Hy Primary Indi Surface High Water M Sedimer Drift Dep Algal Mater M Iron Dep Surface Inundation Sparsely Field Obser Surface Water Table Saturation P (includes ca	rdrology Indicatoricators (minimum of water (A1) ater Table (A2) on (A3) ater Table (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Concarvations:  ter Present?  Present?  Present?  Present?	al Imagery ave Surface Yes  Yes  Yes  Yes  Yes  Yes  Yes	(B7) e (B8) No ⊠ No ⊠ No ⊠	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex	ained Leaver A, and 4E (B11) invertebrate Sulfide O Rhizosphe of Reduction Reduction Reduction Resplain in Resease:	es (B13) dor (C1) eres along ed Iron (C4 on in Tille Plants (D4 emarks)	Living Roo 4) d Soils (C6 1) (LRR A)	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9 □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
Wetland Hy Primary Indi Surface High Water M Sedimer Drift Dep Algal Mater M Iron Dep Surface Inundation Sparsely Field Obser Surface Water Table Saturation P (includes ca	rdrology Indicatoricators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Concarvations: ter Present? Present?	al Imagery ave Surface Yes  Yes  Yes  Yes  Yes  Yes  Yes	(B7) e (B8) No ⊠ No ⊠ No ⊠	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex	ained Leaver A, and 4E (B11) invertebrate Sulfide O Rhizosphe of Reduction Reduction Reduction Resplain in Resease:	es (B13) dor (C1) eres along ed Iron (C4 on in Tille Plants (D4 emarks)	Living Roo 4) d Soils (C6 1) (LRR A)	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9 □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
Wetland Hy Primary Indi Surface High Water M Sedimer Drift Dep Algal MaIron Dep Surface Inundati Sparsely Field Obser Surface Water Table Saturation P (includes call	rdrology Indicatoricators (minimum of water (A1) ater Table (A2) on (A3) ater Table (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Concarvations:  ter Present?  Present?  Present?  Present?	al Imagery ave Surface Yes  Yes  Yes  Yes  Yes  Yes  Yes	(B7) e (B8) No ⊠ No ⊠ No ⊠	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex	ained Leaver A, and 4E (B11) invertebrate Sulfide O Rhizosphe of Reduction Reduction Reduction Resplain in Resease:	es (B13) dor (C1) eres along ed Iron (C4 on in Tille Plants (D4 emarks)	Living Roo 4) d Soils (C6 1) (LRR A)	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9 □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
Wetland Hy Primary Indi Surface High Water M Sedimer Drift Dep Algal Mater M Iron Dep Surface Inundation Sparsely Field Obser Surface Water Table Saturation P (includes ca Describe Re	rdrology Indicatoricators (minimum of water (A1) ater Table (A2) on (A3) darks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concarvations: ter Present? Present? pillary fringe) peorded Data (stre	al Imagery ave Surface Yes Yes Yes am gauge,	(B7) e (B8) No ☑ No ☑ No ☑ monitor	Water-Sta 1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex  Depth (inche Depth (inche	ained Leav  A, and 4E  (B11)  Invertebrate Sulfide O  Rhizosphe of Reduce on Reduct or Stressed plain in Re  es):  es):  photos, p	es (B13) dor (C1) eres along ed Iron (C4 on in Tille Plants (D4 emarks)	Living Roo 4) d Soils (C6 1) (LRR A)	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9 □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
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Wetland Hy Primary Indi Surface High Water M Sedimer Drift Dep Algal Mater M Iron Dep Surface Inundation Sparsely Field Obser Surface Water Table Saturation P (includes ca Describe Re	rdrology Indicatoricators (minimum of water (A1) ater Table (A2) on (A3) darks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concarvations: ter Present? Present? pillary fringe) peorded Data (stre	al Imagery ave Surface Yes Yes Yes am gauge,	(B7) e (B8) No ☑ No ☑ No ☑ monitor	Water-Sta 1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex  Depth (inche Depth (inche	ained Leav  A, and 4E  (B11)  Invertebrate Sulfide O  Rhizosphe of Reduce on Reduct or Stressed plain in Re  es):  es):  photos, p	es (B13) dor (C1) eres along ed Iron (C4 on in Tille Plants (D4 emarks)	Living Roo 4) d Soils (C6 1) (LRR A)	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9 □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)

Project/Site: 1077.0012 - South Hill Data Center		City/Count	<sub>y:</sub> Puyallu	ıp/Pierce	Sampling Date: 9/15/16
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-10
				ownship, Range: <u>03, 19,</u>	
Landform (hillslope, terrace, etc.): Slope		Local reli	ef (concave,	, convex, none): Concav	'e Slope (%): <u>5</u>
Subregion (LRR): A2	_ Lat: 47.	15747		Long: -122.28034	Datum: WGS84
Soil Map Unit Name: Indianola Loamy Sand				NWI classifica	
Are climatic / hydrologic conditions on the site typical for this	time of yea	ır? Yes 🗵	] No □ (I	f no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology sign	nificantly dist	turbed?	Are "No	ormal Circumstances" pres	ent? Yes 🗵 No 🗌
Are Vegetation, Soil, or Hydrology natu	rally probler	natic?	(If need	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point l	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☐ No 🗵					
Hydric Soil Present? Yes ☐ No 🗵			ne Sampled		
Wetland Hydrology Present? Yes ☐ No 🗵		with	nin a Wetlar	nd? Yes ☐ N	o 🔀
Remarks:		<u> </u>			
Data collected in uplands					
VEGETATION – Use scientific names of plan	ts.				
	Absolute		Indicator	Dominance Test works	sheet:
Tree Stratum (Plot size: 30 ft)  1. Pseudotsuga menziesii	% Cover 75	Species?	Status FACU	Number of Dominant Sp	
2				That Are OBL, FACW, o	
3				Total Number of Domina Species Across All Strat	_
4				Percent of Dominant Sp	、,
Condition/Objects Chaptering (Districts 45.4)	75	= Total C	Cover	That Are OBL, FACW, o	
Sapling/Shrub Stratum (Plot size: 15 ft)  1. Oemleria cerasiformis	30	Yes	FACU	Prevalence Index work	shoot:
2. Acer macrophyllum		No	FACU	Total % Cover of:	
3					x 1 = 0
4					x 2 = 0
5.					x 3 = 0
· ·	35	= Total C	Cover		x 4 = 660
Herb Stratum (Plot size: 5 ft)				· ·	x 5 = 0
1. Rubus ursinus	45	Yes	FACU	Column Totals: 165	(A) <u>660</u> (B)
2. Polystichum munitum	5	No	FACU		
3. Pteridium aquilinum	5	No	FACU	Prevalence Index	
4				Hydrophytic Vegetation	
5				☐ Rapid Test for Hydro ☐ Dominance Test is >	· ·
6				☐ Prevalence Index is	
7				<b>-</b>	tations <sup>1</sup> (Provide supporting
8					or on a separate sheet)
9				☐ Wetland Non-Vascu	lar Plants <sup>1</sup>
10				☐ Problematic Hydroph	nytic Vegetation1 (Explain)
11	55	= Total C	`ovor	<sup>1</sup> Indicators of hydric soil	and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)		= Total C	ovei	be present, unless distur	bed or problematic.
1				Hydrophytic	
2				Vegetation	
% Bare Ground in Herb Stratum 45	0	= Total C	Cover	Present? Yes	s □ No ⊠
				1	
Remarks: FAC-FACU vegetation observed.					

Depth	Matrix				dox Featur	<u>'es</u>			
(inches)	Color (moist)	<u>%</u>	Colo	or (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-3	10YR 3/3	100						SiLo	Silt Loam
3-8	10YR 4/4	100	<u>-</u>					GrSiLo	Gravelly Silt loam
8/18	10YR 5/6	100	_		-			GrSaLc	Gravelly Sandy Loam
			_						
	-								
	-								
					<del></del>				
	oncentration, D=D						ed Sand G		<sup>2</sup> Location: PL=Pore Lining, M=Matrix.
	Indicators: (App	licable to				oted.)			cators for Problematic Hydric Soils <sup>3</sup> :
☐ Histosol				Sandy Redox					2 cm Muck (A10) Red Parent Material (TF2)
☐ Black Hi	oipedon (A2)			Stripped Matri: Loamy Mucky	. ,	1) (excen	t MI RA 1)		/ery Shallow Dark Surface (TF12)
	n Sulfide (A4)			Loamy Gleyed			t william i)		Other (Explain in Remarks)
	d Below Dark Surf	ace (A11)		Depleted Matr		_/			Sine (Explain in temane)
	ark Surface (A12)	, ,		Redox Dark S		i)		<sup>3</sup> Indi	cators of hydrophytic vegetation and
☐ Sandy M	Mucky Mineral (S1)	)		Depleted Dark	Surface (	F7)		W	etland hydrology must be present,
	Bleyed Matrix (S4)			Redox Depres	sions (F8)	)		uı	nless disturbed or problematic.
	Layer (if present)								
	- h \								
Deptn (in	ches):			-				Hydric S	Soil Present? Yes ☐ No 🗵
Remarks:									
– – –									
Wetland Hy	drology Indicato		des de ele		-1.3			-	
Wetland Hy	drology Indicato		uired; ch						econdary Indicators (2 or more required)
Wetland Hy Primary India ☐ Surface	drology Indicator cators (minimum of Water (A1)		uired; ch	☐ Water-St	ained Lea		except MLF		Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hy Primary India ☐ Surface ☐ High Wa	drology Indicato cators (minimum o Water (A1) ater Table (A2)		uired; ch	☐ Water-St	ained Lea 4 <b>A, and 4</b>		except MLF	RA 🗆	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hy Primary India ☐ Surface ☐ High Wa ☐ Saturation	drology Indicato cators (minimum o Water (A1) ater Table (A2) on (A3)		uired; ch	☐ Water-Sta	ained Lea 4A, and 4 st (B11)	В)	except MLF	RA 🗆	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Wetland Hy Primary India Surface High Wa Saturatio Water M	drology Indicato cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1)		uired; ch	☐ Water-Standard    1, 2, 4 ☐ Salt Crus ☐ Aquatic In	ained Lea 4 <b>A, and 4</b> at (B11) nvertebrat	<b>B)</b> es (B13)	except MLF	RA 🗆	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer	cators (minimum of Water (A1) Inter Table (A2) Ion (A3) Iarks (B1) Int Deposits (B2)		uired; ch	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger	ained Lea  4A, and 4  it (B11)  nvertebrat  n Sulfide C	es (B13) Odor (C1)		RA 🗆	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) posits (B3)		uired; ch	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized	ained Lea 4A, and 4 It (B11) Invertebrat In Sulfide ( Rhizosph	es (B13) Odor (C1) eres along	Living Roo	RA Grant Carlotte (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4)		uired; ch	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence	ained Lea  4A, and 4  it (B11)  invertebrat  in Sulfide C  Rhizosph  e of Reduc	es (B13) Odor (C1) eres along red Iron (C	Living Roo 4)	RA	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	drology Indicator cators (minimum of Water (A1) ter Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)		uired; ch	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ained Lea  4A, and 4  It (B11)  Invertebrat  In Sulfide (I)  Rhizosph  It of Reduction Reduction	es (B13) Odor (C1) eres along red Iron (C	Living Roo 4) d Soils (C6	ets (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	drology Indicator cators (minimum of Water (A1) hter Table (A2) on (A3) darks (B1) ht Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)	of one requ		Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ained Lea  4A, and 4  it (B11)  nvertebrat  n Sulfide C  Rhizosph  e of Reduct  on Reduct  or Stresse	es (B13) Ddor (C1) eres along ed Iron (C- tion in Tille d Plants (D	Living Roo 4)	ets (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria	of one requ	(B7)	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ained Lea  4A, and 4  It (B11)  Invertebrat  In Sulfide (I)  Rhizosph  It of Reduction Reduction	es (B13) Ddor (C1) eres along ed Iron (C- tion in Tille d Plants (D	Living Roo 4) d Soils (C6	ets (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundation	cators (minimum of Water (A1) Inter Table (A2) Ion (A3) Iarks (B1) Int Deposits (B2) Ionsits (B3) Int or Crust (B4) Ionsits (B5) Soil Cracks (B6) Ion Visible on Aeria	of one requ	(B7)	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ained Lea  4A, and 4  it (B11)  nvertebrat  n Sulfide C  Rhizosph  e of Reduct  on Reduct  or Stresse	es (B13) Ddor (C1) eres along ed Iron (C- tion in Tille d Plants (D	Living Roo 4) d Soils (C6	ets (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Surface Inundatio	drology Indicator cators (minimum of Water (A1) ter Table (A2) on (A3) tarks (B1) on Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concar	of one requ al Imagery ave Surfac	(B7) e (B8)	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted o	ained Lea  4A, and 4  it (B11)  nvertebrat  n Sulfide ( Rhizosph  e of Reduc  on Reduc  or Stresse  xplain in R	es (B13) Ddor (C1) eres along ed Iron (Cition in Tille d Plants (Diemarks)	Living Roo 4) d Soils (C6	ets (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concar evations:	al Imagery ave Surfac	(B7) e (B8) No ⊠	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C Other (Ex	ained Lea  4A, and 4  it (B11)  nvertebrat  n Sulfide C  Rhizosph  e of Reduct  on Reduct  on Reduct  or Stresse  xplain in R	es (B13) Ddor (C1) eres along ed Iron (C- tion in Tille d Plants (D- emarks)	Living Roo 4) d Soils (C6	ets (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Surface Inundatic Sparsely Field Obser Surface Water Table	drology Indicator cators (minimum of Water (A1) Inter Table (A2) Inter Table (A2) Inter Table (B1) Int Deposits (B2) Int Deposits (B3) Int or Crust (B4) Inter Table (B5) Inter Table (B5) Inter Table (B6) Inter	al Imagery ave Surfac Yes  Yes	(B7) e (B8) No ⊠ No ⊠	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted of Other (Ex	ained Lea  4A, and 4  it (B11)  nvertebrate in Sulfide C Rhizosph e of Reduct on Reduct on Reduct or Stresse kplain in R  es):  es):	es (B13) Odor (C1) eres along ed Iron (C tion in Tille d Plants (C emarks)	Living Roo 4) d Soils (C6 11) (LRR A)	ets (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)  Frost-Heave Hummocks (D7)
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Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	drology Indicator cators (minimum of Water (A1) Inter Table (A2) Ion (A3) Iarks (B1) Int Deposits (B2) Iosits (B3) Int or Crust (B4) Iosits (B5) Soil Cracks (B6) Ion Visible on Aeria In Vegetated Concar Ivations: Iter Present?	al Imagery ave Surfac  Yes  Yes  Yes  Yes  Yes  Yes	(B7) e (B8) No ⊠ No ⊠ No ⊠	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C Other (Ex	ained Lea  4A, and 4  it (B11)  nvertebrate in Sulfide C  Rhizosph ie of Reduct on Reduct on Reduct or Stresse (plain in Reduct)  es):  es):  es):	es (B13) Ddor (C1) eres along ed Iron (C- tion in Tille d Plants (D- emarks)	Living Roo 4) d Soils (C6 01) (LRR A)	ets (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)  Frost-Heave Hummocks (D7)
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Project/Site: 1077.0012 - South Hill Data Center	(	City/Coun	<sub>ty:</sub> Puyallu	ıp/Pierce	Sampling Date: 9/15/16
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-11
				ownship, Range: <u>03, 19,</u>	
Landform (hillslope, terrace, etc.): HIIIslope		Local reli	ief (concave,	, convex, none): None	Slope (%): 20
Subregion (LRR): A2	_ Lat: 47.1	15919		Long: -122.27853	Datum: WGS84
Soil Map Unit Name: Indianola Loamy Sand				NWI classification	
Are climatic / hydrologic conditions on the site typical for this	time of yea	r?Yes 🛚	No 🗌 (I	f no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology sign	ificantly dist	urbed?	Are "No	ormal Circumstances" pres	ent? Yes 🗵 No 🗌
Are Vegetation, Soil, or Hydrology natu	rally problen	natic?	(If neede	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplir	ng point lo	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☐ No 🗵					
Hydric Soil Present? Yes ☐ No 🗵			he Sampled		
Wetland Hydrology Present? Yes ☐ No 🗵		Witi	hin a Wetlar	nd? Yes ☐ No	) <u>X</u>
Remarks:					
Data collected in uplands					
VEGETATION – Use scientific names of plant	ts.				
T. O. J. (D. J.) 20 (V.)			t Indicator	Dominance Test works	heet:
Tree Stratum (Plot size: 30 ft)  1. Alnus rubra	<u>% Cover</u> 80	Yes	FAC	Number of Dominant Sp	
2. Pseudotsuga menziesii	5	No	FACU	That Are OBL, FACW, o	r FAC: <u>2</u> (A)
3. Populus balsamifera	5	No	FAC	Total Number of Domina	
4.	<del></del>	110	1710	Species Across All Strate	a: <u>4</u> (B)
7.	90	= Total (	Cover	Percent of Dominant Spo	
Sapling/Shrub Stratum (Plot size: 15 ft)		- rotar (	50101	That Are OBL, FACW, o	r FAC: <u>50%</u> (A/B)
1. Rubus spectabilis	70	Yes	FAC	Prevalence Index work	sheet:
2. Oemleria cerasiformis	10	No	FACU	Total % Cover of:	
3. Corylus cornuta	5	No	FACU		x 1 = <u>0</u>
4					x 2 = 10
5		-			x 3 = 450
Harb Chrotum (Plot circ. 5 ft)	85	= Total (	Cover	· ·	x 4 = <u>200</u>
Herb Stratum (Plot size: <u>5 ft)</u> 1. Polystichum munitum	20	Yes	FACU	UPL species 0	x = 0
o Pubue ureinue	10	Yes	FACU	Column Totals: 205	(A) <u>660</u> (B)
3				Prevalence Index	= B/A = 3.22
4				Hydrophytic Vegetation	
5				☐ Rapid Test for Hydro	phytic Vegetation
6.				☐ Dominance Test is >	·50%
7				☐ Prevalence Index is	≤3.0 <sup>1</sup>
8					tations <sup>1</sup> (Provide supporting
9					or on a separate sheet)
10				☐ Wetland Non-Vascul	
11					nytic Vegetation <sup>1</sup> (Explain) and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)	30	= Total (	Cover	be present, unless distur	
1				Healman bestle	
2				Hydrophytic Vegetation	
	0	= Total (	Cover		□ No 🗵
% Bare Ground in Herb Stratum 70					
Remarks: FAC-FACU vegetation observed.					

Depth (inches)	Matrix		Cala		lox Feature		10-2	Touters	Domestra
(inches) 0-2	Color (moist) 7.5YR 4/3	<u>%</u> 100	<u>Color</u>	(moist)	<u>%</u> -	Type <sup>1</sup>	Loc <sup>2</sup>	Texture SaLo	Remarks Sandy Loam
	-		7.5\	/D 4/C	25	-			
2-12	10YR 5/4	75	7.51	/R 4/6	25	С	<u>M</u>	SaLo	Sandy Loam
			<u> </u>						
	-					_			<del>-</del> -
	-		-				· ——	-	_
	Concentration, D=D						ted Sand G		ocation: PL=Pore Lining, M=Matrix.
-	Indicators: (App	licable to a	III LRRs	, unless oth	erwise no	ted.)		Indica	ators for Problematic Hydric Soils <sup>3</sup> :
Histosol	, ,			andy Redox (					cm Muck (A10)
	pipedon (A2)			tripped Matrix	, ,	4) /	( MI DA 4)		ed Parent Material (TF2)
	istic (A3)			oamy Mucky			t MLRA 1)		ery Shallow Dark Surface (TF12)
	en Sulfide (A4) d Below Dark Surfa	aca (Δ11)		oamy Gleyed epleted Matri		<del>2</del> )		∐ Ot	ther (Explain in Remarks)
	ark Surface (A12)	100 (ATT)		edox Dark Su		1		3Indic:	ators of hydrophytic vegetation and
	Mucky Mineral (S1)			epleted Dark	, ,				tland hydrology must be present,
	Gleyed Matrix (S4)			edox Depres	,	,			less disturbed or problematic.
Restrictive	Layer (if present)	:							
Type:									
Depth (ir	nches):							Hydric S	oil Present? Yes ☐ No 🗵
Remarks:								•	
IVDDOL 6									
Wetland Hy	drology Indicator								
Wetland Hy Primary Indi	drology Indicator								condary Indicators (2 or more required)
Wetland Hy Primary Indi	ydrology Indicator icators (minimum o Water (A1)			☐ Water-Sta	ained Leav		except MLF		Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hy Primary Indi Surface High Wa	rdrology Indicator icators (minimum o Water (A1) ater Table (A2)			☐ Water-Sta 1, 2, 4	ained Leav		except MLF	RA 🗆	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hy Primary Indi Surface High Wa Saturati	rdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3)			☐ Water-Sta <b>1, 2, 4</b> ☐ Salt Crus	ained Leav I <b>A, and 4E</b> t (B11)	3)	except MLF	RA 🗆	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Wetland Hy Primary Indi Surface High Wa Saturati Water M	rdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) farks (B1)		 	☐ Water-Sta  1, 2, 4 ☐ Salt Crus ☐ Aquatic Ir	ained Leav IA, and 4E t (B11) nvertebrate	B) es (B13)	except MLF	RA 🗆	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimen	rdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)		 	☐ Water-Sta  1, 2, 4 ☐ Salt Crus ☐ Aquatic Ir ☐ Hydrogen	ained Leav IA, and 4E t (B11) nvertebrate n Sulfide O	es (B13) dor (C1)		RA	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift De	rdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)		     	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydrogen Oxidized	ained Leav 1 <b>A, and 4E</b> t (B11) nvertebrate n Sulfide O Rhizosphe	es (B13) dor (C1) eres along	Living Roo	RA	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimel Drift Del Algal Ma	rdrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4)			Water-Sta 1, 2, 4  Salt Crus  Aquatic Ir  Hydrogen  Oxidized  Presence	ained Leaver And 48 to (B11) invertebrate a Sulfide O Rhizosphe of Reduce	es (B13) dor (C1) eres along ed Iron (C	Living Roo 4)	RA	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimel Drift De Algal Ma	vdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)			Water-Sta 1, 2, 4      Salt Crus     Aquatic Ir     Hydrogen     Oxidized     Presence     Recent Ire	ained Leaven A.A., and 4E to (B11) invertebrate in Sulfide O Rhizospher of Reduction Reduction Reduction	es (B13) dor (C1) eres along ed Iron (C	Living Roo 4) ed Soils (C6	RA	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface	vidrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) vidraks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)	f one requi		Water-Sta 1, 2, 4      Salt Crus     Aquatic Ir     Hydrogen     Oxidized     Presence     Recent Ir     Stunted o	ained Leav IA, and 4E t (B11) nvertebrate a Sulfide O Rhizosphe of Reduct or Stressec	es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E	Living Roo 4)	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift De Algal Ma Iron Dep Surface	rdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria	f one requii	             	Water-Sta 1, 2, 4      Salt Crus     Aquatic Ir     Hydrogen     Oxidized     Presence     Recent Ire	ained Leav IA, and 4E t (B11) nvertebrate a Sulfide O Rhizosphe of Reduct or Stressec	es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E	Living Roo 4) ed Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface	wdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Conca	f one requii	             	Water-Sta 1, 2, 4      Salt Crus     Aquatic Ir     Hydrogen     Oxidized     Presence     Recent Ir     Stunted o	ained Leav IA, and 4E t (B11) nvertebrate a Sulfide O Rhizosphe of Reduct or Stressec	es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E	Living Roo 4) ed Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Surface Inundati Sparsel	wdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Conca	f one requii	B7) (B8)	Water-Sta 1, 2, 4  Salt Crus Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex	ained Leav 1A, and 4E t (B11) nvertebrate a Sulfide O Rhizosphe of Reduct on Reduct or Stressed splain in Re	es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (D emarks)	Living Roo 4) ed Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Algal Ma Iron Dep Surface Inundati Sparsely Field Obset	rdrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria by Vegetated Concarvations:	f one required in the second of the second o	B7) (B8)	Water-Sta 1, 2, 4  Salt Crus  Aquatic Ir  Hydrogen  Oxidized  Presence  Recent Ir  Stunted o  Other (Ex	ained Leav  IA, and 4E  t (B11)  nvertebrate  a Sulfide O  Rhizosphe  of Reduct  on Reduct  or Stressed  cplain in Re	es (B13) dor (C1) eres along ed Iron (C fon in Tille I Plants (D emarks)	Living Roo 4) ed Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Algal Ma Iron Dep Surface Inundati Sparsely Field Obser Water Table	wdrology Indicator icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria by Vegetated Concarvations:  ter Present?	I Imagery (I	B7)   (B8)   No 🔀	Water-Sta 1, 2, 4 Salt Crus Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex	ained Leav  IA, and 4E  I (B11)  Invertebrate  I Sulfide O  Rhizosphe  I Greduct  I Stressed  I Strese	es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (D emarks)	Living Roo 4) ed Soils (C6 01) (LRR A)	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Algal Ma Iron Dep Surface Inundati Sparsely Field Obset Saturation F (includes ca	rdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) flarks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Conca rvations: ter Present? Present? pipillary fringe)	I Imagery (Ive Surface  Yes	B7)   (B8)   Vo 🔀   Vo 🗷	Water-Sta 1, 2, 4	ained Leav  IA, and 4E  t (B11)  nvertebrate  a Sulfide O  Rhizosphe  of Reduct  on Reduct  or Stressed  cplain in Re  es):  es):  es):	es (B13) dor (C1) eres along ed Iron (C don in Tille I Plants (D emarks)	Living Roo 4) ed Soils (C6 01) (LRR A)	and Hydrold	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Primary Indi  Surface High Wa Saturati Water M Sedimel Drift Del Algal Ma Iron Dep Surface Inundati Sparsely Field Obset Surface Wa Water Table Saturation F (includes ca	rdrology Indicator ricators (minimum of Water (A1) ater Table (A2) on (A3) ater Table (B2) posits (B1) at or Crust (B4) posits (B5) at or Crust (B4) posits (B5) at or Visible on Aeria by Vegetated Concarvations:  ter Present?	I Imagery (Ive Surface  Yes	B7)   (B8)   Vo 🔀   Vo 🗷	Water-Sta 1, 2, 4	ained Leav  IA, and 4E  t (B11)  nvertebrate  a Sulfide O  Rhizosphe  of Reduct  on Reduct  or Stressed  cplain in Re  es):  es):  es):	es (B13) dor (C1) eres along ed Iron (C don in Tille I Plants (D emarks)	Living Roo 4) ed Soils (C6 01) (LRR A)	and Hydrold	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Algal Ma Iron Dep Surface Inundati Sparsely Field Obset Saturation F (includes ca	rdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) flarks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Conca rvations: ter Present? Present? pipillary fringe)	I Imagery (Ive Surface  Yes	B7)   (B8)   Vo 🔀   Vo 🗷	Water-Sta 1, 2, 4	ained Leav  IA, and 4E  t (B11)  nvertebrate  a Sulfide O  Rhizosphe  of Reduct  on Reduct  or Stressed  cplain in Re  es):  es):  es):	es (B13) dor (C1) eres along ed Iron (C don in Tille I Plants (D emarks)	Living Roo 4) ed Soils (C6 01) (LRR A)	and Hydrold	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Algal Ma Iron Dep Iron Dep Iron Dep Surface Inundati Sparsely Field Obset Surface Wa Water Table Saturation F (includes ca	rdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) flarks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Conca rvations: ter Present? Present? pipillary fringe)	I Imagery (I ve Surface Yes	B7) (B8)  No 🔀  No 🔀  monitorir	Water-Sta 1, 2, 4  \[ \] Salt Crus \[ \] Aquatic Ir \[ \] Hydrogen \[ \] Oxidized \[ \] Presence \[ \] Recent Ir \[ \] Stunted o \[ \] Other (Ex	ained Leav IA, and 4E t (B11) nvertebrate n Sulfide O Rhizosphe n of Reduct on Reduct or Stressed cplain in Re es): es):	es (B13) dor (C1) eres along ed Iron (C don in Tille I Plants (D emarks)	Living Roo 4) ed Soils (C6 01) (LRR A)	and Hydrold	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedimer Algal Ma Iron Dep Iron Dep Iron Dep Surface Inundati Sparsely Field Obset Surface Wa Water Table Saturation F (includes ca Describe Re	rdrology Indicator icators (minimum o Water (A1) ater Table (A2) on (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Conca rvations: ter Present? Present? apillary fringe) ecorded Data (streat	I Imagery (I ve Surface Yes	B7) (B8)  No 🔀  No 🔀  monitorir	Water-Sta 1, 2, 4  \[ \] Salt Crus \[ \] Aquatic Ir \[ \] Hydrogen \[ \] Oxidized \[ \] Presence \[ \] Recent Ir \[ \] Stunted o \[ \] Other (Ex	ained Leav IA, and 4E t (B11) nvertebrate n Sulfide O Rhizosphe n of Reduct on Reduct or Stressed cplain in Re es): es):	es (B13) dor (C1) eres along ed Iron (C don in Tille I Plants (D emarks)	Living Roo 4) ed Soils (C6 01) (LRR A)	and Hydrold	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

Project/Site: 1077.0012 - South Hill Data Center	(	City/Cou	<sub>nty:</sub> Puyallu	ıp/Pierce	Sampling Date: 9/15/2016
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-12
Investigator(s): Richard Peel, Alex Callender			_ Section, To	ownship, Range: <u>03, 19,</u>	04
Landform (hillslope, terrace, etc.): HIIIslope		Local re	elief (concave,	, convex, none): Concav	e Slope (%): 10
Subregion (LRR): A2	_ Lat: 47.	15931		Long: -122.27867	Datum: WGS84
Soil Map Unit Name: Kapowsin				NWI classificat	tion: N/A
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrology sign	nificantly dist	turbed?	Are "No	ormal Circumstances" pres	ent? Yes ☒ No ☐
Are Vegetation, Soil, or Hydrology natu	rally probler	natic?	(If need	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	sampli	ing point le	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐					
Hydric Soil Present? Yes ☐ No 🗵			the Sampled		_
Wetland Hydrology Present? Yes ☐ No 🗵		Wi	ithin a Wetlar	nd? Yes ☐ No	) <b>X</b>
Remarks: All three wetland criteria not obse	erved.	I			
VEGETATION – Use scientific names of plant	ts.				
Tree Stratum (Plot size: 30 ft)			int Indicator s? Status	Dominance Test works	
1. Alnus rubra	90	Yes	FAC	Number of Dominant Spe That Are OBL, FACW, or	
2				Total Number of Domina	ınt
3				Species Across All Strata	^
4	90	= Total	Cover	Percent of Dominant Spe That Are OBL, FACW, or	ecies r FAC: <u>67%</u> (A/B)
Sapling/Shrub Stratum (Plot size: 15 ft)	40				
1. Rubus spectabilis			<u>FAC</u>	Prevalence Index works	
2				Total % Cover of:	$\frac{\text{Multiply by:}}{\text{x 1 = } 0}$
3					$\begin{array}{c} x = 0 \\ x = 0 \end{array}$
4				FACV species 180	x = 0 x = 540
5	40	- Total	L Cover	FACIL species 50	x = 4 = 200
Herb Stratum (Plot size: 5 ft)		= 10(a)	Covei		$x = \frac{1}{2}$
1. Juncus effusus	30	Yes	FACW	Column Totals: 230	(A) 740 (B)
2. Rubus ursinus	30	Yes	FACU		
3. Polystichum munitum	20	Yes	<u>FACU</u>	Prevalence Index :	
4. Agrostis capillaris	20	Yes	<u>FAC</u>	Hydrophytic Vegetation	
5				Rapid Test for Hydro	· ·
6				■ Dominance Test is >	
7				Prevalence Index is	
8					ations <sup>1</sup> (Provide supporting or on a separate sheet)
9				☐ Wetland Non-Vascul	ar Plants <sup>1</sup>
10				☐ Problematic Hydroph	nytic Vegetation¹ (Explain)
11	100	= Total	L Cover		and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)		= 10(a)	Covei	be present, unless distur	bed or problematic.
1				Hydrophytic	
2				Vegetation	V No □
% Bare Ground in Herb Stratum 0	0	= Total	Cover	Present? Yes	⊠ No □
Remarks: Predominance of FAC-FACU voluntee	r annress	sive sna	ecies obse	rved	
1 Todominarios of 1 700 1 700 voluntee	., aggross	v o opt	23100 00061		

Depth	Matrix				ox Featur					
(inches) 0-2	Color (moist) 10YR 4/2	<u>%</u> 99		or (moist) YR 4/6	<u> </u>	<u>Type¹</u> C	<u>Loc²</u> M	<u>Textu</u> SaLo		Remarks Sandy Loam - roots
	-						· -			<u> </u>
2-12	10YR 6/2	60	7.5	YR 5/6	40	CS	M	San	<u>d</u>	Sand
			_							
								-		
								<del>-</del>		·
¹Type: C=C	Concentration, D=D	epletion, l	- RM=Red	luced Matrix, C	S=Cover	ed or Coat	ted Sand (	Grains.	<sup>2</sup> Loc	cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (App	licable to	all LRR	s, unless othe	erwise no	oted.)		li	ndicato	rs for Problematic Hydric Soils <sup>3</sup> :
☐ Histoso	` '			Sandy Redox (						Muck (A10)
	pipedon (A2)			Stripped Matrix	. ,	-4) (				Parent Material (TF2)
_	istic (A3) en Sulfide (A4)			Loamy Mucky Loamy Gleyed			t MLRA 1	_	-	Shallow Dark Surface (TF12) er (Explain in Remarks)
	d Below Dark Surfa	ace (A11)		Depleted Matri		<b>2</b> )		L		(Explain in Remarks)
	ark Surface (A12)	200 (7.1.1)		Redox Dark Su		5)		3	Indicato	ors of hydrophytic vegetation and
	Mucky Mineral (S1)			Depleted Dark	Surface (	(F7)				nd hydrology must be present,
	Gleyed Matrix (S4)			Redox Depress	sions (F8)	)			unles	s disturbed or problematic.
	Layer (if present)	:								
Type:	l V.			-						
Depth (ir	ncnes):			•				Hyd	ric Soil	Present? Yes ☐ No ☒
Remarks:										
HYDROLO										
•	drology Indicato									
	icators (minimum o	of one requ	ired; ch							ndary Indicators (2 or more required)
Surface				☐ Water-Sta			except ML	_RA	☐ W	ater-Stained Leaves (B9) (MLRA 1, 2,
_	ater Table (A2)				A, and 4	В)				4A, and 4B)
☐ Saturati				☐ Salt Crust		(D40)				rainage Patterns (B10)
☐ Water N	nt Deposits (B2)			<ul><li>☐ Aquatic Ir</li><li>☐ Hydrogen</li></ul>		` ,				ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9)
	posits (B3)					eres along	Livina Ro	note (C3)	_	eomorphic Position (D2)
	at or Crust (B4)					ed Iron (C	_	0013 (00)		nallow Aquitard (D3)
	posits (B5)					tion in Tille		26)	_	AC-Neutral Test (D5)
	Soil Cracks (B6)					d Plants (D				aised Ant Mounds (D6) (LRR A)
	ion Visible on Aeria	al Imagery	(B7)	☐ Other (Ex			, ,	•		ost-Heave Hummocks (D7)
☐ Sparsel	y Vegetated Conca	ve Surfac	e (B8)							
Field Obse	rvations:									
Surface Wa	ter Present?	Yes 🗌	No 🗵	Depth (inche	es):					
Water Table	e Present?	Yes 🗌	No 🗵	Depth (inche	es):					
	apillary fringe)	Yes 🗌	No 🗵	Depth (inche				-		y Present? Yes ☐ No ⊠
Describe Re	ecorded Data (strea	am gauge	monito	ring well, aerial	photos, p	orevious in	spections	), if availa	able:	
Remarks:										
No primar										on. Precipitation during the cent of normal for the
	ate per NOAA v								<u> </u>	

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

Project/Site: 1077.0012 - South Hill Data Center	t/Site: 1077.0012 - South Hill Data CenterCity/County: Puyall							/16	
Applicant/Owner: Benaroya Capital Company					State: WA	_ Samplin	campling Point: DP-13		
Investigator(s): Richard Peel, Alex Callender									
Landform (hillslope, terrace, etc.): HIIIslope		Local	relief (d	concave,	, convex, none): Conca	ve	Slope (%	): <u>20</u>	
Subregion (LRR): A2									
					NWI classific				
Are climatic / hydrologic conditions on the site typical for this									
Are Vegetation, Soil, or Hydrology sign	nificantly dis	turbed?	?	Are "No	ormal Circumstances" pre	sent? Ye	s 🗷 No 🗌		
Are Vegetation, Soil, or Hydrology natu	rally probler	matic?		(If neede	ed, explain any answers i	n Remark	s.)		
SUMMARY OF FINDINGS - Attach site map	showing	samp	oling p	point l	ocations, transects	, import	ant feature	es, etc.	
Hydrophytic Vegetation Present? Yes ☐ No 🗵									
Hydric Soil Present? Yes ☐ No 🗵				Sampled		u - 177		ļ	
Wetland Hydrology Present? Yes ☐ No 🗵		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	within a	a Wetlar	nd? Yes ☐ N	10 K			
Remarks: No wetland criteria observed.		•							
VEGETATION – Use scientific names of plan	ts.								
Trac Stratum (Diet size, 20 ft)	Absolute		nant In		Dominance Test work	sheet:			
Tree Stratum (Plot size: 30 ft)  1. Alnus rubra	% Cover 10	Yes		AC	Number of Dominant S That Are OBL, FACW,		2	(A)	
2. Acer macrophyllum	10	Yes		ACU	That Are OBL, I ACVV,	or rac.		(A)	
3					Total Number of Domin Species Across All Stra		6	(B)	
4					Percent of Dominant Sp	nacios		` ,	
0 1 (0) 1 0 (0) (0)	20	20 = Total Cover		er	That Are OBL, FACW,	or FAC:	33%	(A/B)	
Sapling/Shrub Stratum (Plot size: 15 ft)  1. Rubus spectabilis	50	Yes	F	AC	Prevalence Index wor	·kehoot:			
2. Sorbus scopulina	30	Yes		ACU	Total % Cover of:		Multiply by:		
3	-			_			1 = 0		
4					FACW species 0				
5.							3 = 180		
	= Total Cover			er	FACU species 80 x 4 = 320				
Herb Stratum (Plot size: 5 ft)					UPL species 0	x 5	5 = 0		
1. Rubus ursinus	20				Column Totals: 140	(A)	500	(B)	
2. Polystichum munitum	20	Yes		ACU	Prevalence Index	- Β/Δ -	3 57		
3					Hydrophytic Vegetation				
4					Rapid Test for Hydr				
5 6					☐ Dominance Test is		-9		
7					☐ Prevalence Index is	s ≤3.0¹			
8					☐ Morphological Adap				
9.					data in Remarks		•	1)	
10				_ <del>_</del>	☐ Wetland Non-Vasco				
11					☐ Problematic Hydrop	-			
Woody Vine Stratum (Plot size: 30 ft)	40	= Tota	al Cove	er	<sup>1</sup> Indicators of hydric soi be present, unless distu			must	
1					Hydrophytic				
2					Vegetation	_	_		
% Bare Ground in Herb Stratum 60	0	= Tota	al Cove	er	Present? Ye	s 🗌 No	X		
Remarks:									
FAC-FACU volunteer, aggressive spec	cies obse	rved.							

Color (moist)								
3-4 10YR 5/3 50 10YR 5/6 50 CS M Sand Sand  4-18 10YR 5/2 25 10YR 5/6 75 CS M Sand Sand								
4-18								
¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  *Location: PL=Pore Lining, M=Matrix.  Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)    Histosol (A1)								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)    Histosol (A1)								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)    Histosol (A1)								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)    Histosol (A1)								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)    Histosol (A1)								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)    Histosol (A1)								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)    Histosol (A1)								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)    Histosol (A1)								
☐ Histosol (A1)       ☒ Sandy Redox (S5)       ☐ 2 cm Muck (A10)         ☐ Histic Epipedon (A2)       ☐ Stripped Matrix (S6)       ☐ Red Parent Material (TF2)         ☐ Black Histic (A3)       ☐ Loamy Mucky Mineral (F1) (except MLRA 1)       ☐ Very Shallow Dark Surface (TF12)         ☐ Hydrogen Sulfide (A4)       ☐ Loamy Gleyed Matrix (F2)       ☐ Other (Explain in Remarks)         ☐ Depleted Below Dark Surface (A11)       ☐ Depleted Matrix (F3)         ☐ Thick Dark Surface (A12)       ☐ Redox Dark Surface (F6)         ☐ Sandy Mucky Mineral (S1)       ☐ Depleted Dark Surface (F7)    **Indicators of hydrophytic vegetation and wetland hydrology must be present,								
☐ Histic Epipedon (A2)       ☐ Stripped Matrix (S6)       ☐ Red Parent Material (TF2)         ☐ Black Histic (A3)       ☐ Loamy Mucky Mineral (F1) (except MLRA 1)       ☐ Very Shallow Dark Surface (TF12)         ☐ Hydrogen Sulfide (A4)       ☐ Loamy Gleyed Matrix (F2)       ☐ Other (Explain in Remarks)         ☐ Depleted Below Dark Surface (A11)       ☐ Depleted Matrix (F3)         ☐ Thick Dark Surface (A12)       ☐ Redox Dark Surface (F6)         ☐ Sandy Mucky Mineral (S1)       ☐ Depleted Dark Surface (F7)								
□ Black Histic (A3)       □ Loamy Mucky Mineral (F1) (except MLRA 1)       □ Very Shallow Dark Surface (TF12)         □ Hydrogen Sulfide (A4)       □ Loamy Gleyed Matrix (F2)       □ Other (Explain in Remarks)         □ Depleted Below Dark Surface (A11)       □ Depleted Matrix (F3)         □ Thick Dark Surface (A12)       □ Redox Dark Surface (F6)         □ Sandy Mucky Mineral (S1)       □ Depleted Dark Surface (F7)    Very Shallow Dark Surface (TF12) □ Other (Explain in Remarks) □ All Depleted Dark Surface (F6) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) Wetland hydrology must be present, Outher (Explain in Remarks) □ Other (E								
☐ Hydrogen Sulfide (A4)       ☐ Loamy Gleyed Matrix (F2)       ☐ Other (Explain in Remarks)         ☐ Depleted Below Dark Surface (A11)       ☐ Depleted Matrix (F3)         ☐ Thick Dark Surface (A12)       ☐ Redox Dark Surface (F6)         ☐ Sandy Mucky Mineral (S1)       ☐ Depleted Dark Surface (F7)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle (Explain in Remarks)         James Angle (Explain in Remarks)       James Angle								
□ Depleted Below Dark Surface (A11)       □ Depleted Matrix (F3)         □ Thick Dark Surface (A12)       □ Redox Dark Surface (F6)         □ Sandy Mucky Mineral (S1)       □ Depleted Dark Surface (F7)       3Indicators of hydrophytic vegetation and wetland hydrology must be present,								
☐ Thick Dark Surface (A12)       ☐ Redox Dark Surface (F6)       ³Indicators of hydrophytic vegetation and wetland hydrology must be present,         ☐ Sandy Mucky Mineral (S1)       ☐ Depleted Dark Surface (F7)       wetland hydrology must be present,								
☐ Sandy Gleyed Matrix (S4) ☐ Redox Depressions (F8) unless disturbed or problematic.								
, , , , , , , , , , , , , , , , , , , ,								
Restrictive Layer (if present):								
Type:								
Depth (inches): Hydric Soil Present? Yes ☐ No ⊠								
Remarks:								
Hydric soil indicator S5 was technically observed; however, observed soil profile is apparently representative of subsoi								
that have been exposed by excavation activities. Active redox conditions were not present.								
HYDROLOGY								
☐ Surface Water (A1) ☐ Water-Stained Leaves (B9) (except MLRA ☐ Water-Stained Leaves (B9) (MLRA 1, 2,								
High Water Table (A2)  1, 2, 4A, and 4B)  4A, and 4B)								
☐ Saturation (A3) ☐ Salt Crust (B11) ☐ Drainage Patterns (B10)								
☐ Water Marks (B1) ☐ Aquatic Invertebrates (B13) ☐ Dry-Season Water Table (C2)								
☐ Sediment Deposits (B2) ☐ Hydrogen Sulfide Odor (C1) ☐ Saturation Visible on Aerial Imagery (C9								
☐ Drift Deposits (B3) ☐ Oxidized Rhizospheres along Living Roots (C3) ☐ Geomorphic Position (D2)								
☐ Algal Mat or Crust (B4) ☐ Presence of Reduced Iron (C4) ☐ Shallow Aquitard (D3)								
☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ FAC-Neutral Test (D5)								
☐ Surface Soil Cracks (B6) ☐ Stunted or Stressed Plants (D1) (LRR A) ☐ Raised Ant Mounds (D6) (LRR A)								
☐ Inundation Visible on Aerial Imagery (B7) ☐ Other (Explain in Remarks) ☐ Frost-Heave Hummocks (D7)								
☐ Sparsely Vegetated Concave Surface (B8)								
Field Observations:								
Surface Water Present? Yes ☐ No ☑ Depth (inches):								
· · · / ————								
Water Table Present? Yes □ No ☑ Depth (inches):								
Water Table Present? Yes □ No ☒ Depth (inches):  Saturation Present? Yes □ No ☒ Depth (inches):  (includes capillary fringe)  Wetland Hydrology Present? Yes □ No ☒								
Water Table Present? Yes □ No ☒ Depth (inches):   Saturation Present? Yes □ No ☒ Depth (inches):   Wetland Hydrology Present? Yes □ No ☒								
Water Table Present? Yes ☐ No ☒ Depth (inches):  Saturation Present? Yes ☐ No ☒ Depth (inches):  (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:								
Water Table Present? Yes ☐ No ☒ Depth (inches): Saturation Present? Yes ☐ No ☒ Depth (inches): Wetland Hydrology Present? Yes ☐ No ☒ Depth (inches): Prescribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:								
Water Table Present? Yes ☐ No ☒ Depth (inches):  Saturation Present? Yes ☐ No ☒ Depth (inches):  (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:								
Wetland Hydrology Indicators:  Primary Indicators (minimum of one required; check all that apply)  Surface Water (A1)  Weter Steined Leaves (B0) (execut MLRA)  Weter Steined Leaves (B0) (MLRA1)								

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

Project/Site: 1077.0012 - South Hill Data Center City/County: Puyallup/Pierce Sampling Date: 9/15/16								
Applicant/Owner: Benaroya Capital Company		State: WA Sampling Point: DP-14						
Investigator(s): Richard Peel, Alex Callender Section, Township, Range: 03, 19, 04								
Landform (hillslope, terrace, etc.): Terrace		Local relie	ef (concave,	convex, none): Concave Slope (%): 0				
Subregion (LRR): A2	_ Lat: 47.	15983		Long: <u>-122.27728</u>	Datum: WGS84			
Soil Map Unit Name: Indianola				NWI classification	tion: N/A			
Are climatic / hydrologic conditions on the site typical for this	time of yea	r? Yes 🗵	No ☐ (I	f no, explain in Remarks.)				
Are Vegetation, Soil, or Hydrology sign	ificantly dist	turbed?	Are "No	ormal Circumstances" pres	ent? Yes 🗵 No 🗌			
Are Vegetation, Soil, or Hydrology natu	rally probler	natic?	(If neede	ed, explain any answers in	Remarks.)			
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point l	ocations, transects,	important features, etc.			
Hydrophytic Vegetation Present? Yes ☒ No ☐								
Hydric Soil Present? Yes ☐ No 🗵			ne Sampled					
Wetland Hydrology Present? Yes ☐ No 🗵		with	in a Wetlar	nd? Yes ☐ No	o 🔀			
Remarks:		I						
All three wetland criteria not obse	erved. Da	ata colle	ected on	road terrace.				
VEGETATION – Use scientific names of plant	rs.							
Francisco de Constituto names en prami		Dominant	Indicator	Dominance Test works	sheet:			
Tree Stratum (Plot size: 30 ft)	% Cover			Number of Dominant Sp	ecies			
1. Alnus rubra	10	Yes	FAC	That Are OBL, FACW, o	r FAC: <u>6</u> (A)			
2				Total Number of Domina	unt			
3				Species Across All Strate	a: <u>6</u> (B)			
4	10			Percent of Dominant Spo				
Sapling/Shrub Stratum (Plot size: 15 ft)	10	= Total C	cover	That Are OBL, FACW, o	r FAC: <u>100%</u> (A/B)			
1. Rubus armeniacus	30	Yes	FAC	Prevalence Index work	sheet:			
2. Rubus spectabilis	20	Yes	FAC	Total % Cover of:	Multiply by:			
3. Acer macrophyllum	10	No	FACU	OBL species 0	x 1 = 0			
4				FACW species 0	x 2 = 0			
5				FAC species 155	x 3 = <u>465</u>			
	= Total Cover			FACU species <u>15</u> x 4 = <u>60</u>				
Herb Stratum (Plot size: 5 ft)	0.5		E4 0\4/	UPL species 0	x 5 = 0			
1. Juncus effusus	35	Yes		Column Totals: 170	(A) <u>525</u> (B)			
2. Agrostis capillaris	30	Yes	FAC					
3. Ranunculus repens	30 5	Yes No	FAC FACU	Prevalence Index				
4. Cirsium vulgare				Hydrophytic Vegetation Rapid Test for Hydro				
5				Dominance Test is >				
6				☐ Prevalence Index is				
7					tations <sup>1</sup> (Provide supporting			
8					or on a separate sheet)			
9				☐ Wetland Non-Vascul	ar Plants <sup>1</sup>			
10				☐ Problematic Hydroph	nytic Vegetation <sup>1</sup> (Explain)			
11	100	= Total C	`over		and wetland hydrology must			
Woody Vine Stratum (Plot size: 30 ft)		= 10161 C	,0vci	be present, unless distur	bed or problematic.			
1				Hydrophytic				
2				Vegetation				
	0	= Total C	Cover		i⊠ No □			
% Bare Ground in Herb Stratum 0								
Remarks: FAC-FACU volunteer, aggressive spec	cies obser	ved. He	avily distu	ırbed.				

	cription: (Describe	e to the d	epth ne				or confirm	the abs	ence	of indicators.)
Depth (inches)	Matrix Color (moist)	%	Colo	Redo r (moist)	ox Feature %	<u>s</u> Type¹	Loc <sup>2</sup>	Texture	)	Remarks
0-18	10Yr 4/2	100	-	, <u>.</u>	-	-	-	GrSaL		Gravelly Sandy Loam
			· -		_					
					_					
								-		
					_					
¹Type: C=C	oncentration, D=De	epletion, R	M=Red	uced Matrix, C	S=Covered	d or Coate	ed Sand Gr	ains.	<sup>2</sup> Loc	cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appli	icable to a	III LRR	s, unless othe	rwise not	ed.)		Ind	licato	rs for Problematic Hydric Soils <sup>3</sup> :
☐ Histosol	(A1)			Sandy Redox (	S5)				2 cm	Muck (A10)
	ipedon (A2)			Stripped Matrix	, ,					Parent Material (TF2)
☐ Black Hi				oamy Mucky N			t MLRA 1)		-	Shallow Dark Surface (TF12)
	n Sulfide (A4)	(* )		oamy Gleyed		)			Othe	r (Explain in Remarks)
	Below Dark Surfa	ce (A11)		Depleted Matrix				31	al: a a 4 a	
	rk Surface (A12) lucky Mineral (S1)			Redox Dark Su Depleted Dark	, ,	7)				ors of hydrophytic vegetation and nd hydrology must be present,
-	leyed Matrix (S4)			Redox Depress		')				s disturbed or problematic.
	Layer (if present):									<u> </u>
Type:										
Depth (in	ches):							Hydric	: Soil	Present? Yes ☐ No ☒
Remarks:								,		
	soil indicators o	boorwood								
ino flydric s	soil indicators o	bserveu	•							
HYDROLO										
_	drology Indicators									
Primary Indi	cators (minimum of	one requi	red; che	ck all that app	ly)				Secor	ndary Indicators (2 or more required)
	Water (A1)			☐ Water-Sta			xcept MLR	RA [	□ W	ater-Stained Leaves (B9) (MLRA 1, 2,
_	ter Table (A2)				A, and 4B	)				4A, and 4B)
Saturation	on (A3)			Salt Crust	` '					rainage Patterns (B10)
_	arks (B1)			Aquatic In		` ,				y-Season Water Table (C2)
	t Deposits (B2)			Hydrogen		, ,				aturation Visible on Aerial Imagery (C9)
	oosits (B3)					_	Living Root			eomorphic Position (D2)
	t or Crust (B4)			☐ Presence		•	•			nallow Aquitard (D3)
-	osits (B5)						d Soils (C6)	•		AC-Neutral Test (D5)
	Soil Cracks (B6)	lane '	רבי			•	1) ( <b>LRR A</b> )	l l		aised Ant Mounds (D6) (LRR A)
	on Visible on Aerial			☐ Other (Exp	piain in Re	marks)		l	∐ Fr	ost-Heave Hummocks (D7)
	Vegetated Concav	e Surface	(RR)				1			
Field Obser		· -		<b>D</b>	,					
Surface Wat		_	No 🔀	Depth (inche						
Water Table	Present?		No 🗵	Depth (inche	s):					
Saturation P		Yes 🗌 🗆	No 🔀	Depth (inche	s):		Wetla	and Hydr	rology	y Present? Yes □ No ⊠
(includes ca Describe Re	corded Data (strea	m gauge. i	nonitori	ng well. aerial	photos. pr	evious ins	spections).	if availab	le:	
	2000	J 3 - 1 .		J . , , , , , , , , , , , , , , , , , ,			, , ,			
Remarks:										
	, hydrologic ind	licatore d	heary	ed No hydr	ology of	neerved	on 4/24/	18 at 19	30%	precipitation for past 30 days.
i vo primar	, riyarologic iria	iodioi3 (	,DGCI V	ou. INO HYUI	ciogy of	Jour Vea	JII 7/24/	10 01 10	JU /U	prodipitation for past 30 days.

Project/Site: 1077.0012 - South Hill Data Center	up/Pierce	Sampling Date: 9/15/16							
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-15				
		Section, Township, Range: 03, 19, 04							
Landform (hillslope, terrace, etc.): Hillslope		Slope (%): 20							
Subregion (LRR): A2	_ <sub>Lat:</sub> <u>47.</u>	15919		_ Long: -122.27870	Datum: WGS84				
					tion: N/A				
Are climatic / hydrologic conditions on the site typical for this									
Are Vegetation, Soil, or Hydrology sign	nificantly dis	turbed?	Are "N	ormal Circumstances" pres	sent? Yes ☒ No ☐				
Are Vegetation, Soil, or Hydrology natu	rally probler	matic?	(If need	led, explain any answers in	Remarks.)				
SUMMARY OF FINDINGS - Attach site map	showing	samp	ling point l	ocations, transects,	important features, etc.				
Hydrophytic Vegetation Present? Yes ☐ No 🗵									
Hydric Soil Present? Yes ☐ No 🗵			s the Sampled		_				
Wetland Hydrology Present? Yes ☐ No 🗵		v	rithin a Wetla	nd? Yes ☐ N	o 🔀				
Remarks:		l .							
Data collected on terrace slope.									
VEGETATION – Use scientific names of plan	ts.								
	Absolute		ant Indicator	Dominance Test works	sheet:				
Tree Stratum (Plot size: 30 ft)  1. Alnus rubra	<u>% Cover</u> 80	Specie Yes	es? <u>Status</u> FAC	Number of Dominant Sp That Are OBL, FACW, o					
2		-							
3				Total Number of Domina Species Across All Strat					
4				Percent of Dominant Sp					
Cooling/Chrub Ctrotum (Diet circu 45 th)	80	80 = Total Cover			or FAC: <u>50%</u> (A/B)				
Sapling/Shrub Stratum (Plot size: 15 ft)  1. Rubus spectabilis	70	Yes	FAC	Prevalence Index work	 rsheet:				
2. Crataegus douglasii	10	No	FACU	Total % Cover of:					
3					x = 0				
4.				-	x 2 = 0				
5.				FAC species 150	x 3 = <u>450</u>				
	= Total Cover			FACU species 100 x 4 = 400					
Herb Stratum (Plot size: 5 ft)	70 Yes FACL			UPL species $0 \times 5 = 0$					
1. Rubus ursinus 2. Polystichum munitum	20	Yes	FACU FACU	Column Totals: 250	(A) <u>850</u> (B)				
				Prevalence Index	= B/A = 3.4				
3				Hydrophytic Vegetatio					
5				☐ Rapid Test for Hydro					
6				☐ Dominance Test is >	· ·				
7				☐ Prevalence Index is	≤3.0 <sup>1</sup>				
8.					tations <sup>1</sup> (Provide supporting				
9					or on a separate sheet)				
10				☐ Wetland Non-Vascu					
11.					hytic Vegetation <sup>1</sup> (Explain) and wetland hydrology must				
Woody Vine Stratum (Plot size: 30 ft)	90	= Tota	al Cover	be present, unless distu					
1				Healman best					
2.				Hydrophytic Vegetation					
ov D O 10	0	= Tota	al Cover		s □ No ⊠				
% Bare Ground in Herb Stratum 10									
FAC-FACU volunteer, aggressive spec	cies obsei	ved. H	Heavily distu	urbed.					

Depth Ma				ox Feature			_			_	
(inches) Color (moist)	%		r (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Textu		0 1	Remarks	
0-4 10YR 6/1	100						Sand	<u> </u>	Sand		
4-18 10YR 5/4	100				-		Sand	<u></u>	Sand		
Type: C=Concentration, D	=Depletion,	 RM=Red	uced Matrix, C	S=Covere	d or Coate	ed Sand G	rains.	 <sup>2</sup> Loca	ation: PL=	Pore Lining	g, M=Matrix.
Hydric Soil Indicators: (A											ydric Soils³:
☐ Histosol (A1)			Sandy Redox (	S5)				] 2 cm	Muck (A10	0)	
☐ Histic Epipedon (A2)			Stripped Matrix	. ,						erial (TF2)	
☐ Black Histic (A3)			_oamy Mucky N			MLRA 1)		-		ark Surface	
Hydrogen Sulfide (A4)			_oamy Gleyed I		)			Other	(Explain i	n Remarks	)
Depleted Below Dark St	, ,		Depleted Matrix	` '			2.				
Thick Dark Surface (A12	,		Redox Dark Su	, ,	· <b>-</b> /		ા			phytic vege	
<ul><li>☐ Sandy Mucky Mineral (S</li><li>☐ Sandy Gleyed Matrix (S</li></ul>			Depleted Dark S Redox Depress	•	7)					gy must be or problem	•
Restrictive Layer (if prese	-		Redux Depress	ions (Fo)				uriless	usturbed	or problem	ialic.
Type:	-										
Depth (inches):							I Is colon	.:- C-:!!	D10	V □	Na 🖾
Remarks:							Hyar	10 5011	Present?	res 🗆	No ⊠
lo hydric soil indicator	s observe	eu.									
lo hydric soil indicator  YDROLOGY	s observe	eu.									
YDROLOGY Wetland Hydrology Indica	tors:								dan ladia		
YDROLOGY  Wetland Hydrology Indica  Primary Indicators (minimun	tors:				(0.0)						nore required)
YDROLOGY Wetland Hydrology Indica Primary Indicators (minimun  Surface Water (A1)	tors:		☐ Water-Stai	ined Leave		xcept MLF	RA.		ater-Staine	d Leaves (I	nore required) 39) (MLRA 1, 2,
YDROLOGY  Wetland Hydrology Indica  Primary Indicators (minimun  Surface Water (A1)  High Water Table (A2)	tors:		☐ Water-Stai	ined Leave A, and 4B		xcept MLF	RA	☐ Wa	ater-Staine	d Leaves (I	39) ( <b>MLRA 1, 2,</b>
YDROLOGY  Vetland Hydrology Indica  Primary Indicators (minimun  Surface Water (A1)  High Water Table (A2)  Saturation (A3)	tors:		☐ Water-Stain 1, 2, 4,	ined Leave <b>A, and 4B</b> (B11)	)	xcept MLF	RA	☐ Wa	ater-Staine <b>4A, and</b> ainage Pat	d Leaves (I IB) terns (B10)	B9) ( <b>MLRA 1, 2,</b>
YDROLOGY  Vetland Hydrology Indica  Primary Indicators (minimun  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)	tors: n of one req		☐ Water-Stai  1, 2, 4 ☐ Salt Crust ☐ Aquatic Inv	ined Leave A, and 4B (B11) vertebrate	) s (B13)	xcept MLF	RA	☐ Wa	ater-Staine  4A, and 4  ainage Pate  y-Season V	d Leaves (I IB) terns (B10) Vater Table	B9) ( <b>MLRA 1, 2,</b>
YDROLOGY  Wetland Hydrology Indicators (minimum of the control of	tors: n of one req		Water-Stai 1, 2, 4 Salt Crust Aquatic Inv	ined Leave A, and 4B (B11) vertebrate Sulfide Oc	) s (B13) dor (C1)			☐ Wa	ater-Staine  4A, and 4  ainage Pate  y-Season Vituration Vi	d Leaves (I IB) terns (B10) Water Table sible on Ae	B9) (MLRA 1, 2,
YDROLOGY  Wetland Hydrology Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	tors: n of one req		Water-Stai 1, 2, 4, Salt Crust Aquatic Inv Hydrogen Oxidized F	ined Leave A, and 4B (B11) vertebrate Sulfide Oc	) s (B13) dor (C1) res along	Living Roc		☐ Wa	ater-Staine  4A, and 4  ainage Pate y-Season Victoriation Victoriation	d Leaves (I IB) terns (B10) Water Table sible on Ae Position (D	B9) (MLRA 1, 2,
YDROLOGY  Vetland Hydrology Indicators (minimum Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)	tors: n of one req		Water-Stai  1, 2, 4  Salt Crust Aquatic Inc Hydrogen Oxidized F Presence	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizospher of Reduce	s (B13) dor (C1) res along d Iron (C4	Living Roo 1)	ots (C3)	☐ Wa	ater-Staine  4A, and 4  ainage Pate  y-Season Vituration Vite  comorphic  allow Aqui	d Leaves (I IB) terns (B10) Water Table sible on Ae Position (D: tard (D3)	B9) (MLRA 1, 2,
YDROLOGY  Wetland Hydrology Indicators (minimum   Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)	tors: n of one req		Water-Stai  1, 2, 4,  Salt Crust  Aquatic Inv  Hydrogen  Oxidized F  Presence	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reduction	s (B13) dor (C1) res along d Iron (C4 on in Tille	Living Roo 1) d Soils (C6	ots (C3)	☐ Wa	ater-Staine  4A, and 4 ainage Pat y-Season Vituration Viteomorphic allow Aqui C-Neutral	d Leaves (IIB) terns (B10) Water Table sible on Ae Position (Di tard (D3) Test (D5)	B9) (MLRA 1, 2, e (C2) rial Imagery (C9)
YDROLOGY  Wetland Hydrology Indica  Primary Indicators (minimun  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)	tors: n of one req	uired; che	Water-Stain 1, 2, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce in Reduction	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 1) d Soils (C6	ots (C3)	☐ Wa ☐ Dra ☐ Dra ☐ Dry ☐ Sa ☐ Ge ☐ Sh ☐ FA	Ater-Staine  4A, and 4  ainage Pater  y-Season Vectoration Viscomorphic  allow Aqui  C-Neutral  ised Ant M	d Leaves (IIB) terns (B10) Water Table sible on Ae Position (D3) tard (D3) Test (D5) lounds (D6)	B9) (MLRA 1, 2, e (C2) rial Imagery (C9) 2)
YDROLOGY  Vetland Hydrology Indicators (minimum)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on A6	tors: n of one req	uired; che	Water-Stai  1, 2, 4,  Salt Crust  Aquatic Inv  Hydrogen  Oxidized F  Presence	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce in Reduction	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 1) d Soils (C6	ots (C3)	☐ Wa ☐ Dra ☐ Dra ☐ Dry ☐ Sa ☐ Ge ☐ Sh ☐ FA	Ater-Staine  4A, and 4  ainage Pater  y-Season Vectoration Viscomorphic  allow Aqui  C-Neutral  ised Ant M	d Leaves (IIB) terns (B10) Water Table sible on Ae Position (Di tard (D3) Test (D5)	39) (MLRA 1, 2, e (C2) rial Imagery (C9) 2)
YDROLOGY  Wetland Hydrology Indicators (minimum   Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on A6	tors: n of one req	uired; che	Water-Stain 1, 2, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce in Reduction	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 1) d Soils (C6	ots (C3)	☐ Wa ☐ Dra ☐ Dra ☐ Dry ☐ Sa ☐ Ge ☐ Sh ☐ FA	Ater-Staine  4A, and 4  ainage Pater  y-Season Vectoration Viscomorphic  allow Aqui  C-Neutral  ised Ant M	d Leaves (IIB) terns (B10) Water Table sible on Ae Position (D3) tard (D3) Test (D5) lounds (D6)	B9) (MLRA 1, 2, e (C2) rial Imagery (C9) 2)
YDROLOGY  Wetland Hydrology Indicators (minimum) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on A6 Sparsely Vegetated Cor	tors: n of one req orial Imagery ncave Surface	uired; che	Water-Stai  1, 2, 4, 4  Salt Crust  Aquatic Inv  Hydrogen  Oxidized F  Presence  Recent Iro  Stunted or  Other (Exp	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce in Reduction Stressed blain in Re	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo 1) d Soils (C6	ots (C3)	☐ Wa ☐ Dra ☐ Dra ☐ Dry ☐ Sa ☐ Ge ☐ Sh ☐ FA	Ater-Staine  4A, and 4  ainage Pater  y-Season Vectoration Viscomorphic allow Aqui  C-Neutral  ised Ant M	d Leaves (IIB) terns (B10) Water Table sible on Ae Position (D3) tard (D3) Test (D5) lounds (D6)	B9) (MLRA 1, 2, e (C2) rial Imagery (C9) 2)
YDROLOGY  Wetland Hydrology Indica  Primary Indicators (minimun  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6  Inundation Visible on Ae  Sparsely Vegetated Cor  Field Observations:  Surface Water Present?	tors: n of one req erial Imagery ncave Surfac	uired; che y (B7) ce (B8)	Water-Stai  1, 2, 4,  Salt Crust  Aquatic Inv  Hydrogen  Oxidized F  Presence C  Recent Iro  Stunted or  Other (Exp	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizospher of Reduce on Reduction Stressed blain in Re	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo 1) d Soils (C6	ots (C3)	☐ Wa ☐ Dra ☐ Dra ☐ Dry ☐ Sa ☐ Ge ☐ Sh ☐ FA	Ater-Staine  4A, and 4  ainage Pater  y-Season Vectoration Viscomorphic allow Aqui  C-Neutral  ised Ant M	d Leaves (IIB) terns (B10) Water Table sible on Ae Position (D3) tard (D3) Test (D5) lounds (D6)	B9) (MLRA 1, 2, e (C2) rial Imagery (C9) 2)
YDROLOGY  Wetland Hydrology Indica  Primary Indicators (minimun  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Ae  Sparsely Vegetated Cor  Field Observations:  Surface Water Present?	tors: n of one req erial Imagery ncave Surface Yes  Yes  Yes	y (B7) ce (B8)  No 🗵	Water-Stai  1, 2, 4  Salt Crust  Aquatic In  Hydrogen  Oxidized F  Presence  Recent Iro  Stunted or  Other (Exp	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction Stressed blain in Re s):s;	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo I) d Soils (C6 1) (LRR A)	ots (C3)	☐ Wa ☐ Dra ☐ Dry ☐ Sa ☐ Ge ☐ Sh ☐ FA	ater-Staine  4A, and 4  ainage Pater  y-Season Vectoration Vietomorphic  allow Aquietor  C-Neutral  ised Ant Most-Heave	d Leaves (I IB) terns (B10) Vater Table sible on Ae Position (D: tard (D3) Test (D5) lounds (D6) Hummocks	39) (MLRA 1, 2, e (C2) rial Imagery (C9) 2) ) (LRR A) (D7)
YDROLOGY  Wetland Hydrology Indica  Primary Indicators (minimun  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Ae  Sparsely Vegetated Cor  Field Observations:  Surface Water Present?  Water Table Present?	tors: n of one req erial Imagery ncave Surfac	uired; che y (B7) ce (B8)	Water-Stai  1, 2, 4,  Salt Crust  Aquatic Inv  Hydrogen  Oxidized F  Presence C  Recent Iro  Stunted or  Other (Exp	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction Stressed blain in Re s):s;	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo I) d Soils (C6 1) (LRR A)	ots (C3)	☐ Wa ☐ Dra ☐ Dry ☐ Sa ☐ Ge ☐ Sh ☐ FA	ater-Staine  4A, and 4  ainage Pater  y-Season Vectoration Vietomorphic  allow Aquietor  C-Neutral  ised Ant Most-Heave	d Leaves (IIB) terns (B10) Water Table sible on Ae Position (D3) tard (D3) Test (D5) lounds (D6)	39) (MLRA 1, 2, e (C2) rial Imagery (C9) 2) ) (LRR A) (D7)
YDROLOGY  Wetland Hydrology Indica  Primary Indicators (minimun  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Ae  Sparsely Vegetated Cor  Field Observations:  Surface Water Present?	tors: n of one req erial Imagery ncave Surface Yes  Yes  Yes  Yes  Yes  Yes  Yes  Yes	v (B7) ce (B8)  No 🔀 No 🔀	Water-Stain 1, 2, 4, 4, 5, 4, 4, 5, 4, 4, 5, 4, 5, 4, 5, 4, 5, 4, 5, 4, 5, 4, 5, 4, 5, 5, 5, 5, 6, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7,	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce in Reduction Stressed blain in Re s):s):s):s):	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo d Soils (C6 1) (LRR A	ots (C3)	☐ Wa ☐ Dra ☐ Dny ☐ Sa ☐ Ge ☐ Sh ☐ FA ☐ Ra ☐ Fro	ater-Staine  4A, and 4  ainage Pater  y-Season Vectoration Vietomorphic  allow Aquietor  C-Neutral  ised Ant Most-Heave	d Leaves (I IB) terns (B10) Vater Table sible on Ae Position (D: tard (D3) Test (D5) lounds (D6) Hummocks	39) (MLRA 1, 2, e (C2) rial Imagery (C9) 2) ) (LRR A) (D7)
YDROLOGY  Wetland Hydrology Indicators (minimum) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Action Sparsely Vegetated Corfield Observations: Surface Water Present? Water Table Present? Saturation Present? includes capillary fringe) Describe Recorded Data (st	tors: n of one req erial Imagery ncave Surface Yes  Yes  Yes  Yes  Yes  Yes  Yes  Yes	v (B7) ce (B8)  No 🔀 No 🔀	Water-Stain 1, 2, 4, 4, 5, 4, 4, 5, 4, 4, 5, 4, 5, 4, 5, 4, 5, 4, 5, 4, 5, 4, 5, 4, 5, 5, 5, 5, 6, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7,	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce in Reduction Stressed blain in Re s):s):s):s):	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo d Soils (C6 1) (LRR A	ots (C3)	☐ Wa ☐ Dra ☐ Dny ☐ Sa ☐ Ge ☐ Sh ☐ FA ☐ Ra ☐ Fro	ater-Staine  4A, and 4  ainage Pater  y-Season Vectoration Vietomorphic  allow Aquietor  C-Neutral  ised Ant Most-Heave	d Leaves (I IB) terns (B10) Vater Table sible on Ae Position (D: tard (D3) Test (D5) lounds (D6) Hummocks	39) (MLRA 1, 2, e (C2) rial Imagery (C9) 2) ) (LRR A) (D7)
YDROLOGY  Wetland Hydrology Indica  Primary Indicators (minimun  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Ae  Sparsely Vegetated Cor  Field Observations:  Surface Water Present?  Water Table Present?  Saturation Present?  Sincludes capillary fringe)	tors: n of one requirements Yes \( \text{Yes} \( \text{Yes} \( \text{Yes} \( \text{Team gauge} \)	v (B7) ce (B8) No 🗵 No 🗵 o, monitor	Water-Stai  1, 2, 4,  Salt Crust  Aquatic Inv  Hydrogen  Oxidized F  Presence G  Recent Iro  Stunted or  Other (Exp  Depth (inchest  Depth (inchest  ing well, aerial	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce in Reduction Stressed blain in Re s): s): photos, pr	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo  I)  d Soils (C6  1) (LRR A)  Wetl	ots (C3)  i)  and Hydiravaila	☐ Wa ☐ Dra ☐ Dra ☐ Ge ☐ Sh ☐ FA ☐ Fro ☐ drology	Ater-Staine  4A, and 4  ainage Pat  y-Season V  turation Vi  bomorphic  allow Aqui  C-Neutral  ised Ant M  ost-Heave	d Leaves (IBB) terns (B10) Water Table sible on Ae Position (Di tard (D3) Test (D5) lounds (D6) Hummocks	39) (MLRA 1, 2, 2) (C2) rial Imagery (C9 2) (LRR A) (D7)

Project/Site: 1077.0012 - South Hill Data Center City/County: Puyallup/Pierce Sampling Date: 9/15/16								
Applicant/Owner: Benaroya Capital Company		State: WA	Sampling Point: DP-16					
Investigator(s): Richard Peel, Alex Callender Section, Township, Range: 03, 19, 04								
Landform (hillslope, terrace, etc.): Terrace		Local reli	ef (concave,	, convex, none): Concav	<u>e</u> Slope (%): 0			
Subregion (LRR): A2	_ Lat: 47.	15859		Long: -122.27864	Datum: WGS84			
Soil Map Unit Name: Indianola					tion: N/A			
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrology sign	nificantly disf	turbed?	Are "No	ormal Circumstances" pres	ent? Yes ☒ No ☐			
Are Vegetation, Soil, or Hydrology natu	rally probler	matic?	(If need	ed, explain any answers in	Remarks.)			
SUMMARY OF FINDINGS - Attach site map	showing	samplin	ng point le	ocations, transects,	important features, etc.			
Hydrophytic Vegetation Present? Yes ☒ No ☐								
Hydric Soil Present? Yes ⊠ No □			ne Sampled		_			
Wetland Hydrology Present? Yes ☒ No ☐		with	nin a Wetlar	nd? Yes ເເ No	0 📙			
Remarks:		I						
Data collected in Wetland F.								
VEGETATION – Use scientific names of plan	ts.							
- O			Indicator	Dominance Test works	sheet:			
Tree Stratum (Plot size: 30 ft)  1. Alnus rubra	<u>% Cover</u> 40	Yes	FAC	Number of Dominant Sp That Are OBL, FACW, o				
2								
3				Total Number of Domina Species Across All Strate	_			
4	40			Percent of Dominant Spe	ecies			
Sapling/Shrub Stratum (Plot size: 15 ft)	40	= Total C	Cover	That Are OBL, FACW, o				
Crataegus douglasii	5	Yes	FACU	Prevalence Index work	sheet:			
2				Total % Cover of:				
3					x 1 = <u>0</u>			
4					$\times 2 = 50$			
5					x 3 = <u>345</u>			
Harb Stratum (Plot size: 5 ft)	5	= Total C	Cover	FACU species $\frac{5}{0}$ $x = \frac{20}{0}$				
Herb Stratum (Plot size: 5 ft)   1. Holcus lanatus	55	Yes	FAC	UPL species 0	x = 0			
2. Juncus effusus	25	Yes	FACW	Column Totals: 145	(A) <u>415</u> (B)			
3. Agrostis capillaris	20	Yes	FAC	Prevalence Index	= B/A = <u>2.86</u>			
4				Hydrophytic Vegetation	n Indicators:			
5				☐ Rapid Test for Hydro	ophytic Vegetation			
6				■ Dominance Test is >	·50%			
7				➤ Prevalence Index is	≤3.0 <sup>1</sup>			
8					tations <sup>1</sup> (Provide supporting			
9				□ Wetland Non-Vascul	or on a separate sheet)			
10					hytic Vegetation <sup>1</sup> (Explain)			
11					and wetland hydrology must			
Woody Vine Stratum (Plot size: 30 ft)	100	= Total C	Cover	be present, unless distu	rbed or problematic.			
1				Hydrophytic				
2				Vegetation				
% Bare Ground in Herb Stratum 0	0	= Total C	Cover		i⊠ No □			
Remarks:	11:- ( '	_I		1				
FAC-FACW species observed. Heavily	aisturbed	u.						

Depth	Matrix	(		Red	ox Feature	es				
(inches)	Color (moist)	%	Cold	or (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
0-4	10YR 5/2	95	10	YR 4/6	5	С	M	Sand	Sand	
4-12	10YR 5/4	100	-		-	-	-	Sand	Sand	
	-									
	oncentration, D=D						ed Sand G		<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
_	Indicators: (App	licable to				tea.)			cators for Problematic Hydric Soils	:
Histosol	• •			Sandy Redox (					2 cm Muck (A10)	
Black Hi	oipedon (A2)			Stripped Matrix Loamy Mucky	. ,	1) (evcen	+ MI RΔ 1)		Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	
	en Sulfide (A4)			Loamy Gleyed	,		t WILKA I)		Other (Explain in Remarks)	
	d Below Dark Surfa	ace (A11)		Depleted Matri		-/			• ( <u>=</u> , p.a toae)	
	ark Surface (A12)	,		Redox Dark Sı		)		3Inc	icators of hydrophytic vegetation and	
☐ Sandy M	Mucky Mineral (S1)			Depleted Dark	Surface (I	<del>-</del> 7)		,	vetland hydrology must be present,	
	Bleyed Matrix (S4)			Redox Depress	sions (F8)			-	unless disturbed or problematic.	
	Layer (if present)	):								
Type:										
Depth (in	ches):			-				Hydric	Soil Present? Yes ☒ No ☐	
Remarks:										
Hydric soil	indicator S5 o	bserved	d. Poter	ntially subsc	ils from	excavat	ion.			
HYDROLO	)GY									
		rs:								
Wetland Hy	drology Indicator		uired; ch	eck all that app	oly)				Secondary Indicators (2 or more require	d)
Wetland Hy	drology Indicator		uired; ch			res (B9) ( <b>s</b>	except MLF		Secondary Indicators (2 or more require	
Wetland Hy Primary India ☐ Surface	drology Indicator cators (minimum o Water (A1)		uired; ch	☐ Water-Sta	ained Leav	, , ,	except MLF		Water-Stained Leaves (B9) (MLRA	
Wetland Hy Primary India ☐ Surface ☐ High Wa	rdrology Indicator cators (minimum o Water (A1) ater Table (A2)		uired; ch	☐ Water-Sta	ained Leav	, , ,	except MLF	RA [	Water-Stained Leaves (B9) (MLRA 4A, and 4B)	
Wetland Hy Primary India □ Surface □ High Wa ☑ Saturatio	cators (minimum o Water (A1) ater Table (A2) on (A3)		uired; ch	☐ Water-Sta 1, 2, 4 ☐ Salt Crust	ained Leav I <b>A, and 4E</b> t (B11)	3)	except MLF	RA [	Water-Stained Leaves (B9) (MLRA 4A, and 4B) Drainage Patterns (B10)	
Wetland Hy Primary India □ Surface □ High Wa ⊠ Saturatio □ Water M	cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1)		uired; ch	☐ Water-Sta  1, 2, 4 ☐ Salt Crust ☐ Aquatic Ir	ained Leav I <b>A, and 4E</b> t (B11) overtebrate	B) es (B13)	except MLF	RA [	Water-Stained Leaves (B9) (MLRA 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)	1, 2,
Wetland Hy Primary India □ Surface □ High Wa ☒ Saturatio □ Water M □ Sedimer	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2)		uired; ch	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen	ained Leav IA, and 4E t (B11) overtebrate Sulfide O	es (B13) dor (C1)	·	RA [	Water-Stained Leaves (B9) (MLRA 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery	1, 2,
Wetland Hy Primary India □ Surface □ High Wa ☒ Saturatic □ Water M □ Sedimer □ Drift Dep	cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1)		uired; ch	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen	nined Leaver A.	es (B13) dor (C1) eres along	Living Roo	RA [	Water-Stained Leaves (B9) (MLRA 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)	1, 2,
Wetland Hy Primary India  □ Surface □ High Wa  ☑ Saturatio □ Water M □ Sedimer □ Drift Dep □ Algal Ma	cators (minimum of water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) cosits (B3) at or Crust (B4)		uired; ch	Water-State 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence	ained Leav IA, and 4E t (B11) avertebrate Sulfide O Rhizosphe of Reduce	es (B13) dor (C1) eres along ed Iron (C	Living Roo	RA [	Water-Stained Leaves (B9) (MLRA 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery Geomorphic Position (D2)	1, 2,
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) oosits (B3)		uired; ch	Water-Star 1, 2, 4  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Iro	ained Leav IA, and 4E t (B11) overtebrate Sulfide O Rhizosphe of Reduct	es (B13) dor (C1) eres along ed Iron (Co	Living Roo 4)	(C3) (C3) (C3) (C3) (C3) (C3) (C3) (C3)	Water-Stained Leaves (B9) (MLRA 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery Geomorphic Position (D2) Shallow Aquitard (D3)	1, 2,
Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	cators (minimum of water (A1) ater Table (A2) on (A3) alarks (B1) on Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5)	of one req		Water-Star 1, 2, 4  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Iro	ained Leav A, and 4E t (B11) overtebrate Sulfide O Rhizosphe of Reduct on Reduct r Stressec	es (B13) dor (C1) eres along ed Iron (Continue Tille I Plants (D	Living Roo 4) d Soils (C6	(C3) (C3) (C3) (C3) (C3) (C3) (C3) (C3)	Water-Stained Leaves (B9) (MLRA 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)	1, 2,
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	cators (minimum of water (A1) ater Table (A2) on (A3) aters (B1) on Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6)	of one req	v (B7)	Water-Star 1, 2, 4  1, 2, 4  Salt Crusi  Aquatic Ir  Hydrogen  Oxidized  Presence  Recent Ir  Stunted o	ained Leav A, and 4E t (B11) overtebrate Sulfide O Rhizosphe of Reduct on Reduct r Stressec	es (B13) dor (C1) eres along ed Iron (Continue Tille I Plants (D	Living Roo 4) d Soils (C6	(C3) (C3) (C3) (C3) (C3) (C3) (C3) (C3)	Water-Stained Leaves (B9) (MLRA 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)	1, 2,
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	cators (minimum of water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concar	of one req	v (B7)	Water-Star 1, 2, 4  1, 2, 4  Salt Crusi  Aquatic Ir  Hydrogen  Oxidized  Presence  Recent Ir  Stunted o	ained Leav A, and 4E t (B11) overtebrate Sulfide O Rhizosphe of Reduct on Reduct r Stressec	es (B13) dor (C1) eres along ed Iron (Conton in Tille I Plants (D	Living Roo 4) d Soils (C6	(C3) (C3) (C3) (C3) (C3) (C3) (C3) (C3)	Water-Stained Leaves (B9) (MLRA 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)	1, 2,
Wetland Hy Primary India  □ Surface □ High Wa  ☑ Saturatio □ Water M □ Sedimer □ Drift Dep □ Algal Ma □ Iron Dep □ Surface □ Inundatio □ Sparsely	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concar creations:	of one req	v (B7)	Water-Star 1, 2, 4  1, 2, 4  Salt Crusi  Aquatic Ir  Hydrogen  Oxidized  Presence  Recent Ir  Stunted o	ained Leav IA, and 4E I (B11) Invertebrate I Sulfide O Rhizosphe of Reduct on Reduct r Stressed plain in Re	es (B13) dor (C1) eres along ed Iron (Co ion in Tille I Plants (Demarks)	Living Roo 4) d Soils (C6	(C3) (C3) (C3) (C3) (C3) (C3) (C3) (C3)	Water-Stained Leaves (B9) (MLRA 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)	1, 2,
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Project/Site: 1077.0012 - South Hill Data Center		City/C	ounty:	Puyallu	p/Pierce	Sam	pling Date: <u>9/15</u>	/16
Applicant/Owner: Benaroya Capital Company					State: WA	Sam	pling Point: DP-	·17
Investigator(s): Richard Peel, Alex Callender								
Landform (hillslope, terrace, etc.): Terrace		Loca	l relief	(concave,	convex, none): Cor	ncave	Slope (%	s): <u>10</u>
Subregion (LRR): A2								
					NWI class			
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrology sign	nificantly dis	turbec	1?	Are "No	rmal Circumstances"	present?	Yes ☒ No ☐	
Are Vegetation, Soil, or Hydrology natu	rally probler	matic?		(If neede	ed, explain any answe	ers in Rem	arks.)	
SUMMARY OF FINDINGS - Attach site map	showing	sam	pling	point lo	ocations, transe	cts, imp	ortant feature	es, etc.
Hydrophytic Vegetation Present? Yes ☐ No 🗵								
Hydric Soil Present? Yes ☐ No 🗵				Sampled		- · · ·		
Wetland Hydrology Present? Yes ☐ No 🗵			within	a Wetlan	id? Yes L	] No ⊠		
Remarks:								
Data collected north of Wetland I	in upla	nds.						
VEGETATION – Use scientific names of plan	ts.							
	Absolute			ndicator	Dominance Test w	orksheet:		
Tree Stratum (Plot size: 30 ft)  1. Alnus rubra	% Cover 90	Spec Ye:		Status FAC	Number of Dominar		. 1	(4)
2					That Are OBL, FAC	VV, OI FAC	:: <u>1</u>	(A)
3					Total Number of Do Species Across All		2	(B)
4.					,			(-)
Ocalica (Obach Otachara (District 45 (t)	90	= To	otal Cov	/er	Percent of Dominar That Are OBL, FAC		: <u>50%</u>	(A/B)
Sapling/Shrub Stratum (Plot size: 15 ft)  1					Prevalence Index	worksheet	<b>!-</b>	
2					Total % Cover			
3					OBL species 0		x 1 = 0	
4.					FACW species 0		x 2 = 0	<u></u>
5.							x 3 = <u>270</u>	
	0	= To	otal Cov	/er	FACU species 60	)	x 4 = <u>240</u>	_
Herb Stratum (Plot size: 5 ft)					UPL species 0		x 5 = <u>0</u>	
1. Rubus ursinus	60				Column Totals: 15	50	(A) <u>510</u>	(B)
2					Prevalence In	idex = B/A	= 3.4	
3					Hydrophytic Vege			
5					☐ Rapid Test for I			
6.					☐ Dominance Tes	st is >50%	_	
7					☐ Prevalence Inde	ex is ≤3.0 <sup>1</sup>		
8.							s <sup>1</sup> (Provide suppo	
9							a separate shee	t)
10					☐ Wetland Non-V		ants <sup>,</sup> /egetation¹ (Expla	oin)
11					☐ Problematic Hy  Indicators of hydric	' '	0 (1	,
Woody Vine Stratum (Plot size: 30 ft)	60	= To	otal Cov	/er	be present, unless			must
1								
2.					Hydrophytic Vegetation			
	^	= To	otal Cov	/er	Present?	Yes □	No ⊠	
% Bare Ground in Herb Stratum 40								
Remarks: FAC-FACU species observed. Heavily	disturbed	d.						

Sampling Point: DP-17

Profile Description: (Describe to the	depth no	eeded to docu	nent the	maicatoi	or commi	n the ab	sence	or indicators.)
Depth Matrix			x Feature					
(inches) Color (moist) %		or (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Textu</u>		Remarks
0-18 10YR 5/4 100			-		-	SaGı	rLo	Sandy Gravelly Loam
<del></del>			_					
						-		
<sup>1</sup> Type: C=Concentration, D=Depletion,	RM=Red	duced Matrix, C	S=Covere	d or Coat	ed Sand Gr	rains.	<sup>2</sup> Loc	cation: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: (Applicable to	all LRR	s, unless othe	rwise not	ed.)		In	dicato	rs for Problematic Hydric Soils <sup>3</sup> :
☐ Histosol (A1)	×	Sandy Redox (	S5)				] 2 cm	Muck (A10)
☐ Histic Epipedon (A2)		Stripped Matrix	(S6)				Red	Parent Material (TF2)
☐ Black Histic (A3)		Loamy Mucky N	/lineral (F1	l) (except	MLRA 1)		-	Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)		Loamy Gleyed		)			] Othe	r (Explain in Remarks)
☐ Depleted Below Dark Surface (A11)		Depleted Matrix				0-		
☐ Thick Dark Surface (A12)		Redox Dark Su	. ,	\		3		ors of hydrophytic vegetation and
Sandy Mucky Mineral (S1)		Depleted Dark	•	7)				nd hydrology must be present,
Sandy Gleyed Matrix (S4)  Restrictive Layer (if present):	Ш	Redox Depress	ions (F8)				unies	s disturbed or problematic.
Type:								
Depth (inches):		_						
		-				Hydr	ic Soil	Present? Yes ☐ No ☒
Remarks:								
No hydric soil indicators observe	ed.							
HADDOLOGA								
HYDROLOGY								
Wetland Hydrology Indicators:								
	uired; ch						Secon	ndary Indicators (2 or more required)
Wetland Hydrology Indicators:	uired; ch	eck all that app ☐ Water-Sta		es (B9) ( <b>e</b>	xcept MLR	RA		ndary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicators:  Primary Indicators (minimum of one rec	uired; ch	☐ Water-Sta		, , ,	xcept MLR	RA		<u> </u>
Wetland Hydrology Indicators:  Primary Indicators (minimum of one recommend of the control of th	uired; ch	☐ Water-Sta	ined Leave <b>A, and 4B</b>	, , ,	xcept MLR	RA	× W	ater-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicators:  Primary Indicators (minimum of one recommend of the control of th	uired; ch	☐ Water-Sta	ined Leave <b>A, and 4B</b> (B11)	)	xcept MLR	RA	× W	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one recommend of the primary Indicators)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)	uired; ch	☐ Water-Sta 1, 2, 4	ined Leave A, and 4B (B11) vertebrate	) s (B13)	xcept MLR	RA	× W	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one red  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)	uired; ch	Water-Sta 1, 2, 4 Salt Crust Aquatic In	ined Leave A, and 4B (B11) vertebrate Sulfide Od	) s (B13) dor (C1)	xcept MLR			ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one red Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	uired; ch	Water-Sta 1, 2, 4 Salt Crust Aquatic In	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe	s (B13) dor (C1) res along	Living Roo		DI DI SI	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one recompliance Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)	uired; ch	Water-Sta 1, 2, 4. Salt Crust Aquatic Int Hydrogen Oxidized F Presence	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce	s (B13) dor (C1) res along d Iron (C4	Living Roo	ts (C3)	N   N   N   N   N   N   N   N   N   N	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one recomplished in the primary Indicators)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)	uired; ch	Water-Sta 1, 2, 4. Salt Crust Aquatic In Hydrogen Oxidized F Presence	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reduction	s (B13) dor (C1) res along d Iron (C4 on in Tille	Living Root	ts (C3)	N   W   Di   Di   Si   Si   Si   F/	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) rallow Aquitard (D3)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one recomplished)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)		Water-Sta 1, 2, 4. Salt Crust Aquatic In Hydrogen Oxidized F Presence	ned Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti Stressed	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D	Living Room 4) d Soils (C6)	ts (C3)	Di   Di   Si   Si   Si   F   F   Ri	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eeomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one recompliance)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)	y (B7)	Water-Sta 1, 2, 4. Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Iro Stunted or	ned Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti Stressed	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D	Living Room 4) d Soils (C6)	ts (C3)	Di   Di   Si   Si   Si   F   F   Ri	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eeomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one red Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imager	y (B7)	Water-Sta 1, 2, 4. Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Iro Stunted or	ned Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti Stressed	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D	Living Room 4) d Soils (C6)	ts (C3)	Di   Di   Si   Si   Si   F   F   Ri	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eeomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
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Wetland Hydrology Indicators:  Primary Indicators (minimum of one recompliance)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Aerial Imager Sparsely Vegetated Concave Surface  Field Observations:  Surface Water Present?  Water Table Present?  Yes   Saturation Present?	y (B7) ce (B8) No ⊠	Water-Sta 1, 2, 4. Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Iro Stunted or Other (Exp	ined Leave A, and 4B (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reduction Stressed blain in Re	s (B13) dor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Root 4) d Soils (C6) 1) (LRR A)	ts (C3)		ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eeomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
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Project/Site: 1077.0012 - South Hill Data Center		City/Cou	<sub>nty:</sub> Puyallu	ıp/Pierce	_ Sampling Date: 9/15/16
Applicant/Owner: Benaroya Capital Company				State: WA	_ Sampling Point: DP-18
Investigator(s): Richard Peel, Alex Callender					
Landform (hillslope, terrace, etc.): Terrace		Local re	elief (concave,	, convex, none): Conca	slope (%): <u>5</u>
Subregion (LRR): A2					
					eation: N/A
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrology sign	nificantly dis	turbed?	Are "No	ormal Circumstances" pre	esent? Yes 🗷 No 🗌
Are Vegetation, Soil, or Hydrology natu	rally probler	matic?	(If need	ed, explain any answers	in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	sampli	ing point le	ocations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐					
Hydric Soil Present? Yes ☒ No ☐			the Sampled		
Wetland Hydrology Present? Yes ☒ No ☐		WI	thin a Wetlar	nd? Yes ເ⊠	No 📙
Remarks:					
Data collected in Wetland F.					
VEGETATION – Use scientific names of plant	ts.				
	Absolute	Domina	nt Indicator	Dominance Test work	ksheet:
Tree Stratum (Plot size: 30 ft)			Status	Number of Dominant S	Species
1. Alnus rubra	90	Yes	<u>FAC</u>	That Are OBL, FACW,	or FAC: <u>2</u> (A)
2				Total Number of Domir	nant
3				Species Across All Stra	ata: <u>2</u> (B)
4	00			Percent of Dominant S	pecies
Sapling/Shrub Stratum (Plot size: 15 ft)	90	= Total	Cover	That Are OBL, FACW,	or FAC: 100% (A/B)
1. Rubus spectabilis	30	Yes	FAC	Prevalence Index wor	rksheet:
2. Rubus armeniacus	5	No	FAC	Total % Cover of:	Multiply by:
3. Spireae douglasii	5	No	FACW	OBL species 0	x 1 = <u>0</u>
4				FACW species 5	x 2 = <u>10</u>
5				FAC species 125	x 3 = <u>375</u>
	40	= Total	Cover	1	x 4 = 0
Herb Stratum (Plot size: <u>5 ft</u> )					x 5 = <u>0</u>
1.				Column Totals: 130	(A) <u>385</u> (B)
2				Prevalence Index	c = B/A = 2.96
3				Hydrophytic Vegetati	
4.       5.					rophytic Vegetation
6				■ Dominance Test is	· · ·
7.					s ≤3.0¹
8.				☐ Morphological Ada	ptations <sup>1</sup> (Provide supporting
9.					s or on a separate sheet)
10				☐ Wetland Non-Vasc	
11				<del>-</del>	phytic Vegetation <sup>1</sup> (Explain)
	0	= Total	Cover	<sup>1</sup> Indicators of hydric so be present, unless dist	il and wetland hydrology must urbed or problematic.
Woody Vine Stratum (Plot size: 30 ft)				The state of the s	1
1				Hydrophytic	
2	^			Vegetation Present? Ye	es⊠ No⊡
% Bare Ground in Herb Stratum 100	<del>-</del>	= Total	Cover	inescitt 16	:3 M   NU
Remarks:	, dicturb -	۸		1	
FAC-FACW species observed. Heavily	ขารเนเซย	u.			

Depth	Matrix				dox Feature		1 2	T	_	D
(inches)	Color (moist)	<u>%</u>		r (moist)	<u>%</u>	Type <sup>1</sup>		CrSol		Remarks Gravelly Sandy Learn
0-12	10YR 5/2	90	101	YR 4/6	10	CS	<u>M</u>	GrSal	LU	Gravelly Sandy Loam
		-						-		
			_ —							
		-						-		
									0:	
	oncentration, D=D Indicators: (Appl						ed Sand G			cation: PL=Pore Lining, M=Matrix.  ors for Problematic Hydric Soils <sup>3</sup> :
-		iicabie to				tea.)				•
☐ Histosol	, ,			Sandy Redox						Muck (A10)
	oipedon (A2)			Stripped Matri: _oamy Mucky	` '	1) (avaon	4 MI DA 1\			Parent Material (TF2) Shallow Dark Surface (TF12)
	en Sulfide (A4)			_oamy Gleyed			LIVILKA I)	_		er (Explain in Remarks)
	d Below Dark Surfa	ace (A11)		Depleted Matr		-,		Ш	Julie	A LEADIGHT III NGHIGINƏ)
	ark Surface (A12)	200 (7111)		Redox Dark S		)		<sup>3</sup> In	ndicato	ors of hydrophytic vegetation and
	fucky Mineral (S1)			Depleted Dark	` '			•••		nd hydrology must be present,
-	Gleyed Matrix (S4)			Redox Depres		,				s disturbed or problematic.
	Layer (if present)	:		•	. ,					•
Type:				-						
Depth (in	ches):							Hvdri	c Soil	Present? Yes ⊠ No □
Remarks: Hydric soil	indicator S5 of	bserved	I. Poter	ntially subsc	oils from	excavat	tion.	<u> </u>		
Hydric soil		bserved	l. Poter	ntially subso	oils from	excava	tion.			
Hydric soil			I. Poter	ntially subso	pils from	excava	tion.			
Hydric soil HYDROLO Wetland Hy	GY	s:				excava	iion.		Secor	ndary Indicators (2 or more required)
Hydric soil HYDROLO Wetland Hy	GY drology Indicator cators (minimum o	s:			ply)					ndary Indicators (2 or more required) dater-Stained Leaves (B9) (MLRA 1, 2,
Hydric soil HYDROLC Wetland Hy Primary Indi  Surface	GY drology Indicator cators (minimum o	s:		eck all that ap	ply)	ves (B9) ( <b>•</b>				
Hydric soil HYDROLC Wetland Hy Primary Indi  Surface	drology Indicator cators (minimum o Water (A1) ater Table (A2)	s:		eck all that ap	ply) ained Leav 4 <b>A, and 4</b> E	ves (B9) ( <b>•</b>			× W	ater-Stained Leaves (B9) (MLRA 1, 2,
Hydric soil HYDROLO Wetland Hy Primary Indi Surface High Wa	drology Indicator cators (minimum o Water (A1) ater Table (A2)	s:		eck all that ap  Water-St. 1, 2, 4	ply) ained Leav <b>4A, and 4E</b> t (B11)	ves (B9) ( <b>6</b>		RA	× W	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Hydric soil HYDROLO Wetland Hy Primary Indi Surface High Wa Saturatie Water M	drology Indicator cators (minimum o Water (A1) ater Table (A2) on (A3)	s:		eck all that app  Water-St  1, 2, 4	ply) ained Leav <b>4A, and 4E</b> tt (B11) nvertebrate	res (B9) ( <b>6</b> <b>3)</b> es (B13)		RA	× W	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10)
Hydric soil HYDROLO Wetland Hy Primary Indi Surface High Wa Saturation Water M Sedimer	drology Indicator cators (minimum o Water (A1) tter Table (A2) on (A3) larks (B1)	s:		eck all that ap  Water-St: 1, 2, 4  Salt Crus  Aquatic II	ply) ained Leav <b>4A, and 4E</b> it (B11) nvertebrate n Sulfide O	res (B9) ( <b>6</b> <b>3)</b> es (B13) dor (C1)		RA	× W	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2)
Hydric soil  HYDROLO  Wetland Hy  Primary Indi  Surface  High Wa  Saturati  Water M  Sedimer  Drift Dep	drology Indicator cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2)	s:		eck all that ap  Water-St  1, 2, 4  Salt Crus  Aquatic II  Hydroger  Oxidized	ply) ained Leav <b>4A, and 4E</b> it (B11) nvertebrate n Sulfide O	res (B9) ( <b>6 3)</b> es (B13) dor (C1) eres along	except MLI	RA ots (C3)	W Di	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9)
Hydric soil  HYDROLC  Wetland Hy Primary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma	drology Indicator cators (minimum o Water (A1) ater Table (A2) on (A3) darks (B1) at Deposits (B2)	s:		eck all that ap  Water-St. 1, 2, 4  Salt Crus  Aquatic II  Hydroger  Oxidized  Presence	ply) ained Leav 4A, and 4E it (B11) nvertebrate n Sulfide O Rhizosphe	res (B9) (6 3) es (B13) dor (C1) eres along	except MLI	RA ots (C3)	N   W   D     D	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2)
Hydric soil  HYDROLO  Wetland Hy  Primary Indi  Surface  High Wa  Saturati  Water M  Sedimer  Drift Dep  Algal Ma  Iron Dep	drology Indicator cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4)	s:		eck all that ap  Water-St: 1, 2, 4  Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ply) ained Leav 4A, and 4E at (B11) avertebrate a Sulfide O Rhizosphe e of Reduce on Reducti	ves (B9) (case (B13)) dor (C1) eres along ed Iron (C ion in Tille	except MLI Living Roc 4)	RA ots (C3)	Di   Di   Si   Si   Si   F/	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) rallow Aquitard (D3)
Hydric soil  HYDROLO  Wetland Hy  Primary Indi  Surface  High Wa  Saturation  Vater M  Sedimer  Drift Dep  Algal Ma  Iron Dep	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4)	s: f one req	uired; che	eck all that app Water-Sta 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ply) ained Leav 4A, and 4E at (B11) avertebrate a Sulfide O Rhizosphe e of Reduce on Reducti	res (B9) (6 B) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E	except MLI Living Roc 4) d Soils (C6	RA ots (C3)	Di   Di   Si   Si   Si   F/4   Ri	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) rallow Aquitard (D3) AC-Neutral Test (D5)
Hydric soil  HYDROLO  Wetland Hy  Primary Indi  Surface  High Wa  Saturation  Vater M  Sedimer  Drift Dep  Algal Ma  Iron Dep  Surface  Inundati	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6)	s: f one requ	uired; che	eck all that app Water-Sta 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe e of Reduce on Reduction	res (B9) (6 B) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E	except MLI Living Roc 4) d Soils (C6	RA ots (C3)	Di   Di   Si   Si   Si   F/4   Ri	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) rhallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A)
Hydric soil  HYDROLO  Wetland Hy  Primary Indi  Surface  High Wa  Saturation  Vater M  Sedimer  Drift Dep  Algal Ma  Iron Dep  Surface  Inundati	drology Indicator cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria	s: f one requ	uired; che	eck all that app Water-Sta 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe e of Reduce on Reduction	res (B9) (6 B) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E	except MLI Living Roc 4) d Soils (C6	RA ots (C3)	Di   Di   Si   Si   Si   F/4   Ri	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) rhallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A)
Hydric soil  HYDROLO  Wetland Hy Primary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundati Sparsely	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria (Vegetated Concarvations:	s: f one requ	uired; che	eck all that ap  Water-St. 1, 2, 4  Salt Crus  Aquatic II  Hydroger  Oxidized  Presence  Recent Ir  Stunted o	ply) ained Leav 4A, and 4E at (B11) avertebrate a Sulfide O Rhizosphe e of Reduce on Reducti or Stressed xplain in Re	res (B9) (case (B13)) dor (C1) deres along ded Iron (Case (Case (B13)) dor (C1) deres along ded Iron (Case (B13)) deres (B13)	except MLI Living Roc 4) d Soils (C6	RA ots (C3)	Di   Di   Si   Si   Si   F/4   Ri	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) rhallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A)
Hydric soil  HYDROLC  Wetland Hy Primary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundati Sparsely	drology Indicator cators (minimum of water (A1) ater Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria v Vegetated Concarvations:	s: f one requ I Imagery ve Surface	uired; che (B7) te (B8)	eck all that app Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe a of Reduce on Reduction Stressed xplain in Re	res (B9) (e 3) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (D emarks)	except MLI Living Roc 4) d Soils (C6	RA ots (C3)	Di   Di   Si   Si   Si   F/4   Ri	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) rhallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A)
Hydric soil  HYDROLO  Wetland Hy Primary Indi Surface High Wa Saturatio Vater M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundati Sparsely  Field Obser  Surface Water Table	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca	I Imagery ve Surface Yes  Yes	uired; che (B7) te (B8)  No 🗷	eck all that app Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C Other (Ex	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe a of Reduct on Reduction Stressed xplain in Re es):	res (B9) (e 3) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (D emarks)	Except MLI Living Roc 4) and Soils (C6 01) (LRR A	ets (C3)	N   Di   Di   Si   Si   Si   Si   Si   Fr	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) reallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
Hydric soil  HYDROLO  Wetland Hy Primary Indi Surface High Wa Saturatio Sedimer Algal Ma Iron Dep Surface Inundati Sparsely  Field Obser Surface Water Table Saturation F	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) darks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca	s: f one required in the second secon	uired; che (B7) te (B8)	eck all that app Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe a of Reduct on Reduction Stressed xplain in Re es):	res (B9) (e 3) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (D emarks)	Except MLI Living Roc 4) and Soils (C6 01) (LRR A	ets (C3)	N   Di   Di   Si   Si   Si   Si   Si   Fr	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) rhallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A)
Hydric soil  HYDROLO  Wetland Hy  Primary Indi  Surface  High Wa  Saturation  Vater M  Sedimer  Algal Ma  Iron Dep  Iron Dep  Iron Dep  Surface  Inundati  Sparsely  Field Obser  Surface Water Table  Saturation Feincludes ca	drology Indicator cators (minimum of water (A1) atter Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concators are Present?	s: f one required in the second secon	uired; che (B7) te (B8)  No 🗵 No 🖸	eck all that app Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C Other (Ex	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe a of Reduct on Reducti or Stressed xplain in Re es):	res (B9) (e 3) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E emarks)	Living Roo 4) d Soils (C6 01) (LRR A	ets (C3) S) Jand Hyd	Di   Di   Si   Si   Si   Si   F/	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) reallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
Hydric soil  HYDROLO  Wetland Hy  Primary Indi  Surface  High Wa  Saturation  Vater M  Sedimer  Algal Ma  Iron Dep  Iron Dep  Iron Dep  Surface  Inundati  Sparsely  Field Obser  Surface Water Table  Saturation Feincludes ca	drology Indicator cators (minimum of water (A1) ater Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria v Vegetated Concarvations:  ter Present?  Present?  Present?  Present?	s: f one required in the second secon	uired; che (B7) te (B8)  No 🗵 No 🖸	eck all that app Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C Other (Ex	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe a of Reduct on Reducti or Stressed xplain in Re es):	res (B9) (e 3) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E emarks)	Living Roo 4) d Soils (C6 01) (LRR A	ets (C3) S) Jand Hyd	Di   Di   Si   Si   Si   Si   F/	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) reallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
Hydric soil  HYDROLO  Wetland Hy  Primary Indi  Surface  High Wa  Saturation  Vater M  Sedimer  Algal Ma  Iron Dep  Iron Dep  Iron Dep  Surface  Inundati  Sparsely  Field Obser  Surface Water Table  Saturation Feincludes ca	drology Indicator cators (minimum of water (A1) ater Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria v Vegetated Concarvations:  ter Present?  Present?  Present?  Present?	s: f one required in the second secon	uired; che (B7) te (B8)  No 🗵 No 🖸	eck all that app Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C Other (Ex	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe a of Reduct on Reducti or Stressed xplain in Re es):	res (B9) (e 3) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E emarks)	Living Roo 4) d Soils (C6 01) (LRR A	ets (C3) S) Jand Hyd	Di   Di   Si   Si   Si   Si   F/	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) reallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
Hydric soil  HYDROLC  Wetland Hy Primary Indi Surface High Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundati Sparsely  Field Obser Surface Water Table Saturation F (includes ca Describe Re	drology Indicator cators (minimum of water (A1) ater Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria (Vegetated Concarvations:  ter Present?  Present?  Present?  Present?  pillary fringe)  corded Data (streat	I Imagery ve Surface Yes  Yes  Yes  Yes  Xem gauge	uired; che (B7) ee (B8) No 🗵 No 🖸 , monitor	eck all that ap  Water-St.  1, 2, 4  Salt Crus  Aquatic II  Hydroger  Oxidized  Presence  Recent Ir  Stunted C  Other (Ex	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe a of Reduct on Reduct or Stressed (xplain in Re es):	res (B9) (6 3) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E emarks)	Living Rood 4) 4) 60 Soils (C6 01) (LRR A	ots (C3)  i)  land Hyd  if availab	Di   Di   Si   Si   Si   Si   F/	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) reallow Aquitard (D3) AC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
Hydric soil  HYDROLC  Wetland Hy Primary Indi Surface High Wa Saturatio Vater M Sedimer Jorift Dep Algal Ma Iron Dep Surface Inundati Sparsely  Field Obser Surface Water Table Saturation F (includes ca Describe Re	drology Indicator cators (minimum of water (A1) ater Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria (Vegetated Concarvations:  ter Present?  Present?  Present?  Present?  pillary fringe)  corded Data (streat	I Imagery ve Surface Yes  Yes  Yes  Yes  Xem gauge	uired; che (B7) ee (B8) No 🗵 No 🖸 , monitor	eck all that ap  Water-St.  1, 2, 4  Salt Crus  Aquatic II  Hydroger  Oxidized  Presence  Recent Ir  Stunted C  Other (Ex	ply) ained Leav 4A, and 4E at (B11) nvertebrate a Sulfide O Rhizosphe a of Reduct on Reduct or Stressed (xplain in Re es):	res (B9) (6 3) es (B13) dor (C1) eres along ed Iron (C ion in Tille I Plants (E emarks)	Living Rood 4) 4) 60 Soils (C6 01) (LRR A	ots (C3)  i)  land Hyd  if availab	Di   Di   Si   Si   Si   Si   F/	rater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) raturation Visible on Aerial Imagery (C9) reomorphic Position (D2) rallow Aquitard (D3) rAC-Neutral Test (D5) raised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)

Project/Site: 1077.0012 - South Hill Data Center		City/Count	y: Puyallu	ıp / Pierce	Sampling Date: 04/24/2018
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-19
				ownship, Range: 03, 19,	
					e Slope (%): 10
Subregion (LRR): A2					
				NWI classificat	
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrology sign	nificantly dis	turbed?	Are "No	ormal Circumstances" pres	ent? Yes ☐ No ☐
Are Vegetation, Soil, or Hydrology natu	rally probler	natic?	(If need	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	samplir	ng point l	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☒ No ☐					
Hydric Soil Present? Yes ☒ No ☐			he Sampled		
Wetland Hydrology Present? Yes ☒ No ☐		Witi	nin a Wetlar	nd? Yes ☒ No	) [
Remarks:  Data collected in Wetland E.		•			
VEGETATION – Use scientific names of plan	te				
VEGETATION OSC SCIENTING HARRIES OF PIANT	Absolute	Dominan	t Indicator	Dominance Test works	heet:
Tree Stratum (Plot size: 30 ft)	% Cover			Number of Dominant Sp	
1. Alnus rubra	100	Yes	FAC	That Are OBL, FACW, or	r FAC: <u>4</u> (A)
3				Total Number of Domina Species Across All Strate	4
4	100	= Total (	 Cover	Percent of Dominant Spe That Are OBL, FACW, or	
Sapling/Shrub Stratum (Plot size: 15 ft)	100	Yes	EAC		
1. Acer circinatum			FAC	Prevalence Index work  Total % Cover of:	
2					$ \qquad $
3					x = 0
4 5				FAC species 220	x = 660
·	100	= Total 0	Cover		x 4 = 0
Herb Stratum (Plot size: 5 ft)				· -	x 5 = 0
1. Maianthemum dilatatum		Yes		Column Totals: 240	(A) <u>680</u> (B)
2. <u>Lysichiton americanus</u>	20	Yes	OBL	Prevalence Index	- B/A - 283
3				Hydrophytic Vegetation	
4.       5.				Rapid Test for Hydro	
6.					
7.				➤ Prevalence Index is :	≤3.0¹
8.					ations <sup>1</sup> (Provide supporting
9					or on a separate sheet)
10				☐ Wetland Non-Vascul	
11				,	nytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 ft)	40	= Total (	Cover	be present, unless distur	and wetland hydrology must bed or problematic.
1				Hydrophytic	
2	^			Vegetation	
% Bare Ground in Herb Stratum 60	0	= Total (	Cover	Present? Yes	No □
<u> </u>				l	
Remarks: FAC-OBL vegetation observed.					

Depth	cription: (Descri Matrix		epui ne		ox Feature		or commi	ii uie abs	ence or man	Jaiors.)	
(inches)	Color (moist)	%	Colo	r (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	_Texture		Remarks	
0 - 11	10yr 2/1	100						SaMu	Mi		
11 - 16	10yr 4/1	98	10y	⁄r 4/6	2	C,CS	M	SaGrl	_0		
	-										
	-										
					_						
1Tymay C. C	anacatrotica D. F	Donlotion D	M Dad	used Metrix C	C Covers	d or Coot		roino	21 apotions I	DI Doro Lining M	Motrix
	oncentration, D=D Indicators: (App						ea Sana Gr			PL=Pore Lining, M= Problematic Hydric	
☐ Histosol				Sandy Redox (		,			2 cm Muck (	-	
	pipedon (A2)			Stripped Matrix				H	,	Material (TF2)	
☐ Black His				oamy Mucky N	` '	1) (except	MLRA 1)			v Dark Surface (TF	12)
	n Sulfide (A4)			oamy Gleyed			,		•	nin in Remarks)	,
▼ Depleted	d Below Dark Surf	ace (A11)		Depleted Matrix	(F3)						
	ark Surface (A12)			Redox Dark Su	` '					drophytic vegetatio	
-	lucky Mineral (S1)			Depleted Dark	•	<del>-</del> 7)			-	ology must be pres	
	leyed Matrix (S4)			Redox Depress	ions (F8)				unless disturl	bed or problematic.	
	Layer (if present)										
	ches):							1			
	CHC3)							Hydrid	Soil Presen	t? Yes⊠ No	
Remarks:											
Hydric soil	indicator A11	observed	d.								
HYDROLO	GY										
Wetland Hy	drology Indicato	rs:									
Primary Indi	cators (minimum o	of one requ	ired; che	eck all that app	ly)				Secondary In-	dicators (2 or more	required)
☐ Surface	Water (A1)			☐ Water-Sta	ined Leav	es (B9) ( <b>e</b>	xcept MLR	RA	☐ Water-Sta	ained Leaves (B9) (	MLRA 1, 2,
	ter Table (A2)				A, and 4E		•			nd 4B)	
■ Saturation	on (A3)			☐ Salt Crust	(B11)				☐ Drainage	Patterns (B10)	
☐ Water M	arks (B1)			☐ Aquatic In	vertebrate	es (B13)			☐ Dry-Seaso	on Water Table (C2	2)
☐ Sedimer	nt Deposits (B2)			☐ Hydrogen	Sulfide O	dor (C1)			☐ Saturation	n Visible on Aerial II	magery (C9)
☐ Drift Dep	oosits (B3)			☐ Oxidized F	Rhizosphe	res along	Living Roo	ts (C3)	Geomorpl	hic Position (D2)	
☐ Algal Ma	it or Crust (B4)			☐ Presence	of Reduce	ed Iron (C4	<b>!</b> )		☐ Shallow A	quitard (D3)	
☐ Iron Dep	osits (B5)			☐ Recent Iro	n Reducti	on in Tille	d Soils (C6	6)	☐ FAC-Neut	tral Test (D5)	
☐ Surface	Soil Cracks (B6)			☐ Stunted or	Stressed	Plants (D	1) ( <b>LRR A</b> )	)	☐ Raised Ar	nt Mounds (D6) ( <b>LR</b>	RR A)
	on Visible on Aeria			☐ Other (Exp	olain in Re	emarks)		ļ	☐ Frost-Hea	ive Hummocks (D7)	)
☐ Sparsely	Vegetated Conca	ave Surface	e (B8)								
Field Obser	vations:										
Surface Wat	er Present?	Yes 🗌	No 🔀	Depth (inche							
Water Table	Present?	Yes 🗵	No 🗌	Depth (inche	<sub>s):</sub> <u>10</u>						
Saturation P		Yes 🗵	No 🗌	Depth (inche	s): <u>5</u>		Wetla	and Hydı	ology Prese	nt? Yes 🗵 No	
	pillary fringe)	om gouge	monitor	ing well coricl	nhotos =	rovious is:	noctions)	if availab	lo:		
Describe Re	corded Data (stre	am gauge,	HOHITOF	ırıg well, aerial	ρποιος, β	revious ins	spections),	ıı avallab	i <del>c</del> .		
Domorlini											
Remarks:	indicators AC	and AO	ahaa ==	ad							
inyurulogic	indicators A2	anu A3 (	JUSEIV	<del>c</del> u.							

Project/Site: 1077.0012 - South Hill Data Center	(	City/Cour	<sub>nty:</sub> Puyallւ	ıp / Pierce	Sampling Date: 04/24/2018
Applicant/Owner: Benaroya Capital Company				State: WA	Sampling Point: DP-20
				ownship, Range: <u>03, 19,</u>	
Landform (hillslope, terrace, etc.): Hillslope		Local re	elief (concave,	, convex, none): Concav	e Slope (%): <u>5</u>
Subregion (LRR): A2	_ <sub>Lat:</sub> <u>47.</u>	160530	8715	Long: -122.2763065	545833 Datum: WGS84
Soil Map Unit Name: Indianola				NWI classificat	tion: N/A
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrology sign	ificantly dist	turbed?	Are "No	ormal Circumstances" pres	ent? Yes ☒ No ☐
Are Vegetation, Soil, or Hydrology natu	rally problen	natic?	(If need	ed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	sampli	ing point l	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ☐ No 🗵					
Hydric Soil Present? Yes ☐ No 🗵			the Sampled		
Wetland Hydrology Present? Yes ☐ No 🗵		Wi	thin a Wetlar	nd? Yes ☐ No	) <b>X</b>
Remarks:		ı			_
Data collected in upland forested	area pre	eviousl	y mappeo	d as potential wetla	nds.
VEGETATION – Use scientific names of plant					
VEGETATION - OSC SCICILITIO HARRIES OF Plant		Domina	nt Indicator	Dominance Test works	heet:
Tree Stratum (Plot size: 30 ft)	% Cover	Species	s? Status	Number of Dominant Spo	
1. Acer macrophyllum	60	Yes	FACU	That Are OBL, FACW, or	
2. Pseudotsuga menziesii	40	Yes	FACU	Total Number of Domina	ınt
3				Species Across All Strata	a: <u>4</u> (B)
4	100			Percent of Dominant Spe	
Sapling/Shrub Stratum (Plot size: 15 ft)	100	= Total	Cover	That Are OBL, FACW, or	r FAC: <u>50%</u> (A/B)
1. Rubus spectabilis	30	Yes	FAC	Prevalence Index work	sheet:
2				Total % Cover of:	Multiply by:
3				OBL species 0	x 1 = <u>0</u>
4				FACW species 0	x 2 = <u>0</u>
5		-			x 3 = <u>120</u>
	30	= Total	Cover	-	x 4 = <u>400</u>
Herb Stratum (Plot size: 5 ft)	10	Voo	ΓΛC	UPL species 0	x 5 = <u>0</u>
1. Urtica dioica	10		<u>FAC</u>	Column Totals: 140	(A) <u>520</u> (B)
2				Prevalence Index	= B/A = 3.71
4				Hydrophytic Vegetation	
5				☐ Rapid Test for Hydro	
6.				☐ Dominance Test is >	50%
7				☐ Prevalence Index is :	≤3.0 <sup>1</sup>
8					rations <sup>1</sup> (Provide supporting
9			_	□ Wetland Non-Vascul	or on a separate sheet)
10					nytic Vegetation¹ (Explain)
11				- , ,	and wetland hydrology must
Woody Vine Stratum (Plot size: 30 ft)	10	= Total	Cover	be present, unless distur	bed or problematic.
1				Headmand	
2				Hydrophytic Vegetation	
	0	= Total	Cover		□ No ⊠
% Bare Ground in Herb Stratum 90					
Remarks: FAC-FACU species observed.					

Profile Desc Depth	Matri	X		Red	ox Features	3			
(inches)	Color (moist)	%	Colo	or (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0 - 8	10yr 2/2	100						SaLo	
8 - 14	10yr 3/3	100						SaLo	
	•								
		· · · · · · · · · · · · · · · · · · ·	_						<del></del>
		<del></del>			_				<del></del>
	oncentration, D=D						ed Sand Gr		<sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (App	olicable to	all LRR	ls, unless other	erwise note	ed.)		Ind	licators for Problematic Hydric Soils <sup>3</sup> :
Histosol	` '			Sandy Redox (					2 cm Muck (A10)
	oipedon (A2)			Stripped Matrix	, ,				,
☐ Black Hi				Loamy Mucky			MLRA 1)		Very Shallow Dark Surface (TF12)
	en Sulfide (A4)	· (A44)		Loamy Gleyed				Ц	Other (Explain in Remarks)
-	d Below Dark Surf ark Surface (A12)	ace (ATT)		Depleted Matri Redox Dark Su				310	dicators of hydrophytic vegetation and
	Mucky Mineral (S1	)		Depleted Dark	` ,	7)			wetland hydrology must be present,
-	Gleyed Matrix (S4)			Redox Depres		' )			unless disturbed or problematic.
	Layer (if present				( )				
				_					
	ches):							Hydric	Soil Present? Yes ☐ No 区
Remarks:								11,741.10	
		. م رسم مام	_1						
ino riyane s	soil indicators	observe	u.						
HYDROLO	)GY								
	IGY drology Indicato	ors:							
Wetland Hy			uired; ch	eck all that app	oly)				Secondary Indicators (2 or more required)
Wetland Hy Primary Indi	drology Indicato		uired; ch	eck all that app		es (B9) ( <b>e</b>	xcept MLR		Secondary Indicators (2 or more required)  ☐ Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hy Primary India ☐ Surface	drology Indicato		uired; ch	☐ Water-Sta			xcept MLR		<u> </u>
Wetland Hy Primary India ☐ Surface	rdrology Indicato cators (minimum o Water (A1) ater Table (A2)		uired; ch	☐ Water-Sta	ained Leave A, and 4B)		xcept MLR		☐ Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hy Primary India ☐ Surface ☐ High Wa ☐ Saturation	rdrology Indicato cators (minimum o Water (A1) ater Table (A2)		uired; ch	☐ Water-Sta	ained Leave A, and 4B) (B11)	)	xcept MLR	RA [	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hy Primary India Surface High Wa Saturatio Water M	rdrology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3)		uired; ch	☐ Water-Sta  1, 2, 4 ☐ Salt Crust ☐ Aquatic Ir	ained Leave A, and 4B) (B11)	s (B13)	xcept MLR	R <b>A</b> [	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1)		uired; ch	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen	ained Leave A, and 4B) (B11) (vertebrates	s (B13) lor (C1)		AR [	<ul> <li>Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</li> <li>□ Drainage Patterns (B10)</li> <li>□ Dry-Season Water Table (C2)</li> </ul>
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep	drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2)		uired; ch	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized	ained Leave A, and 4B) (B11) evertebrates Sulfide Od	s (B13) lor (C1) es along	Living Roo	RA [	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3)		uired; ch	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence	nined Leave A, and 4B) (B11) overtebrates Sulfide Od Rhizospher	s (B13) for (C1) es along d Iron (C4	Living Roo	[ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)      Drainage Patterns (B10)      Dry-Season Water Table (C2)      Saturation Visible on Aerial Imagery (C9)      Geomorphic Position (D2)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	rdrology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)		uired; ch	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ire	nined Leave A, and 4B) (B11) evertebrates Sulfide Od Rhizospher of Reduced	s (B13) lor (C1) es along d Iron (C4 on in Tilled	Living Roo I) d Soils (C6	RA [  [  [  [  [  [  [  [  [  [  ]  ]  ]  ]	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	of one requ		Water-State 1, 2, 4  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o	nined Leave A, and 4B) (B11) evertebrates Sulfide Od Rhizospher of Reduced on Reduction	s (B13) lor (C1) es along d Iron (C4 on in Tilled Plants (D	Living Roo I) d Soils (C6	RA [  [  [  [  [  [  [  [  [  [  ]  ]  ]  ]	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)	of one requ	(B7)	Water-State 1, 2, 4  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o	ained Leave A, and 4B) (B11) evertebrates Sulfide Od Rhizospher of Reduced on Reduction	s (B13) lor (C1) es along d Iron (C4 on in Tilled Plants (D	Living Roo I) d Soils (C6	RA [  [  [  [  [  [  [  [  [  [  ]  ]  ]  ]	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	drology Indicator cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aericy Vegetated Concrete (A1)	of one requ	(B7)	Water-State 1, 2, 4  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o	ained Leave A, and 4B) (B11) evertebrates Sulfide Od Rhizospher of Reduced on Reduction	s (B13) lor (C1) es along d Iron (C4 on in Tilled Plants (D	Living Roo I) d Soils (C6	RA [  [  [  [  [  [  [  [  [  [  ]  ]  ]  ]	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	drology Indicator cators (minimum of water (A1) atter Table (A2) on (A3) atter Table (B1) on the Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerica Vegetated Concertations:	of one requ	(B7)	Water-State 1, 2, 4  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o	ained Leave A, and 4B) (B11) evertebrates Sulfide Od Rhizospher of Reduced on Reduction r Stressed I	s (B13) lor (C1) es along d Iron (C4 on in Tilled Plants (D marks)	Living Roo I) d Soils (C6	RA [  [  [  [  [  [  [  [  [  [  [  ]  ]  ]	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely	drology Indicator cators (minimum of water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aericy Vegetated Concervations:	of one requ al Imagery ave Surfac	(B7) e (B8)	Water-Sta  1, 2, 4  Salt Crust  Aquatic Ir  Hydrogen  Oxidized  Presence  Recent Ir  Stunted o  Other (Ex	ained Leave A, and 4B) (B11) evertebrates Sulfide Od Rhizospher of Reduced on Reduction r Stressed I plain in Rer	s (B13) lor (C1) es along d Iron (C4 on in Tilled Plants (D marks)	Living Roo I) d Soils (C6	RA [  [  [  [  [  [  [  [  [  [  [  ]  ]  ]	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser	drology Indicator cators (minimum of water (A1) ater Table (A2) on (A3) cators (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aericy Vegetated Concervations:  ter Present?	al Imagery ave Surfac	(B7) e (B8) No ⊠	Water-Sta 1, 2, 4 Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Irc Stunted o Other (Ex	ained Leave A, and 4B) (B11) Evertebrates Sulfide Od Rhizospher of Reduced on Reduction r Stressed I plain in Rer es):	s (B13) for (C1) es along d Iron (C4 on in Tilled Plants (D marks)	Living Roo l) d Soils (C6 1) (LRR A)	RA [  ts (C3) [  (b) [  (c) (C3) [ (c) (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)  Raised Ant Mounds (D6) (LRR A)  Frost-Heave Hummocks (D7)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	drology Indicator cators (minimum of cators (minimu	al Imagery ave Surfac Yes  Yes  Yes  Yes  Yes	(B7) ee (B8)  No 🗵 No 🗵	Water-Sta  1, 2, 4  Salt Crust  Aquatic Ir  Hydrogen  Oxidized  Presence  Recent Ir  Stunted o  Other (Ex	sined Leave A, and 4B) (B11) E	s (B13) or (C1) es along d Iron (C4 on in Tilled Plants (D marks)	Living Roo I) d Soils (C6 1) (LRR A)	RA [	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9) □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	drology Indicator cators (minimum of cators (minimu	al Imagery ave Surfac Yes  Yes  Yes  Yes  Yes	(B7) ee (B8)  No 🗵 No 🗵	Water-Start, 2, 4  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex	sined Leave A, and 4B) (B11) E	s (B13) or (C1) es along d Iron (C4 on in Tilled Plants (D marks)	Living Roo I) d Soils (C6 1) (LRR A)	RA [	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9) □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	drology Indicator cators (minimum of cators (minimu	al Imagery ave Surfac Yes  Yes  Yes  Yes  Yes	(B7) ee (B8)  No 🗵 No 🗵	Water-Start, 2, 4  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex	sined Leave A, and 4B) (B11) E	s (B13) or (C1) es along d Iron (C4 on in Tilled Plants (D marks)	Living Roo I) d Soils (C6 1) (LRR A)	RA [	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9) □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	drology Indicator cators (minimum of cators (minimu	al Imagery ave Surfac Yes  Yes  Yes  Yes  Yes	(B7) ee (B8)  No 🗵 No 🗵	Water-Start, 2, 4  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex	sined Leave A, and 4B) (B11) E	s (B13) or (C1) es along d Iron (C4 on in Tilled Plants (D marks)	Living Roo I) d Soils (C6 1) (LRR A)	RA [	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9) □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Water Table Saturation P (includes ca Describe Re	drology Indicator cators (minimum of cators (minimu	al Imagery ave Surfac Yes Yes Yes ram gauge	(B7) se (B8) No 🗵 No 🗵 No 🗵 , monitor	Water-Sta  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex  Depth (inche Depth (inche	sined Leave A, and 4B) (B11) E	s (B13) or (C1) es along d Iron (C4 on in Tilled Plants (D marks)	Living Roo I) d Soils (C6 1) (LRR A)	RA [	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9) □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
Wetland Hy Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Water Table Saturation P (includes ca Describe Re	drology Indicator cators (minimum of cators (minimu	al Imagery ave Surfac Yes Yes Yes ram gauge	(B7) se (B8) No 🗵 No 🗵 No 🗵 , monitor	Water-Sta  1, 2, 4  Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ir Stunted o Other (Ex  Depth (inche Depth (inche	sined Leave A, and 4B) (B11) E	s (B13) or (C1) es along d Iron (C4 on in Tilled Plants (D marks)	Living Roo I) d Soils (C6 1) (LRR A)	RA [	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9) □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)

# Appendix E — Wetland Rating Forms

# **RATING SUMMARY – Western Washington**

Name of wetland (or ID #): A - SHDC	Date of site visit: 9/13/16
Rated by Richard Peel	_ Trained by Ecology? <u>✓</u> YesNo Date of training 9/29/16
HGM Class used for rating Depressional	Wetland has multiple HGM classes?Y <u>✓</u> N
NOTE: Form is not complete witho Source of base aerial photo/map	<b>tut the figures requested</b> (figures can be combined).  Esri Arc GIS
OVERALL WETLAND CATEGORY	(based on functions <u>v</u> or special characteristics)

## 1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

Category II – Total score = 20 - 22

X Category III – Total score = 16 - 19

Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat				
Circle the appropriate ratings							
Site Potential	М	M	L				
Landscape Potential	М	Н	L				
Value	М	L	М	TOTAL			
Score Based on Ratings	6	6	4	16			

# Score for each function based on three ratings (order of ratings is not *important)* 9 = H,H,H8 = H,H,M7 = H,H,L7 = H,M,M 6 = H,M,L6 = M,M,M5 = H,L,L 5 = M,M,L4 = M, L, L3 = L, L, L

# 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CAT	EGORY
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	N/A	

# Maps and figures required to answer questions correctly for Western Washington

# **Depressional Wetlands**

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

#### **Riverine Wetlands**

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

#### Lake Fringe Wetlands

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

## Slope Wetlands

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

# **HGM Classification of Wetlands in Western Washington**

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

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

1.	Are the water levels in the entire	e unit usually controlled	by tides except during floods?
	☑NO – go to 2	<b>YES</b> – the wetl	and class is <b>Tidal Fringe</b> – go to 1.1
-	1.1 Is the salinity of the water dur	ing periods of annual lo	w flow below 0.5 ppt (parts per thousand)?
		d as a Freshwater Tidal n <b>Estuarine</b> wetland an	☐ <b>YES - Freshwater Tidal Fringe</b> Fringe use the forms for <b>Riverine</b> wetlands. If it d is not scored. This method <b>cannot</b> be used to
2.	The entire wetland unit is flat an and surface water runoff are NO		nly source (>90%) of water to it. Groundwater to unit.
×	NO – go to 3  If your wetland can be classified	as a Flats wetland, use t	☐ <b>YES</b> – The wetland class is <b>Flats</b> he form for <b>Depressional</b> wetlands.
3.	Does the entire wetland unit me  ☐The vegetated part of the wet plants on the surface at any to ☐At least 30% of the open wate	cland is on the shores of ime of the year) at least	a body of permanent open water (without any 20 ac (8 ha) in size;
×	☑NO – go to 4 □	<b>YES –</b> The wetland class	is <b>Lake Fringe</b> (Lacustrine Fringe)
4.	Does the entire wetland unit me The wetland is on a slope (sl The water flows through the seeps. It may flow subsurface The water leaves the wetland	ope can be very gradual wetland in one direction e, as sheetflow, or in a s	), on (unidirectional) and usually comes from wale without distinct banks,
×	☑NO – go to 5		☐ <b>YES</b> – The wetland class is <b>Slope</b>
	-		tlands except occasionally in very small and are usually <3 ft diameter and less than 1 ft
5.	Does the entire wetland unit me The unit is in a valley, or stre stream or river, The overbank flooding occur	eam channel, where it go	ets inundated by overbank flooding from that

V V (	cuand name of number
X	NO – go to 6
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? <i>This means that any outlet, if present, is higher than the interior of the wetland.</i>
	NO – go to 7 <b>YES</b> – The wetland class is <b>Depressional</b>
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.
$\boxtimes$	NO – go to 8

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

Wotland name or number A -

D1.1. 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 by points = 1 D1.1. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0 D1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent ungrazed plants > ½ to farea Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent ungrazed, plants > ½ of area Wetland has persistent ungrazed, plants > ½ of area Wetland has persistent ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent. Wet	DEPRESSIONAL AND FLATS WETLANDS		
D1.1. 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 by points = 1 D1.1. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0 D1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent ungrazed plants > ½ to farea Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent ungrazed, plants > ½ of area Wetland has persistent ungrazed, plants > ½ of area Wetland has persistent ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent. Wet	Water Quality Functions - Indicators that the site functions to improve water	quality	
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 outlet.  points = 2  Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing dutch.  Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1  Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing ditch.  Do 1.1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):  Wetland has persistent, ungrazed, plants > 9% of area  Wetland has persistent, ungrazed plants > 9% of area  Wetland has persistent, ungrazed plants > 1/2,0 of area  Wetland has persistent, ungrazed plants > 1/2,0 of area  Wetland has persistent, ungrazed plants > 1/2,0 of area  Wetland has persistent, ungrazed plants > 1/2,0 of area  Wetland has persistent, ungrazed plants > 1/2,0 of area  Do 1.4. Characteristics of seasonal ponding or inundation:  This is the orea that is ponded for at least 2 months. See description in manual.  Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Points = 2  Do 2.0. Does the landscape have the potential to support the water quality function of the site?  Do 2.1. Does the wetland unit receive stormwater discharges?  Yes = 1 No = 0  Do 2.2. Is > 10% of the area within 150 ft of the wetland?  Yes = 1 No = 0  Do 2.3. Are there septic systems within 250 ft of the wetland?  Yes = 1 No = 0  Do 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions Do 2.1. Do 2.3?  Yes = 1 No = 0  Do 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions Do 2.1. Do 2.3?  Yes = 1 No = 0	D 1.0. Does the site have the potential to improve water quality?		
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.  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 glitch.  D1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0 D1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed plants > ½, for of area Wetland has persistent, ungrazed plants > ½, for of area Wetland has persistent, ungrazed plants > ½, for of area Wetland has persistent, ungrazed plants > ½, for of area Wetland has persistent is points = 1 Wetland has persistent, ungrazed plants > ½, for of area Wetland has persistent, ungrazed plants > ½, for of area Wetland has persistent is points = 0 D1.4. 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 Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetland Area seasonally ponded is < ½ total area of wetl	D 1.1. Characteristics of surface water outflows from the wetland:		
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  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 Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed plants > 1/10 of area Wetland has persistent, ungrazed, plants > 1/10 of area Wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungrazed, plants > 1/10 of area wetland has persistent, ungra	Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing out po Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing po	oints = 3 tlet. 2 oints = 2 oints = 1	
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 Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area points = 0  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 Area seasonally ponded is > ½ total area of wetland Points = 0  D 1.4. Characteristics of seasonal ponding or inundation: This is the area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonal		İ	
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 Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ½ total area of wetland Points = 2 Area seasonally ponded is < ½ total area of wetland Points = 0  Total for D 1  Add the points in the boxes above  Add the points in the boxes above  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  D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  D 2.3. Are there septic systems within 250 ft of the wetland?  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 Yes = 1 No = 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 Yes = 1 No = 0  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 Yes = 1 No = 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  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	D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardi Wetland has persistent, ungrazed, plants > 95% of area po Wetland has persistent, ungrazed, plants > ½ of area po Wetland has persistent, ungrazed plants > 1/10 of area po	in classes): bints = 5 bints = 3 bints = 1	
Rating of Site Potential If score is:12-16 = HX 6-11 = M0-5 = 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	Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is > ¼ total area of wetland  po	oints = 2	
2.0. Does the landscape have the potential to support the water quality function of the site?  2.1. Does the wetland unit receive stormwater discharges?  2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  2.3. Are there septic systems within 250 ft of the wetland?  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	Total for D 1 Add the points in the boxes	s above 11	
D 2.1. Does the wetland unit receive stormwater discharges?  Yes = 1 No = 0  2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  Yes = 1 No = 0  1  2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  Yes = 1 No = 0  1  2.3. Are there septic systems within 250 ft of the wetland?  Yes = 1 No = 0  2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?  Yes = 1 No = 0  Add the points in the boxes above  2  Rating of Landscape Potential If score is:3 or 4 = H	Rating of Site Potential If score is:12-16 = HX_6-11 = M0-5 = L Record the rating of	n the first page	
D 2.1. Does the wetland unit receive stormwater discharges?  Yes = 1 No = 0  2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  Yes = 1 No = 0  1  2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  Yes = 1 No = 0  1  2.3. Are there septic systems within 250 ft of the wetland?  Yes = 1 No = 0  2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?  Yes = 1 No = 0  Add the points in the boxes above  2  Rating of Landscape Potential If score is:3 or 4 = H	D 2.0. Does the landscape have the potential to support the water quality function of the site?		
2.3. Are there septic systems within 250 ft of the wetland?  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		No = 0 1	
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	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	
Source	D 2.3. Are there septic systems within 250 ft of the wetland?  Yes = 1	No = 0 0	
Rating of Landscape Potential If score is:3 or 4 = HX1 or 2 = M0 = L0 = L		( )	
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 Yes = 1 No = 0  D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?  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)?  O 3.0. Is the water quality improvement provided by the site valuable to society?  O 3.1. Does the water that is on the Yes = 1 No = 0  O 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?  O 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES Yes = 2 No = 0)	Total for D 2 Add the points in the boxes	s above 2	
O 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the Yes = 1 No = 0  O 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?  O 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)?  O 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the Yes = 1 No = 0  O 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  O 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES Yes = 2 No = 0	Rating of Landscape Potential If score is:3 or 4 = HX_1 or 2 = M0 = L Record the rational score is:3 or 4 = HX_1 or 2 = M0 = L	ing on the first page	е
303(d) list?  Yes = 1 No = 0  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  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 = 1 No = 0  1	D 3.0. Is the water quality improvement provided by the site valuable to society?		
O 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		( )	
if there is a TMDL for the basin in which the unit is found)?  Yes = 2 No = 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	
Total for D 3 Add the points in the boxes above 1			
	Total for D 3 Add the points in the boxes	s above 1	

DEPRESSIONAL AND FLATS WETLANDS  Underlocie Functions Indicators that the site functions to reduce flooding and stream degradations.	ion
<b>Hydrologic Functions</b> - Indicators that the site functions to reduce flooding and stream degradate D 4.0. Does the site have the potential to reduce flooding and erosion?	ion
D 4.1. <u>Characteristics of surface water outflows from the wetland</u> :  Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4	_
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outletpoints = 2  Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1	2
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	
D 4.2. <u>Depth of storage during wet periods:</u> 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.  Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5	3
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3	3
The wetland is a "headwater" wetland points = 3	
Wetland is flat but has small depressions on the surface that trap water points = 1	
Marks of ponding less than 0.5 ft (6 in) points = 0	
D 4.3. <u>Contribution of the wetland to storage in the watershed</u> : <i>Estimate the ratio of the area of upstream basin</i>	
contributing surface water to the wetland to the area of the wetland unit itself.	
The area of the basin is less than 10 times the area of the unit points = 5	3
The area of the basin is 10 to 100 times the area of the unit  The area of the basin is more than 100 times the area of the unit  The area of the basin is more than 100 times the area of the unit	
The area of the basin is more than 100 times the area of the unit  points = 0	
Entire wetland is in the Flats class points = 5	_
Total for D 4 Add the points in the boxes above  Rating of Site Potential If score is: 12-16 = H × 6-11 = M0-5 = L Record the rating on the	8
	Jiist 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? Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 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.)?  Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	3
Rating of Landscape Potential If score is: X 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):	
• Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2	0
• Surface flooding problems are in a sub-basin farther down-gradient. points = 1	U
Flooding from groundwater is an issue in the sub-basin. points = 1	
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	
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? Yes = $2 No = 0$	0
Total for D 6 Add the points in the boxes above	0

Rating of Value If score is:  $_2$ -4 = H  $_1$  = M  $_2$  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 3 structures: points = 2 \_\_\_Emergent 0 \_\_\_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 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 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 H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. 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 1 If you counted: > 19 species points = 2 5 - 19 species points = 1 points = 0 < 5 species 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. 0 None = 0 points Moderate = 2 points Low = 1 point All three diagrams in this row are **HIGH** = 3points

H.1.5. Special habitat features: Check the habitat features that are present in the wetland. The number of checks is the number of points.  x. Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).  X. Standing snags (dbh > 4 in) within the wetland (> 4 in diameter and 6 ft long).  X. Standing snags (dbh > 4 in) within the wetland Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) Stable steep banks of fine material that might be used by beaver or mustars for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)  X. At least % ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-leving by amphibians) Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of stroto)  Total for H		
* Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).  * Standing snags (dbh > 4 in) within the wetland (> 4 in diameter and 6 ft long).  * Standing snags (dbh > 4 in) within the wetland (> 4 in) diameter and 6 ft long).  * Stable steep banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)  * Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut structures for egg-laying by amphibions)  * At least X ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibions)  * Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strotal)  * Total for H 1  * Add the points in the boxes above  * Rating of Site Potential if score is:15-18 = H7-14 = MX-0.6 = L	H 1.5. Special habitat features:	
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over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)  Stable steep banks of fine material that might be used by beaver or maskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 f	t (1 m)
Stable steep banks of fine material that might be used by beaver or muskrat for denning. (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)  **At least % a cof thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)		3
slope) OR signs of recent beaver activity are present (reut shrubs or trees that have not yet weathered where wood is exposed)  ** At least % a co of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)  Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)  Total for H 1  Add the points in the boxes above 5  Rating of Site Potential If score is:15-18 = H7-14 = MX 0-6 = L		ee
### At least % ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)    Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)    Total for H 1		
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Calculate: 2.97    % undisturbed habitat	H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
Calculate: 2.97    % undisturbed habitat		
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Undisturbed habitat < 10% of 1 km Polygon  H 2.3. Land use intensity in 1 km Polygon: If  > 50% of 1 km Polygon is high intensity land use ≤ 50% of 1 km Polygon is high intensity  Total for H 2  Rating of Landscape Potential If score is:4-6 = H1-3 = MX < 1 = L  Record the rating on the first page  H 3.0. Is the habitat provided by the site valuable to society?  H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated.  Site meets ANY of the following criteria: points = 2  — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan  × Site has 1 or 2 priority habitats (listed on next page) within 100 m  Site does not meet any of the criteria above  Site does not meet any of the criteria above	·	
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Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

# **WDFW Priority Habitats**

<u>Priority habitats listed by WDFW</u> (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. <a href="http://wdfw.wa.gov/publications/00165/wdfw00165.pdf">http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</a> or access the list from here: <a href="http://wdfw.wa.gov/conservation/phs/list/">http://wdfw.wa.gov/conservation/phs/list/</a>)

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
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
☐ The dominant water regime is tidal,	
☐ Vegetated, and	
☐ With a salinity greater than 0.5 ppt ☐ Yes –Go to SC 1.1 ☑No= Not an estuarine wetland	
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?	
☐Yes = Category I ☐No - Go to SC 1.2	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
$\square$ 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 Spartina, see page 25)	
At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.	
The wetland has at least two of the following features: tidal channels, depressions with open water, or	
contiguous freshwater wetlands.   The wetland has at least two of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the features water, depressions with open water, of the features water, depressions with open water, depressions with the features water, depressions with the features water water, depressions with the features water water, depressions with the features water wate	
contiguous resirvater wetianas.	
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?	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
☐Yes = Category I ☑No = Not a WHCV	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>	
Tes – Contact WNHP/WDNR and go to SC 2.4 ⊠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?	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
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?	
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?  □Yes – Go to SC 3.3  ☑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?	
<b>NOTE:</b> 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?	
Yes = Is a Category I bog \( \subseteq \text{In ot a bog} \)	

Wetland name or number A -

SC 4.0. Forested Wetlands	
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>	
<ul> <li>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.</li> <li>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).</li> </ul>	
☐ Yes = Category I 図No = Not a forested wetland for this section	
SC 5.0. Wetlands in Coastal Lagoons  Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?  — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks  — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom)  □ Yes − Go to SC 5.1 ☑No = Not a wetland in a coastal lagoon  SC 5.1. Does the wetland meet all of the following three conditions?  — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).  — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.  — The wetland is larger than ¹/₁₀ ac (4350 ft²)  □ Yes = Category I □ No = Category II	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions.  In practical terms that means the following geographic areas:  — Long Beach Peninsula: Lands west of SR 103  — Grayland-Westport: Lands west of SR 105  — Ocean Shores-Copalis: Lands west of SR 115 and SR 109  — Yes – Go to SC 6.1 No = not an interdunal wetland for rating  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)?  SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?  — Yes = Category II No – Go to SC 6.3  SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?  — Yes = Category III No – Category IV	
Category of wetland based on Special Characteristics  If you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number A -

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# **RATING SUMMARY – Western Washington**

Name of wetland (or ID #): B - SHDC	Date of site visit: $\frac{9/13/16}{1}$
Rated by Richard Peel	_ Trained by Ecology? $ \underline{\checkmark}$ YesNo Date of training $\underline{^{9/29/16}}$
HGM Class used for rating Depressional	Wetland has multiple HGM classes?Y <u>✓</u> N
NOTE: Form is not complete without Source of base aerial photo/ma	p Esri Arc GIS
OVERALL WETLAND CATEGORY	III (based on functions <u>v</u> or special characteristics)

# 1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

Category II – Total score = 20 - 22

X Category III – Total score = 16 - 19

Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the ap	propriate ratings	
Site Potential	М	M	М	
Landscape Potential	М	Н	L	
Value	М	L	М	TOTAL
Score Based on Ratings	6	6	5	17

# Score for each function based on three ratings (order of ratings is not *important)* 9 = H,H,H8 = H,H,M7 = H,H,L7 = H,M,M 6 = H,M,L6 = M,M,M5 = H,L,L 5 = M,M,L4 = M,L,L3 = 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	N/A	

# Maps and figures required to answer questions correctly for Western Washington

# <u>Depressional Wetlands</u>

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

#### **Riverine Wetlands**

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

# Lake Fringe Wetlands

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

## Slope Wetlands

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

# **HGM Classification of Wetlands in Western Washington**

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

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

1.	Are the water levels in the entire	e unit usually controlled	by tides except during floods?
	☑NO – go to 2	<b>YES</b> – the wetl	and class is <b>Tidal Fringe</b> – go to 1.1
-	1.1 Is the salinity of the water dur	ing periods of annual lo	w flow below 0.5 ppt (parts per thousand)?
		d as a Freshwater Tidal n <b>Estuarine</b> wetland an	☐ <b>YES - Freshwater Tidal Fringe</b> Fringe use the forms for <b>Riverine</b> wetlands. If it d is not scored. This method <b>cannot</b> be used to
2.	The entire wetland unit is flat an and surface water runoff are NO		nly source (>90%) of water to it. Groundwater to unit.
×	NO – go to 3  If your wetland can be classified	as a Flats wetland, use t	☐ <b>YES</b> – The wetland class is <b>Flats</b> he form for <b>Depressional</b> wetlands.
3.	Does the entire wetland unit me  ☐The vegetated part of the wet plants on the surface at any to ☐At least 30% of the open wate	cland is on the shores of ime of the year) at least	a body of permanent open water (without any 20 ac (8 ha) in size;
×	☑NO – go to 4 □	<b>YES –</b> The wetland class	is <b>Lake Fringe</b> (Lacustrine Fringe)
4.	Does the entire wetland unit me The wetland is on a slope (sl The water flows through the seeps. It may flow subsurface The water leaves the wetland	ope can be very gradual wetland in one direction e, as sheetflow, or in a s	), on (unidirectional) and usually comes from wale without distinct banks,
×	☑NO – go to 5		☐ <b>YES</b> – The wetland class is <b>Slope</b>
	-		tlands except occasionally in very small and are usually <3 ft diameter and less than 1 ft
5.	Does the entire wetland unit me The unit is in a valley, or stre stream or river, The overbank flooding occur	eam channel, where it go	ets inundated by overbank flooding from that

V V (	cuand name of number
×	NO – go to 6
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? <i>This means that any outlet, if present, is higher than the interior of the wetland.</i>
	NO – go to 7 <b>YES</b> – The wetland class is <b>Depressional</b>
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.
X	NO – go to 8

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

Wotland name or number B -

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. 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 gitch. Doints = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing gitch. Doints = 1 Wetland has partiseted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland has persistent, ungrazed, plants > 55% of area Wetland has persistent, ungrazed, plants > 55% of area Wetland has persistent, ungrazed, plants > 55% of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed plants > ½, of area Wetland has persistent, ungrazed, plants > ½, of area Wetland has persistent, ungrazed, plants > ½, of area Wetland has persistent, ungrazed, plants > ½, of area Wetland has persistent, ungrazed, plants > ½, of area Wetland has persistent, ungrazed, plants > ½, of area Wetland has persistent, ungrazed, plants > ½, of area Wetland has persistent, ungrazed, plants > ½, of area Wetland has persistent, ungraze	DEPRESSIONAL AND FLATS WETLANDS		
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.  Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing points = 1  Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing gitch.  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 4  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  Wetland has persistent, ungrazed, plants > 1 of area  Wetland has persistent, ungrazed plants > 1/30 of area  Wetland has persistent, ungrazed plants > 1/30 of area  Wetland has persistent, ungrazed plants > 1/30 of area  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  Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is > ½ total area of wetland  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 2.3. Are there septic systems within 250 ft of the wetland?  Yes = 1 No = 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.  And the points in the boxes above  Rating of Landscape Potential If score is:  3 or 4 = 1 X 1 or 2 = M	Water Quality Functions - Indicators that the site functions to improve water quality	1	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.  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.  D 1.2. The soil 2 in below the surface (or duff laver) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0 4  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  Wetland has persistent, ungrazed plants > 1/10 of area  Wetland has persistent, ungrazed plants > 1/10 of area  Wetland has persistent, ungrazed plants > 1/10 of area  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  Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Area seasonally ponded is < ½ total area of wetla	D 1.0. Does the site have the potential to improve water quality?		
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Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1  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  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 > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1 Wetland has persistent, ungrazed plants > ½ of area points = 1  D 1.4. Characteristics of seasonal ponded is = ½ total area of wetland in land use.  Area seasonally ponded is > ½ total area of wetland points = 2 Area seasonally ponded is > ½ total area of wetland points = 2 Area seasonally ponded is > ½ total area of wetland uses that generate pollutants?  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  D 2.2. Is > 10% of the area within 150 ft of the wetland?  Yes = 1 No = 0  D 2.3. Are t	points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	2	
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  Wetland has persistent, ungrazed, plants > ½, of area  Wetland has persistent, ungrazed plants > ½, of area  Wetland has persistent, ungrazed plants > ½, of area  Wetland has persistent, ungrazed plants > ½, of area  Points = 1  Wetland has persistent, ungrazed plants > ½, of area  Wetland has persistent, ungrazed plants > ½, of area  Points = 0  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  Area seasonally ponded is > ½ total area of wetland  Points = 2  Points = 0  Total for D 1  Add the points in the boxes above  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?  Total for D 2  D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  Yes = 1 No = 0  D 2.3. Are there septic systems within 250 ft of the wetland?  Yes = 1 No = 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			
Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed plants < ½ of area Wetland has persistent, ungrazed plants < ½ of area Wetland has persistent, ungrazed plants < ½ of area Wetland has persistent, ungrazed plants < ½ of area Wetland has persistent, ungrazed plants < ½ of area Wetland has persistent, ungrazed plants < ½ of area Wetland has persistent, ungrazed plants < ½ of area Wetland has persistent, ungrazed plants < ½ of area Wetland has persistent, ungrazed plants < ½ of area Wetland has persistent, ungrazed plants < ½ of area points = 0  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 Area seasonally ponded is > ½ total area of wetland Points = 0  Total for D 1  Radd the points in the boxes above  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  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? Yes = 1 No = 0  Total for D 2  Radd 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 wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d	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	4	
This is the area that is ponded for at least 2 months. See description in manual.  Area seasonally ponded is > % total area of wetland Area seasonally ponded is > % total area of wetland Area seasonally ponded is > % total area of wetland Area seasonally ponded is > % total area of wetland Area seasonally ponded is > % total area of wetland Doints = 2 Points = 0  Total for D 1  Rating of Site Potential If score is: 12-16 = H	Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > $\frac{1}{10}$ of area points = 3 Wetland has persistent, ungrazed plants > $\frac{1}{10}$ of area points = 1		
Rating of Site Potential If score is:12-16 = HX_6-11 = M0-5 = L	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  Area seasonally ponded is > ¼ total area of wetland  points = 2	2	
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?  D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  D 2.3. Are there septic systems within 250 ft of the wetland?  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	Total for D 1 Add the points in the boxes above	11	
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 Yes = 1 No = 0  Total for D 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 Yes = 1 No = 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  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 = 1 No = 0  O	Rating of Site Potential If score is:12-16 = H $\times$ 6-11 = M0-5 = L Record the rating on the first	st page	
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  D 2.3. Are there septic systems within 250 ft of the wetland?  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	D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.3. Are there septic systems within 250 ft of the wetland?  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	D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1	
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	D 2.2. ls > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1	
Source	D 2.3. Are there septic systems within 250 ft of the wetland?  Yes = 1 No = 0	0	
Rating of Landscape Potential If score is:3 or 4 = HX _1 or 2 = M0 = L0 = L		0	
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 Yes = 1 No = 0  D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?  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)?  O	Total for D 2 Add the points in the boxes above	2	
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 Yes = 1 No = 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  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	Rating of Landscape Potential If score is: 3 or 4 = H X 1 or 2 = M 0 = L Record the rating on the first page		
303(d) list?  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 = 1 No = 0  1	D 3.0. Is the water quality improvement provided by the site valuable to society?		
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		0	
if there is a TMDL for the basin in which the unit is found)?  Yes = 2 No = 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	
Total for D 3 Add the points in the boxes above 1		0	
	Total for D 3 Add the points in the boxes above	1	

DEPRESSIONAL AND FLATS WETLANDS		
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradat	ion	
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:  Wetland is a depression or flat depression with no surface water leaving it (no outlet)  Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outletpoints = 2  Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch  Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing  points = 0	2	
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.  Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7  Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5  Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3  The wetland is a "headwater" wetland points = 3  Wetland is flat but has small depressions on the surface that trap water points = 1  Marks of ponding less than 0.5 ft (6 in)	3	
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.  The area of the basin is less than 10 times the area of the unit points = 5  The area of the basin is 10 to 100 times the area of the unit points = 3  The area of the basin is more than 100 times the area of the unit points = 0  Entire wetland is in the Flats class points = 5	3	
Total for D 4 Add the points in the boxes above  Rating of Site Potential If score is: 12-16 = H × 6-11 = M 0-5 = L  Record the rating on the	first nage	
	Jirst puge	
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?  Yes = 1 No = 0	_	
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 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.)?  Yes = 1 No = 0	1	
Total for D 5 Add the points in the boxes above	3	
Rating of Landscape Potential If score is: X 3 = H1 or 2 = M0 = 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):  • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2  • Surface flooding problems are in a sub-basin farther down-gradient. points = 1  Flooding from groundwater is an issue in the sub-basin. points = 1  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. Explain why points = 0  There are no problems with flooding downstream of the wetland. points = 0	0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
Yes = 2 No = 0	0	
Total for D 6 Add the points in the boxes above	0	

Rating of Value If score is:  $_2$ -4 = H  $_1$  = M  $_2$  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 3 structures: points = 2 \_\_\_Emergent 1 \_\_\_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 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 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 H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. 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 1 If you counted: > 19 species points = 2 5 - 19 species points = 1 points = 0 < 5 species 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. 0 None = 0 points Moderate = 2 points Low = 1 point All three diagrams in this row are **HIGH** = 3points

	Т
H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
x Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
_ x Standing snags (dbh > 4 in) within the wetland	
Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m)	
over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)	4
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree	
slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered	
where wood is exposed)	
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are	
permanently or seasonally inundated (structures for egg-laying by amphibians)	
_x Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of	
strata)	
Total for H 1 Add the points in the boxes above	7
Rating of Site Potential If score is:15-18 = HX_7-14 = M0-6 = L	the first page
H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
	T
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
Calculate: 2.97 % undisturbed habitat + [(% moderate and low intensity land uses)/2] $\frac{0}{0}$ = $\frac{2.97}{0}$ %	
If total accessible habitat is:	
$> \frac{1}{3}$ (33.3%) of 1 km Polygon points = 3	0
20-33% of 1 km Polygon points = 2	
10-19% of 1 km Polygon points = 1	
< 10% of 1 km Polygon points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	
Calculate: % undisturbed habitat $\frac{7.16}{}$ + [(% moderate and low intensity land uses)/2] $\frac{9.87}{}$ = $\frac{17.03}{}$ %	
Undisturbed habitat > 50% of Polygon points = 3	_
Undisturbed habitat 10-50% and in 1-3 patches points = 2	1
Undisturbed habitat 10-50% and > 3 patches points = 1	
Undisturbed habitat < 10% of 1 km Polygon points = 0	
H 2.3. Land use intensity in 1 km Polygon: If	
> 50% of 1 km Polygon is high intensity land use points = (-2)	-2
$\leq$ 50% of 1 km Polygon is high intensity points = 0	_
	-1
Total for H 2 Add the points in the boxes above	
Rating of Landscape Potential If score is: 4-6 = H 1-3 = M X < 1 = L Record the rating on t	ne Jirst page
H 3.0. Is the habitat provided by the site valuable to society?	<u>_</u>
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score	
that applies to the wetland being rated.	
Site meets ANY of the following criteria: points = 2	
It has 3 or more priority habitats within 100 m (see next page)	
It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)	
It is mapped as a location for an individual WDFW priority species	1
It is a Wetland of High Conservation Value as determined by the Department of Natural Resources	
It has been categorized as an important habitat site in a local or regional comprehensive plan, in a	
Shoreline Master Plan, or in a watershed plan	
× Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1	
Site does not meet any of the criteria above points = 0	

Site does not meet any of the criteria above

Rating of Value If score is: \_\_\_2 = H \_\_X\_1 = M \_\_\_0 = L

points = U

Record the rating on the first page

# **WDFW Priority Habitats**

<u>Priority habitats listed by WDFW</u> (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. <a href="http://wdfw.wa.gov/publications/00165/wdfw00165.pdf">http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</a> or access the list from here: <a href="http://wdfw.wa.gov/conservation/phs/list/">http://wdfw.wa.gov/conservation/phs/list/</a>)

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**

SC 1.0. Estuarine wetlands    Does the wetland meet the following criteria for Estuarine wetlands?   The dominant water regime is tidal,   Vegetated, and   With a salinity greater than 0.5 ppt   Pes –Go to SC 1.1   No = Not an estuarine wetland
Does the wetland meet the following criteria for Estuarine wetlands?  The dominant water regime is tidal,  Vegetated, and  With a salinity greater than 0.5 ppt  Yes –Go to SC 1.1   Shoe Not an estuarine wetland  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?  Yes = Category I  No - Go to SC 1.2  SC 1.2 Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?  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 Spartina, see page 25)  At least % of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.  The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.  Yes = Category I  No = Category II  SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  Yes = Go to SC 2.2  No - Go to SC 2.3  SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  Yes = Category I  No = Not a WHCV  SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf  Yes = Contact WNHP/WDNR and go to SC 2.4  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?
The dominant water regime is tidal,  Vegetated, and  With a salinity greater than 0.5 ppt
The dominant water regime is tidal,  Vegetated, and  With a salinity greater than 0.5 ppt
Vegetated, and   With a salinity greater than 0.5 ppt   Yes –Go to SC 1.1   ⊠No= Not an estuarine wetland
With a salinity greater than 0.5 ppt
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?    Yes = Category
Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?    Yes = Category   No - Go to SC 1.2
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?  □ 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)  □ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.  □ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.  □ Yes = Category I □ No = Category II  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?  □ Yes = Go to SC 2.2 ☑ No = Go to SC 2.3  SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  □ Yes = Category I ☑ No = Not a WHCV  SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  □ Yes = Contact WNHP/WDNR and go to SC 2.4 ☑ 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?  □ Yes = Category I ☑ No = Not a WHCV
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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)  At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.  The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.  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?  SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf  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?  SC 3.0. Bogs
than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25)  At least % of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.  The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.  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?  Wes – Go to SC 2.2 No – Go to SC 2.3  SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  Wes = Category I No = Not a WHCV  SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf  Wes – Contact WNHP/WDNR and go to SC 2.4 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?  Wes = Category I No = Not a WHCV
□ At least % of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. □ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. □ Yes = Category I □ No = Category II  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? □ Yes = Go to SC 2.2 ☑ No = Go to SC 2.3  SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? □ Yes = Category I ☑ No = Not a WHCV  SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf □ Yes = Contact WNHP/WDNR and go to SC 2.4 ☑ 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? □ Yes = Category I ☑ No = Not a WHCV  SC 3.0. Bogs
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SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  Yes = Category I  No = Not a WHCV  SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf  Yes = Contact WNHP/WDNR and go to SC 2.4  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?  Yes = Category I No = Not a WHCV
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Yes = Category
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a> <a href="mailto:specific style=" mailto:specific="" s<="" specific="" style="mailto:specific style: specific style=" style:="" td=""></a>
http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf  ☐ Yes - Contact WNHP/WDNR and go to SC 2.4 ☑ 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? ☐ Yes = Category I ☑ No = Not a WHCV  SC 3.0. Bogs
Tyes – Contact WNHP/WDNR and go to SC 2.4 ⊠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? □Yes = Category I ⊠No = Not a WHCV  SC 3.0. Bogs
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their website?
SC 3.0. Bogs
Does the wetland for any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key
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? $\square$ Yes – Go to SC 3.3 $\square$ 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?
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?
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?
□Yes = Is a Category I bog □No = Is not a bog

SC 4.0. Forested Wetlands	
Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? If you answer YES you will still need to rate the wetland based on its functions.  — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered	
canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.  — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).	
☐ Yes = Category I ☑No = Not a forested wetland for this section	
SC 5.0. Wetlands in Coastal Lagoons	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?  — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks  — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom)  □ Yes − Go to SC 5.1 ☑No = Not a wetland in a coastal lagoon	
<ul> <li>SC 5.1. Does the wetland meet all of the following three conditions?</li> <li>— 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).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</li> </ul>	
— The wetland is larger than $^{1}/_{10}$ ac (4350 ft <sup>2</sup> )	
Yes = Category I □No = Category II	
SC 6.0. Interdunal Wetlands	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions.  In practical terms that means the following geographic areas:  — Long Beach Peninsula: Lands west of SR 103  — Grayland-Westport: Lands west of SR 105  — Ocean Shores-Copalis: Lands west of SR 115 and SR 109	
SC 6.1. Is the wetland 1 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)?	
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?  \[ \subseteq Yes = \textbf{Category II} \] \[ \subseteq No - Go to \textbf{SC 6.3} \]	
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?	
Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number  $\underline{\mathsf{B}}$  -

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# **RATING SUMMARY – Western Washington**

Name of wetland (or ID #): C - SHDC	Date of site visit: 9/1416
Rated by Richard Peel	_Trained by Ecology? <u>✓</u> YesNo Date of training_9/29/16
HGM Class used for rating Depressional	Wetland has multiple HGM classes?Y <u>✓</u> N
NOTE: Form is not complete without Source of base aerial photo/map	ut the figures requested (figures can be combined).  Esri Arc GIS
OVERALL WETLAND CATEGORY	V (based on functions <u>✓</u> or special characteristics)
4. Cataram aforether diseased on Fi	INICTIONS

#### 1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

Category II – Total score = 20 - 22

Category III – Total score = 16 - 19

X Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the ap	propriate ratings	
Site Potential	М	M	L	
Landscape Potential	L	M	L	
Value	М	L	М	TOTAL
Score Based on Ratings	5	5	4	14

# Score for each function based on three ratings (order of ratings is not *important)* 9 = H,H,H8 = H,H,M7 = H,H,L7 = H,M,M6 = H,M,L6 = M,M,M5 = H,L,L 5 = M,M,L4 = M,L,L3 = 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	N/A	

# Maps and figures required to answer questions correctly for Western Washington

# **Depressional Wetlands**

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

#### **Riverine Wetlands**

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

# Lake Fringe Wetlands

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

## Slope Wetlands

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

# **HGM Classification of Wetlands in Western Washington**

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

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

1.	Are the water levels in the entire	e unit usually controlled	by tides except during floods?		
	▼NO – go to 2				
-	1.1 Is the salinity of the water dur	ing periods of annual lo	w flow below 0.5 ppt (parts per thousand)?		
		d as a Freshwater Tidal n <b>Estuarine</b> wetland an	☐ <b>YES - Freshwater Tidal Fringe</b> Fringe use the forms for <b>Riverine</b> wetlands. If it d is not scored. This method <b>cannot</b> be used to		
2.	The entire wetland unit is flat an and surface water runoff are NO		nly source (>90%) of water to it. Groundwater to unit.		
×	NO – go to 3  If your wetland can be classified	as a Flats wetland, use t	☐ <b>YES</b> – The wetland class is <b>Flats</b> he form for <b>Depressional</b> wetlands.		
3.	Does the entire wetland unit me  ☐The vegetated part of the wet plants on the surface at any to ☐At least 30% of the open wate	cland is on the shores of ime of the year) at least	a body of permanent open water (without any 20 ac (8 ha) in size;		
×	☑NO – go to 4 □	<b>YES –</b> The wetland class	is <b>Lake Fringe</b> (Lacustrine Fringe)		
4.	Does the entire wetland unit me The wetland is on a slope (sl The water flows through the seeps. It may flow subsurface The water leaves the wetland	ope can be very gradual wetland in one direction e, as sheetflow, or in a s	), on (unidirectional) and usually comes from wale without distinct banks,		
×	☑NO – go to 5		☐ <b>YES</b> – The wetland class is <b>Slope</b>		
	-		tlands except occasionally in very small and are usually <3 ft diameter and less than 1 ft		
5.	Does the entire wetland unit me  The unit is in a valley, or stre stream or river,  The overbank flooding occur	eam channel, where it go	ets inundated by overbank flooding from that		

• • •		
X	NO – go to 6 <b>NOTE</b> : The Riverine unit can contain depress flooding	☐ <b>YES</b> – The wetland class is <b>Riverine</b> ions that are filled with water when the river is not
6.	1 9 1	pression in which water ponds, or is saturated to the neans that any outlet, if present, is higher than the interior
	NO – go to 7	<b>▼YES</b> – The wetland class is <b>Depressional</b>
7.	flooding? The unit does not pond surface wat	t area with no obvious depression and no overbank er more than a few inches. The unit seems to be The wetland may be ditched, but has no obvious natural
X	NO – go to 8	☐ <b>YES</b> – The wetland class is <b>Depressional</b>

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

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

Wetland name or number C -

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 = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing gitch. points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing gitch. points = 1 D 1.2. The soil 2 in below the surface for duff laven is true clay or true organic fuse NRCS definitions).Yes = 4 No = 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 Wetland has persistent, ungrazed plants > ½ of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent,	DEPRESSIONAL AND FLATS WETLANDS			
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 = 1  Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing points = 1  Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing gitch.  points = 1  D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Ves = 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  Wetland has persistent, ungrazed, plants > 1 of area  Wetland has persistent, ungrazed plants > 1/10 of area  Wetland has persistent, ungrazed plants > 1/10 of area  Points = 1  Wetland has persistent, ungrazed plants > 1/10 of area  Points = 0  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 > 1/10 total area of wetland  Area seasonally ponded is > 1/10 total area of wetland  Area seasonally ponded is > 1/10 total area of wetland  Area seasonally ponded is > 1/10 total area of wetland  Area seasonally ponded is > 1/10 total area of wetland  Area seasonally ponded is > 1/10 total area of wetland  Area seasonally ponded is > 1/10 total area of wetland  Points = 0  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  D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  Yes = 1 No = 0  D 2.3. Are there septic systems within 250 ft of the wetland that are not listed in questions D 2.1. D 2.3?  O 2.5. Source Yes = 1 No = 0  D 3.0. Is	Water Quality Functions - Indicators that the site functions to improve water quality			
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.  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 has an unconstricted, or slightly constricted, surface outlet that is permanently flowing by points = 1  D 1.2. The soil 2 in below the surface (or duff laver) is true clay or true organic (use NRCS definitions). Yes = 4 No = 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  Wetland has persistent, ungrazed plants > 1/3 of area  Wetland has persistent, ungrazed plants > 1/3 of area  Wetland has persistent, ungrazed plants > 1/3 of area  Points = 1  Wetland has persistent, ungrazed plants > 1/3 of area  Points = 1  Wetland has persistent, ungrazed plants > 1/3 of area  Points = 0  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  Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is > ½ total area of wetland  Area seasonally ponded is < ½ total area of wetland  Points = 2  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  D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  Yes = 1 No = 0  D 2.3. Are there espetic systems within 250 ft of the wetland?  Yes = 1 No = 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?  Yes = 1 No = 0  D 2.3. The second the rating on the first page  D 3.0. Is the water quality improvement provided by the site valuable to s	D 1.0. Does the site have the potential to improve water quality?			
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Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1  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  D.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 > 1/10 of area points = 1 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants > 1/10 of area points = 0  D.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 = 2 Area seasonally ponded is > ½ total area of wetland points = 0  Total for D.1 Add the points in the boxes above 10  Rating of Site Potential If score is: 12-16 = H X 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  D.2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0  D.2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 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? Yes = 1 No = 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? Yes = 1 No = 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? Yes = 1 No = 0  D.2.3. Is the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(	points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.  points = 2	3		
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  Wetland has persistent, ungrazed, plants > ½, of area  Wetland has persistent, ungrazed plants > ½, of area  Wetland has persistent, ungrazed plants > ½, of area  Wetland has persistent, ungrazed plants > ½, of area  Points = 1  Wetland has persistent, ungrazed plants > ½, of area  Wetland has persistent, ungrazed plants > ½, of area  Points = 0  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  Area seasonally ponded is > ½ total area of wetland  Points = 2  Points = 0  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?  D 2.2. Is > 10% of the area within 150 ft of the wetland?  D 2.3. Are there septic systems within 250 ft of the wetland?  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				
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This is the area that is ponded for at least 2 months. See description in manual.  Area seasonally ponded is > % total area of wetland Area seasonally ponded is > % total area of wetland Area seasonally ponded is > % total area of wetland Area seasonally ponded is > % total area of wetland Area seasonally ponded is < % total area of wetland Doints = 0  Total for D 1  Add the points in the boxes above  10  Rating of Site Potential If score is: 12-16 = H	Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > $\frac{1}{2}$ of area points = 3 Wetland has persistent, ungrazed plants > $\frac{1}{10}$ of area points = 1			
Rating of Site Potential If score is:12-16 = HX_6-11 = M0-5 = L	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  Area seasonally ponded is > ½ total area of wetland  points = 2	2		
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?  D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  D 2.3. Are there septic systems within 250 ft of the wetland?  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  Yes = 1 No = 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?  Yes = 1 No = 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?  Yes = 1 No = 0  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 Yes = 1 No = 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  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 = 1 No = 0  O 0	Total for D 1 Add the points in the boxes above	10		
D 2.1. Does the wetland unit receive stormwater discharges?  Yes = 1 No = 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  D 2.3. Are there septic systems within 250 ft of the wetland?  Yes = 1 No = 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 Yes = 1 No = 0  Total for D 2  Add the points in the boxes above  O  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 Yes = 1 No = 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  O  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 = 1 No = 0  O	Rating of Site Potential If score is:12-16 = HX_6-11 = M0-5 = L Record the rating on the first	st page		
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?  D 2.3. Are there septic systems within 250 ft of the wetland?  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	D 2.0. Does the landscape have the potential to support the water quality function of the site?			
D 2.3. Are there septic systems within 250 ft of the wetland?  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	D 2.1. Does the wetland unit receive stormwater discharges? 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	D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0		
Source	D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0		
Rating of Landscape Potential If score is:3 or 4 = H1 or 2 = MX_0 = L		0		
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 Yes = 1 No = 0  D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?  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)?  O	Total for D 2 Add the points in the boxes above	0		
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 Yes = 1 No = 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  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	Rating of Landscape Potential If score is:3 or 4 = H1 or 2 = MX_0 = L	ne first page		
303(d) list?  D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?  Ves = 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)?  Ves = 2 No = 0	D 3.0. Is the water quality improvement provided by the site valuable to society?			
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		0		
if there is a TMDL for the basin in which the unit is found)?  Yes = 2 No = 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		
Total for D 3 Add the points in the boxes above 1		<sup>ES</sup> 0		
	Total for D 3 Add the points in the boxes above	1		

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:  Wetland is a depression or flat depression with no surface water leaving it (no outlet)  Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outletpoints = 2  Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch  Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing  points = 0	4		
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.  Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7  Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5  Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3  The wetland is a "headwater" wetland points = 3  Wetland is flat but has small depressions on the surface that trap water points = 1  Marks of ponding less than 0.5 ft (6 in) points = 0	3		
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.  The area of the basin is less than 10 times the area of the unit points = 5  The area of the basin is 10 to 100 times the area of the unit points = 3  The area of the basin is more than 100 times the area of the unit points = 0  Entire wetland is in the Flats class points = 5	0		
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	Jirst 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?  Yes = 1 No = 0	0		
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	0		
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.)?  Yes = 1 No = 0	1		
Total for D 5  Add the points in the boxes above	1		
Rating of Landscape Potential If score is: 3 = H X 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):  • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2  • Surface flooding problems are in a sub-basin farther down-gradient. points = 1  Flooding from groundwater is an issue in the sub-basin. points = 1  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. Explain why points = 0  There are no problems with flooding downstream of the wetland.	0		
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?			
Yes = 2 No = 0  Total for D 6  Add the points in the boxes above	0		

Rating of Value If score is:\_\_\_\_2-4 = H \_\_\_\_1 = M \_\_\_X\_0 = L

Record the rating on the first page

#### 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 3 structures: points = 2 \_x\_Emergent 1 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 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 0 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 H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. 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 1 If you counted: > 19 species points = 2 5 - 19 species points = 1 points = 0 < 5 species 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. 1 None = 0 points Moderate = 2 points Low = 1 point All three diagrams in this row are **HIGH** = 3points

	Γ			
H 1.5. Special habitat features:				
Check the habitat features that are present in the wetland. The number of checks is the number of points.				
_ x Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).				
Standing snags (dbh > 4 in) within the wetland				
Standing shags (dbh > 4 m) within the wetland Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m)				
over a stream (or ditch) in, or contiguous with the wetland, for at least 3.3 ft (1 m)				
· · · · · · · · · · · · · · · · · · ·				
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered				
where wood is exposed)				
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are				
permanently or seasonally inundated (structures for egg-laying by amphibians)				
Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of				
strata)				
Total for H 1 Add the points in the boxes above	4			
Rating of Site Potential If score is:15-18 = H7-14 = MX_0-6 = L	the first page			
H 2.0. Does the landscape have the potential to support the habitat functions of the site?				
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).				
Calculate: 2.97 % undisturbed habitat $_{-}$ + [(% moderate and low intensity land uses)/2] $_{-}^{0}$ = $_{-}^{2.97}$ %				
If total accessible habitat is:				
$> \frac{1}{3}$ (33.3%) of 1 km Polygon points = 3	0			
20-33% of 1 km Polygon points = 2				
10-19% of 1 km Polygon points = 1				
< 10% of 1 km Polygon points = 0				
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.				
Calculate: % undisturbed habitat $\frac{7.16}{}$ + [(% moderate and low intensity land uses)/2] $\frac{9.87}{}$ = $\frac{17.03}{}$ %				
Undisturbed habitat > 50% of Polygon points = 3				
Undisturbed habitat 10-50% and in 1-3 patches points = 2	1			
Undisturbed habitat 10-50% and > 3 patches points = 1				
Undisturbed habitat < 10% of 1 km Polygon points = 0				
H 2.3. Land use intensity in 1 km Polygon: If				
> 50% of 1 km Polygon is high intensity land use points = (- 2)	-2			
≤ 50% of 1 km Polygon is high intensity points = 0				
Total for H 2 Add the points in the boxes above	-1			
Rating of Landscape Potential If score is:4-6 = H1-3 = MX < 1 = L	he first page			
H 3.0. Is the habitat provided by the site valuable to society?	<u> </u>			
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score				
that applies to the wetland being rated.				
Site meets ANY of the following criteria: points = 2				
<ul> <li>— It has 3 or more priority habitats within 100 m (see next page)</li> </ul>				
<ul> <li>It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</li> </ul>				
— It is mapped as a location for an individual WDFW priority species				
— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources				
— It has been categorized as an important habitat site in a local or regional comprehensive plan, in a				
Shoreline Master Plan, or in a watershed plan				
× Site has 1 or 2 priority habitats (listed on next page) within 100 m  points = 1				
Site does not meet any of the criteria above points = 0				

Rating of Value If score is:  $2 = H \times 1 = M = 0 = L$ 

Record the rating on the first page

## **WDFW Priority Habitats**

<u>Priority habitats listed by WDFW</u> (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. <a href="http://wdfw.wa.gov/publications/00165/wdfw00165.pdf">http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</a> or access the list from here: <a href="http://wdfw.wa.gov/conservation/phs/list/">http://wdfw.wa.gov/conservation/phs/list/</a>)

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
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
☐ The dominant water regime is tidal,	
Vegetated, and	
☐ With a salinity greater than 0.5 ppt ☐ Yes –Go to <b>SC 1.1</b> ☑ No= <b>Not an estuarine wetland</b>	
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?	
☐Yes = Category I ☐No - Go to SC 1.2	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
$\square$ 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 Spartina, see page 25)	
$\square$ At least $rac{\pi}{4}$ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-	
mowed grassland.	
The wetland has at least two of the following features: tidal channels, depressions with open water, or	
contiguous freshwater wetlands. ☐Yes = Category I ☐No = Category II	
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?	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
☐Yes = Category I ☑No = Not a WHCV	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	
http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	
☐ Yes – Contact WNHP/WDNR and go to SC 2.4 図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? ☐Yes = Category I ☑No = Not a WHCV	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
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?	
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? $\square$ Yes – Go to SC 3.3 $\square$ 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? $\square$ Yes = Is a Category I bog $\square$ No – Go to SC 3.4	
<b>NOTE:</b> 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?	
☐Yes = Is a Category I bog ☐No = Is not a bog	

Wetland name or number  $\underline{C}$  -

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

Wetland name or number C -

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# **RATING SUMMARY – Western Washington**

Name of wetland (or ID #): D - SHDC	Date of site visit: 9/1416
Rated by Richard Peel	_ Trained by Ecology? <u>✓</u> YesNo Date of training 9/29/16
HGM Class used for rating Depressional	Wetland has multiple HGM classes?Y <u>✓</u> N
NOTE: Form is not complete witho Source of base aerial photo/map	out the figures requested (figures can be combined).  Esri Arc GIS
OVERALL WETLAND CATEGORY	IV (based on functions <u>✓</u> or special characteristics)

### 1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

Category II – Total score = 20 - 22

Category III – Total score = 16 - 19

X Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	L	L	L	
Landscape Potential	М	М	L	
Value	М	L	М	TOTAL
Score Based on Ratings	5	4	4	13

### Score for each function based on three ratings (order of ratings is not *important)* 9 = H,H,H8 = H,H,M7 = H,H,L7 = H,M,M 6 = H,M,L6 = M,M,M5 = H,L,L 5 = M,M,L4 = M, L, L3 = 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		I	
Coastal Lagoon	I	II	
Interdunal	I II	III IV	
None of the above	N/A		

# Maps and figures required to answer questions correctly for Western Washington

### **Depressional Wetlands**

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

### **Riverine Wetlands**

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

### Lake Fringe Wetlands

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

### Slope Wetlands

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

# **HGM Classification of Wetlands in Western Washington**

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

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

1.	Are the water levels in the e	entire unit usually controll	ed by tides except during floods?	
Σ	NO – go to 2	☐ <b>YES</b> – the we	etland class is <b>Tidal Fringe</b> – 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)?	
ſ	,	sified as a Freshwater Tide t is an <b>Estuarine</b> wetland o	<b>YES - Freshwater Tidal Fringe</b> all Fringe use the forms for <b>Riverine</b> wetlands. If it and is not scored. This method <b>cannot</b> be used to	t
2.	The entire wetland unit is fland surface water runoff are		only source (>90%) of water to it. Groundwater the unit.	ſ
X	]NO – go to 3 <i>If your wetland can be classi</i> j	fied as a Flats wetland, use	☐ <b>YES</b> – The wetland class is <b>Flats</b> ethe form for <b>Depressional</b> wetlands.	
3.	•	wetland is on the shores ny time of the year) at lea	of a body of permanent open water (without any st 20 ac (8 ha) in size;	r
X	]NO – go to 4	☐ <b>YES</b> – The wetland cla	ss is <b>Lake Fringe</b> (Lacustrine Fringe)	
4.	_	e ( <i>slope can be very gradu</i> n the wetland in one direct arface, as sheetflow, or in a	al), tion (unidirectional) and usually comes from a swale without distinct banks,	
X	]NO – go to 5		☐ <b>YES</b> – The wetland class is <b>Slope</b>	
		2	vetlands except occasionally in very small and ns are usually <3 ft diameter and less than 1 ft	
5.	Does the entire wetland uni The unit is in a valley, or stream or river, The overbank flooding of	stream channel, where it	gets inundated by overbank flooding from that	
	9	•		

We	etland name or number D -	
$\overline{}$	☑NO – go to 6  NOTE: The Riverine unit can contain depressior flooding	☐ <b>YES</b> – The wetland class is <b>Riverine</b> as that are filled with water when the river is not
6.		ession in which water ponds, or is saturated to the ans that any outlet, if present, is higher than the interior
	☐ NO – go to 7	▼YES – The wetland class is <b>Depressional</b>
7.	Is the entire wetland unit located in a very flat a flooding? The unit does not pond surface water maintained by high groundwater in the area. Thoutlet.	<u>*</u>
X	☑NO – go to 8	☐ <b>YES</b> – The wetland class is <b>Depressional</b>

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	HGM class to
being rated	use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	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	r quality	
D 1.0. Does the site have the potential to improve water quality?		
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing ou	oints = 3	2
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing power wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	oints = 1 oints = 1	•
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4		0
Wetland has persistent, ungrazed, plants > $\frac{1}{10}$ of area  Wetland has persistent, ungrazed plants > $\frac{1}{10}$ of area	oints = 5	3
Area seasonally ponded is > ¼ total area of wetland po	oints = 4 oints = 2 oints = 0	0
Total for D 1 Add the points in the boxe	es above	5
Rating of Site Potential If score is:12-16 = H6-11 = M $\times$ _0-5 = L Record the rating of	on the first pag	ge
D 2.0. Does the landscape have the potential to support the water quality function of the site?		
	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?	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 Source Yes = 1	2.3? No = 0	0
Total for D 2 Add the points in the boxe	es above	1
Rating of Landscape Potential If score is:3 or 4 = HX_1 or 2 = M0 = L Record the rat	ting on the firs	st 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 a 303(d) list?	on the 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 (a if there is a TMDL for the basin in which the unit is found)?  Yes = 2	nnswer YES No = 0	0
Total for D 3 Add the points in the boxe	es above	1
<b>Rating of Value</b> If score is: $2-4 = H \times 1 = M$ $0 = L$ Record the rating on the figure 1.	irst nage	

DEPRESSIONAL AND FLATS WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation	ion
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:  Wetland is a depression or flat depression with no surface water leaving it (no outlet)  Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outletpoints = 2  Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch  Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing  points = 0	2
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.  Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7  Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5  Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3  The wetland is a "headwater" wetland points = 3  Wetland is flat but has small depressions on the surface that trap water points = 1  Marks of ponding less than 0.5 ft (6 in)	3
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.  The area of the basin is less than 10 times the area of the unit points = 5  The area of the basin is 10 to 100 times the area of the unit points = 3  The area of the basin is more than 100 times the area of the unit points = 0  Entire wetland is in the Flats class points = 5	0
Total for D 4 Add the points in the boxes above  Rating of Site Potential If score is: 12-16 = H 6-11 = M × 0-5 = L  Record the rating on the	5
	Jiist 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?  Yes = 1 No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 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.)?  Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	2
Rating of Landscape Potential If score is: 3 = H X 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):  • Flooding occurs in a sub-basin that is immediately down-gradient of unit.  • Surface flooding problems are in a sub-basin farther down-gradient.  Flooding from groundwater is an issue in the sub-basin.  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. Explain why points = 0  There are no problems with flooding downstream of the wetland.	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	
Yes = 2 No = 0	0
Total for D 6 Add the points in the boxes above	0

Rating of Value If score is:\_\_\_\_2-4 = H \_\_\_\_1 = M \_\_\_X\_0 = L

Record the rating on the first page

#### 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 3 structures: points = 2 \_\_\_Emergent 0 \_\_\_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 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 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 H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. 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 0 If you counted: > 19 species points = 2 5 - 19 species points = 1 points = 0 < 5 species 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. 0 None = 0 points Moderate = 2 points Low = 1 point All three diagrams in this row are **HIGH** = 3points

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
_x_Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
Standing snags (dbh > 4 in) within the wetland	
Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m)	
over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)	1
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree	
slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered	
where wood is exposed)	
$\_\_$ At least $rac{1}{4}$ ac of thin-stemmed persistent plants or woody branches are present in areas that are	
permanently or seasonally inundated (structures for egg-laying by amphibians)	
Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of	
strata)	
Total for H 1 Add the points in the boxes above	2
Rating of Site Potential If score is:15-18 = H7-14 = M $\times$ _0-6 = L Record the rating on	the first page
H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
Calculate: 2.97 % undisturbed habitat $+$ [(% moderate and low intensity land uses)/2] $+$ $+$ $+$ $+$ $+$ $+$ $+$ $+$ $+$ $+$	
If total accessible habitat is:	
$> \frac{1}{3}$ (33.3%) of 1 km Polygon points = 3	
20-33% of 1 km Polygon points = 2	0
10-19% of 1 km Polygon points = 1	
< 10% of 1 km Polygon points = 0	
·	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.  **Calculate: % undisturbed habitat $\frac{7.16}{}$ + [(% moderate and low intensity land uses)/2] $\frac{9.87}{}$ = $\frac{17.03}{}$ %	
Undisturbed habitat > 50% of Polygon points = 3	1
Undisturbed habitat 10-50% and in 1-3 patches points = 2	
Undisturbed habitat 10-50% and > 3 patches points = 1	
Undisturbed habitat < 10% of 1 km Polygon points = 0	
H 2.3. Land use intensity in 1 km Polygon: If	2
> 50% of 1 km Polygon is high intensity land use points = (-2)	-2
≤ 50% of 1 km Polygon is high intensity points = 0	
Total for H 2 Add the points in the boxes above	-1
Rating of Landscape Potential If score is:4-6 = H1-3 = MX < 1 = L	he first page
H 3.0. Is the habitat provided by the site valuable to society?	-
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score	
that applies to the wetland being rated.	
Site meets ANY of the following criteria: points = 2	
It has 3 or more priority habitats within 100 m (see next page)	
It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)	1
It is mapped as a location for an individual WDFW priority species	1
It is a Wetland of High Conservation Value as determined by the Department of Natural Resources	1
<ul> <li>It has been categorized as an important habitat site in a local or regional comprehensive plan, in a</li> </ul>	
Shoreline Master Plan, or in a watershed plan	
× Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1	
Site does not meet any of the criteria above	1

Rating of Value If score is:  $2 = H \times 1 = M = 0 = L$ 

Record the rating on the first page

## **WDFW Priority Habitats**

<u>Priority habitats listed by WDFW</u> (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. <a href="http://wdfw.wa.gov/publications/00165/wdfw00165.pdf">http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</a> or access the list from here: <a href="http://wdfw.wa.gov/conservation/phs/list/">http://wdfw.wa.gov/conservation/phs/list/</a>)

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
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
☐ The dominant water regime is tidal,	
☐ Vegetated, and	
☐ With a salinity greater than 0.5 ppt ☐ Yes –Go to <b>SC 1.1</b> ☑ No= <b>Not an estuarine wetland</b>	
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?	
$\square$ Yes = Category I $\square$ No - Go to SC 1.2	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
$\square$ 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 Spartina, see page 25)	
At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.	
The wetland has at least two of the following features: tidal channels, depressions with open water, or	
contiguous freshwater wetlands.   The wetland has at least two of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the following features: tidal chambers, depressions with open water, of the features water, depressions with open water, of the features water, depressions with open water, depressions with the features water, depressions with the features water water, depressions with the features water water, depressions with the features water water water, depressions with the features water wat	
contiguous resirvater wetianas.	
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?	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
☐Yes = Category I ☑No = Not a WHCV	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>	
Tes – Contact WNHP/WDNR and go to SC 2.4 ⊠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? ☐Yes = Category I ☑No = Not a WHCV	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
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?	
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? $\square$ Yes – Go to SC 3.3 $\square$ 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?	
<b>NOTE:</b> 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?	
Yes = Is a Category I bog \( \subseteq \text{In ot a bog} \)	

Wetland name or number  $\underline{D}$  -

SC 4.0. Forested Wetlands	
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>	
<ul> <li>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.</li> <li>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).</li> </ul>	
☐ Yes = Category I ☑No = Not a forested wetland for this section	
SC 5.0. Wetlands in Coastal Lagoons	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?  — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks  — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom)  □ Yes − Go to SC 5.1 ⊠No = Not a wetland in a coastal lagoon  SC 5.1. Does the wetland meet all of the following three conditions?  — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).  — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.  — The wetland is larger than ¹/₁₀ ac (4350 ft²)  □ Yes = Category I □ No = Category II	
SC 6.0. Interdunal Wetlands	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions.  In practical terms that means the following geographic areas:  — Long Beach Peninsula: Lands west of SR 103  — Grayland-Westport: Lands west of SR 105  — Ocean Shores-Copalis: Lands west of SR 115 and SR 109	
SC 6.1. Is the wetland 1 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)?  SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?  SC 6.3. SC 6.4. SC 6.5. S	
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?	
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number  $\underline{\mathsf{D}}$  -

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# **RATING SUMMARY – Western Washington**

Name of wetland (or ID #): E - SHDC	Date of site visit: 4/24/18
Rated by Richard Peel	Trained by Ecology? <u>~</u> YesNo Date of training_9/29/16
HGM Class used for rating Slope	Wetland has multiple HGM classes?Y <u>✓</u> N
NOTE: Form is not complete with Source of base aerial photo/ma	ap Esri Arc GIS
OVERALL WETLAND CATEGORY _	IV (based on functions <u>v</u> or special characteristics)

### 1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

Category II – Total score = 20 - 22

Category III – Total score = 16 - 19

X Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the ap	propriate ratings	
Site Potential	L	L	L	
Landscape Potential	М	М	L	
Value	М	L	М	TOTAL
Score Based on Ratings	5	4	4	13

### Score for each function based on three ratings (order of ratings is not *important)* 9 = H,H,H8 = H,H,M7 = H,H,L7 = H,M,M6 = H,M,L6 = M,M,M5 = H,L,L 5 = M,M,L4 = M, L, L3 = 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	N/A	

# Maps and figures required to answer questions correctly for Western Washington

### **Depressional Wetlands**

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

### **Riverine Wetlands**

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

### Lake Fringe Wetlands

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

### Slope Wetlands

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

# **HGM Classification of Wetlands in Western Washington**

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

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

1.	Are the water levels in the	entire unit usually contro	lled by tides except during floods?
Σ	☑NO – go to 2	YES – the w	vetland class is <b>Tidal Fringe</b> – go to 1.1
1	1.1 Is the salinity of the wate	er during periods of annua	al low flow below 0.5 ppt (parts per thousand)?
		assified as a Freshwater Tid it is an <b>Estuarine</b> wetland	☐ <b>YES - Freshwater Tidal Fringe</b> dal Fringe use the forms for <b>Riverine</b> wetlands. If it and is not scored. This method <b>cannot</b> be used to
2.	The entire wetland unit is and surface water runoff a		ne only source (>90%) of water to it. Groundwater to the unit.
×	NO – go to 3  If your wetland can be class	sified as a Flats wetland, u	<b>TYES</b> – The wetland class is <b>Flats</b> se the form for <b>Depressional</b> wetlands.
3.		e wetland is on the shore any time of the year) at le	s of a body of permanent open water (without any east 20 ac (8 ha) in size;
×	NO – go to 4	<b>YES</b> – The wetland c	ass is <b>Lake Fringe</b> (Lacustrine Fringe)
4.		pe (slope can be very grad gh the wetland in one dire surface, as sheetflow, or in	ual), ction (unidirectional) and usually comes from a swale without distinct banks,
	]NO – go to 5		▼YES – The wetland class is Slope
			wetlands except occasionally in very small and ions are usually <3 ft diameter and less than 1 ft
5.	Does the entire wetland up.  The unit is in a valley, of stream or river,  The overbank flooding	or stream channel, where	it gets inundated by overbank flooding from that

Wε	cland name or number <u>E -</u>
X	NO – go to 6  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 interioof the wetland.
X	NO – go to 7
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 natura outlet.
X	NO – go to 8

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	HGM class to
being rated	use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	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: (a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)  Slope is 1% or less  Slope is > 1%-2%  Slope is > 2%-5%  Slope is > 2%-5%	1
Slope is greater than 5% points = 0  S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants:  Choose the points appropriate for the description that best fits the plants in the wetland. Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.	2
Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 2 Dense, woody, plants > ½ of area points = 1 Does not meet any of the criteria above for plants points = 0	2
Total for S 1 Add the points in the boxes above	3
Rating of Site Potential If score is:12 = H6-11 = MX_0-5 = L	the first page

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

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

Record the rating on the first page

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

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

Record the rating on the first page

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream eros	sion
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually > \frac{1}{8} in), or dense enough, to remain erect during surface flows.  Dense, uncut, rigid plants cover > 90% of the area of the wetland All other conditions  points = 0	0
Rating of Site Potential If score is: $1 = M$ $\times 0 = L$ Record the rating on	the first page
S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = $1 \text{ No} = 0$	1
Rating of Landscape Potential If score is: X 1 = M0 = L Record the rating on	the first page
S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems:  The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)  Surface flooding problems are in a sub-basin farther down-gradient  No flooding problems anywhere downstream  points = 0	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = $2 No = 0$	0
Total for S 6 Add the points in the boxes above	0

Rating of Value If score is: \_\_\_2-4 = H \_\_\_\_1 = M \_\_\_X\_0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

#### 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 3 structures: points = 2 \_\_\_Emergent 1 \_\_\_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 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 0 × 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 H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. 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 0 If you counted: > 19 species points = 2 5 - 19 species points = 1 points = 0 < 5 species 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. 0 None = 0 points Moderate = 2 points Low = 1 point All three diagrams in this row are **HIGH** = 3points

H 1.5. Special habitat features:		
Check the habitat features that are present in the wetland. The number of checks is the	e number of points.	
_x_Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).		
Standing snags (dbh > 4 in) within the wetland		
Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants ex	, ,	0
over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 r		2
Stable steep banks of fine material that might be used by beaver or muskrat for d	enning (> 30 degree	
slope) OR signs of recent beaver activity are present (cut shrubs or trees that hav	e not yet weathered	
where wood is exposed)		
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in	areas that are	
permanently or seasonally inundated (structures for egg-laying by amphibians)		
Invasive plants cover less than 25% of the wetland area in every stratum of plants	s (see H 1.1 for list of	
strata)		_
	oints 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
$\mbox{\rm H~2.0.}$ Does the landscape have the potential to support the habitat functions of the	site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).		
Calculate: 2.97 % undisturbed habitat + [(% moderate and low intensity land u	[ses]/2]0 = 2.97 %	
If total accessible habitat is:		
$> \frac{1}{3}$ (33.3%) of 1 km Polygon	points = 3	0
20-33% of 1 km Polygon	points = 2	ľ
10-19% of 1 km Polygon	points = 1	
< 10% of 1 km Polygon	points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	· · · · · · · · · · · · · · · · · · ·	
Calculate: % undisturbed habitat 7.16 + [(% moderate and low intensity land u	ises)/2] 9.87 = 17.03 %	
Undisturbed habitat > 50% of Polygon	points = 3	
Undisturbed habitat 10-50% and in 1-3 patches	points = 2	1
Undisturbed habitat 10-50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3. Land use intensity in 1 km Polygon: If	points o	
> 50% of 1 km Polygon is high intensity land use	points = (- 2)	-2
≤ 50% of 1 km Polygon is high intensity	points = 0	_
, , , , , , , , , , , , , , , , , , , ,	•	1
Total for H 2 Add the po  Rating of Landscape Potential If score is: 4-6 = H 1-3 = M X < 1 = L	oints in the boxes above  Record the rating on t	the first nage
Rating of Landscape Fotential in Score is4-0 = ii1-3 = iii1-1 = L	Record the rating on t	ne jiist page
H 3.0. Is the habitat provided by the site valuable to society?		
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose	se only the highest score	
that applies to the wetland being rated.		
Site meets ANY of the following criteria:	points = 2	
<ul> <li>It has 3 or more priority habitats within 100 m (see next page)</li> </ul>		
<ul> <li>It provides habitat for Threatened or Endangered species (any plant or animal on the</li> </ul>	the state or federal lists)	
<ul> <li>It is mapped as a location for an individual WDFW priority species</li> </ul>		1
<ul> <li>It is a Wetland of High Conservation Value as determined by the Department of Na</li> </ul>	atural Resources	
<ul> <li>It has been categorized as an important habitat site in a local or regional compreh</li> </ul>	ensive plan, in a	
Shoreline Master Plan, or in a watershed plan		
<ul> <li>Site has 1 or 2 priority habitats (listed on next page) within 100 m</li> </ul>	points = 1	
Site does not meet any of the criteria above	points = 0	
Rating of Value If score is: 2 = H X 1 = M 0 = L	Record the rating on	the first page

## **WDFW Priority Habitats**

<u>Priority habitats listed by WDFW</u> (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. <a href="http://wdfw.wa.gov/publications/00165/wdfw00165.pdf">http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</a> or access the list from here: <a href="http://wdfw.wa.gov/conservation/phs/list/">http://wdfw.wa.gov/conservation/phs/list/</a>)

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
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
☐ The dominant water regime is tidal,	
☐ Vegetated, and	
☐ With a salinity greater than 0.5 ppt ☐ Yes –Go to <b>SC 1.1</b> ☒ No= <b>Not an estuarine wetland</b>	
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?	
$\square$ Yes = Category I $\square$ No - Go to SC 1.2	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
☐ 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 Spartina, see page 25)	
At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.	
The wetland has at least two of the following features: tidal channels, depressions with open water, or	
contiguous freshwater wetlands.     Yes = Category     No = Category	
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?	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
☐Yes = Category I ☑No = Not a WHCV	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>	
Yes — Contact WNHP/WDNR and go to SC 2.4 ⊠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?	
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</i>	
below. If you answer YES you will still need to rate the wetland based on its functions.	
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?	
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?	
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?	
<b>NOTE:</b> 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?	
☐Yes = Is a Category I bog ☐No = Is not a bog	

Wetland name or number E -

SC 4.0. Forested Wetlands	
Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? If you answer YES you will still need to rate the wetland based on its functions.  — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered	
canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.  — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).	
☐ Yes = Category I ☑No = Not a forested wetland for this section	
SC 5.0. Wetlands in Coastal Lagoons	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?  — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks  — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom)  □ Yes − Go to SC 5.1 ☑No = Not a wetland in a coastal lagoon	
<ul> <li>SC 5.1. Does the wetland meet all of the following three conditions?</li> <li>— 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).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</li> </ul>	
— The wetland is larger than $^{1}/_{10}$ ac (4350 ft <sup>2</sup> )	
Yes = Category I □No = Category II	
SC 6.0. Interdunal Wetlands	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions.  In practical terms that means the following geographic areas:  — Long Beach Peninsula: Lands west of SR 103  — Grayland-Westport: Lands west of SR 105  — Ocean Shores-Copalis: Lands west of SR 115 and SR 109	
SC 6.1. Is the wetland 1 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)? $\square \text{Yes} = \text{Category I}  \square \text{No} - \text{Go to SC 6.2}$	
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?  \[ \subseteq Yes = \textbf{Category II} \] \[ \subseteq No - Go to \textbf{SC 6.3} \]	
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?	
Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number E -

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# **RATING SUMMARY – Western Washington**

Name of wetland (or ID #): F - SHDC	Date of site visit: 9/15/16
Rated by Richard Peel	Trained by Ecology? <u>~</u> YesNo Date of training_9/29/16
HGM Class used for rating Slope	Wetland has multiple HGM classes?Y <u>✓</u> N
NOTE: Form is not complete with Source of base aerial photo/ma	out the figures requested (figures can be combined).  ap Esri Arc GIS
OVERALL WETLAND CATEGORY _	

### 1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

Category II – Total score = 20 - 22

Category III – Total score = 16 - 19

X Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the ap	propriate ratings	
Site Potential	L	L	L	
Landscape Potential	М	М	L	
Value	М	L	М	TOTAL
Score Based on Ratings	5	4	4	13

### Score for each function based on three ratings (order of ratings is not *important)* 9 = H,H,H8 = H,H,M7 = H,H,L7 = H,M,M 6 = H,M,L6 = M,M,M5 = H,L,L 5 = M,M,L4 = M, L, L3 = 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	N/A	

# Maps and figures required to answer questions correctly for Western Washington

### **Depressional Wetlands**

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

### **Riverine Wetlands**

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

### Lake Fringe Wetlands

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

### Slope Wetlands

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

# **HGM Classification of Wetlands in Western Washington**

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

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

1.	Are the water levels in the	entire unit usually control	lled by tides except during floods?	
Σ	☑NO – go to 2	YES – the w	etland class is <b>Tidal Fringe</b> – go to 1.1	
1	1.1 Is the salinity of the wate	r during periods of annua	l low flow below 0.5 ppt (parts per thousa	nd)?
ļ	, <u>, , , , , , , , , , , , , , , , , , </u>	ssified as a Freshwater Tid it is an <b>Estuarine</b> wetland	☐ YES – Freshwater Tidal Fringe lal Fringe use the forms for Riverine wetland and is not scored. This method cannot be use	-
2.	The entire wetland unit is fand surface water runoff an		e only source (>90%) of water to it. Ground the unit.	ndwater
X	]NO – go to 3 <i>If your wetland can be class</i>	ified as a Flats wetland, us	☐ <b>YES</b> – The wetland class is <b>Flats</b> se the form for <b>Depressional</b> wetlands.	
3.	•	e wetland is on the shores any time of the year) at lea	of a body of permanent open water (with ast 20 ac (8 ha) in size;	out any
X	NO – go to 4	<b>■YES</b> - The wetland cla	ass is <b>Lake Fringe</b> (Lacustrine Fringe)	
4.	_	pe (slope can be very gradu th the wetland in one direc urface, as sheetflow, or in	ual), ction (unidirectional) and usually comes fr a swale without distinct banks,	rom
	]NO – go to 5		▼YES - The wetland class is Slope	
			wetlands except occasionally in very smallons are usually <3 ft diameter and less tha	
5.	Does the entire wetland un  ☐The unit is in a valley, o stream or river, ☐The overbank flooding	r stream channel, where i	t gets inundated by overbank flooding from	m that
	O		~	

We	land name or number <u>F - </u>
	NO – go to 6  OTE: The Riverine unit can contain depressions that are filled with water when the river is not looding
6.	s the entire wetland unit in a topographic depression in which water ponds, or is saturated to the curface, at some time during the year? This means that any outlet, if present, is higher than the interior of the wetland.
X	NO – go to 7 <b>YES</b> – The wetland class is <b>Depressional</b>
7.	s the entire wetland unit located in a very flat area with no obvious depression and no overbank looding? The unit does not pond surface water more than a few inches. The unit seems to be naintained by high groundwater in the area. The wetland may be ditched, but has no obvious naturated.
X	NO – go to 8

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	HGM class to
being rated	use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	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: (a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)  Slope is 1% or less points = 3  Slope is > 1%-2% points = 2  Slope is > 2%-5% points = 1  Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants:  Choose the points appropriate for the description that best fits the plants in the wetland. Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.  Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants	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? Yes = 1  No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?  Other sources Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

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

Record the rating on the first page

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

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

Record the rating on the first page

SLOPE WETLANDS  Hydrologic Functions - Indicators that the site functions to reduce flooding and stream ero	sion
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually > \frac{1}{8} in), or dense enough, to remain erect during surface flows.  Dense, uncut, rigid plants cover > 90% of the area of the wetland All other conditions  Rating of Site Potential If score is:1 = MX_0 = L  Record the rating of the surface flows appropriate for the description that best fits conditions that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually > \frac{1}{8} in), or dense enough, to remain erect during surface flows.  Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1  All other conditions	0 the first page
S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?  Yes = 1 No = 0	1
Rating of Landscape Potential If score is: X 1 = M0 = L Record the rating on	the first page
S 6.0. Are the hydrologic functions provided by the site valuable to society?	_
S 6.1. Distance to the nearest areas downstream that have flooding problems:	

The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or

S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

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

natural resources (e.g., houses or salmon redds)

No flooding problems anywhere downstream

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

Record the rating on the first page

points = 2

points = 1

points = 0

 $Yes = 2 \quad No = 0$ 

Add the points in the boxes above

0

0

0

**NOTES and FIELD OBSERVATIONS:** 

Total for S 6

### 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 3 structures: points = 2 \_\_\_Emergent 0 \_\_\_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 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 0 × 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 H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. 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 1 If you counted: > 19 species points = 2 5 - 19 species points = 1 points = 0 < 5 species 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. 0 None = 0 points Moderate = 2 points Low = 1 point All three diagrams in this row are **HIGH** = 3points

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
Standing snags (dbh > 4 in) within the wetland	
Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m)	
over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)	1
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree	
slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered	
where wood is exposed)	
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are	
permanently or seasonally inundated (structures for egg-laying by amphibians)	
Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of	
Strata)  Add the points in the boxes above	0
Total for H 1 Add the points in the boxes above	2
Rating of Site Potential If score is: 15-18 = H 7-14 = M × 0-6 = L Record the rating on	the first page
H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
Calculate: 2.97 % undisturbed habitat $+[(\% \text{ moderate and low intensity land uses})/2]^0 = 2.97 %$	
If total accessible habitat is:	
$> \frac{1}{3}$ (33.3%) of 1 km Polygon points = 3	0
20-33% of 1 km Polygon points = 2	
10-19% of 1 km Polygon points = 1	
< 10% of 1 km Polygon points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	
Calculate: % undisturbed habitat $\frac{7.16}{}$ + [(% moderate and low intensity land uses)/2] $\frac{9.87}{}$ = $\frac{17.03}{}$ %	
Undisturbed habitat > 50% of Polygon points = 3	
Undisturbed habitat 10-50% and in 1-3 patches points = 2	1
Undisturbed habitat 10-50% and > 3 patches points = 1	
Undisturbed habitat < 10% of 1 km Polygon points = 0	
H 2.3. Land use intensity in 1 km Polygon: If	
> 50% of 1 km Polygon is high intensity land use points = (-2)	-2
	_
	4
Total for H 2 Add the points in the boxes above	-1
Rating of Landscape Potential If score is:4-6 = H1-3 = MX < 1 = L	he first page
H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score	
that applies to the wetland being rated.	
Site meets ANY of the following criteria: points = 2	
It has 3 or more priority habitats within 100 m (see next page)	
— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)	
— It is mapped as a location for an individual WDFW priority species	1
— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources	
— It has been categorized as an important habitat site in a local or regional comprehensive plan, in a	
Shoreline Master Plan, or in a watershed plan	
× Site has 1 or 2 priority habitats (listed on next page) within 100 m	
Site does not meet any of the criteria above points = 0	
points = 0	ı

Rating of Value If score is:  $2 = H \times 1 = M = 0 = L$ 

Record the rating on the first page

# **WDFW Priority Habitats**

<u>Priority habitats listed by WDFW</u> (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. <a href="http://wdfw.wa.gov/publications/00165/wdfw00165.pdf">http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</a> or access the list from here: <a href="http://wdfw.wa.gov/conservation/phs/list/">http://wdfw.wa.gov/conservation/phs/list/</a>)

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 F -

# **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
☐ The dominant water regime is tidal,	
Vegetated, and	
☐ With a salinity greater than 0.5 ppt ☐ Yes –Go to <b>SC 1.1</b> ☑ No= <b>Not an estuarine wetland</b>	
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?	
☐Yes = Category I ☐No - Go to SC 1.2	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
$\square$ 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 Spartina, see page 25)	
At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-	
mowed grassland.	
The wetland has at least two of the following features: tidal channels, depressions with open water, or	
contiguous freshwater wetlands. ☐Yes = Category I ☐No = Category II	
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?	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
☐Yes = Category I ☑No = Not a WHCV	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	
http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	
☐ Yes – Contact WNHP/WDNR and go to SC 2.4 図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?  ☐Yes = Category I ☑No = Not a WHCV	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
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?	
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?  ☐ Yes – Go to <b>SC 3.3</b> ☑ No = <b>Is not a bog</b>	
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? ☐Yes = Is a Category I bog ☐No − Go to SC 3.4	
<b>NOTE:</b> 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?	
☐Yes = Is a Category I bog ☐No = Is not a bog	

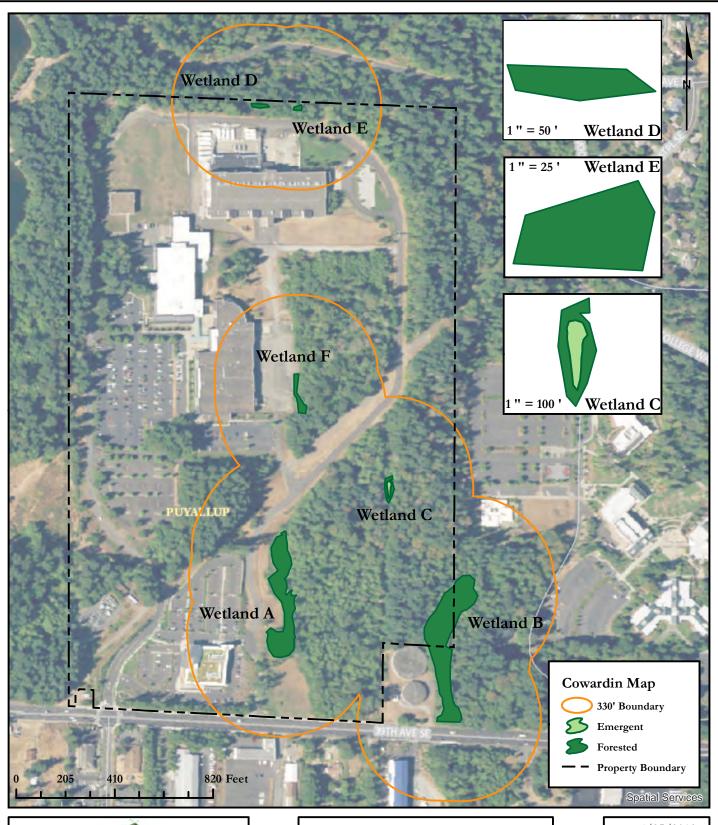
Wetland name or number F -

SC 4.0. Forested Wetlands	
Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? If you answer YES you will still need to rate the wetland based on its functions.  — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered	
canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.  — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).	
☐ Yes = Category I ☑No = Not a forested wetland for this section	
SC 5.0. Wetlands in Coastal Lagoons	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?  — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks  — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom)  □ Yes − Go to SC 5.1 ☑No = Not a wetland in a coastal lagoon	
SC 5.1. Does the wetland meet all of the following three conditions?  — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).  — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-	
mowed grassland.  — The wetland is larger than $^{1}/_{10}$ ac (4350 ft <sup>2</sup> )	
— The wetland is larger than 7 <sub>10</sub> at (4550 ft )  ☐Yes = Category I ☐No = Category II	
SC 6.0. Interdunal Wetlands	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions.  In practical terms that means the following geographic areas:  — Long Beach Peninsula: Lands west of SR 103  — Grayland-Westport: Lands west of SR 105  — Ocean Shores-Copalis: Lands west of SR 115 and SR 109	
SC 6.1. Is the wetland 1 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)?  \[ \textstyle \texts	
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?  \[ \subseteq Yes = \textbf{Category II} \] \[ \subseteq No - Go to \textbf{SC 6.3} \]	
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?	
Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number F -

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# Appendix F — Wetland Rating Maps





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### SOUTH HILL DATA CENTER

1015 - 1025 39TH AVENUE SE PUYALLUP, WA 98374

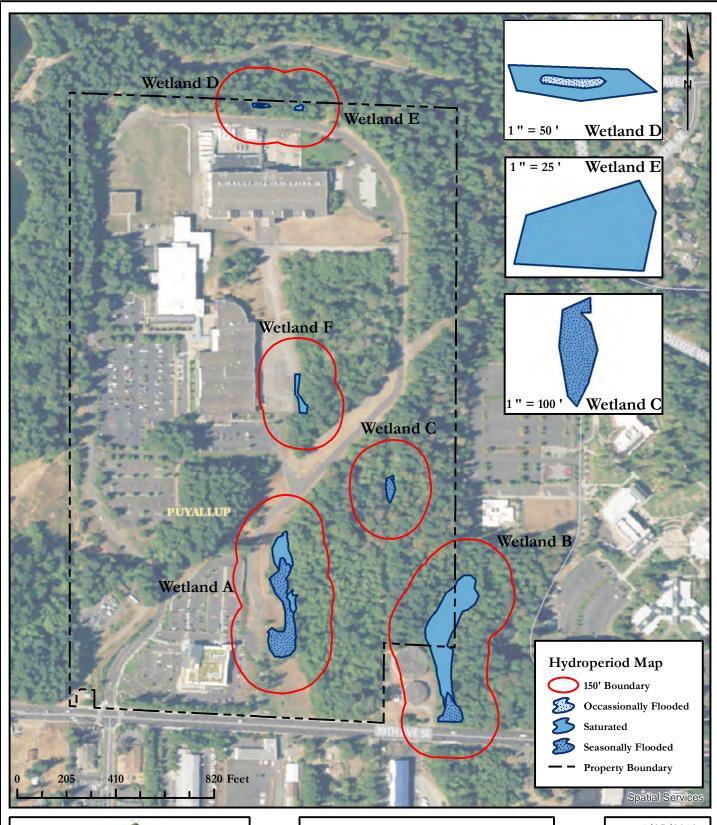
PIERCE COUNTY PARCEL NUMBER: 0419034031, 0419034032, & 0419034034

DATE: 4/25/2018
ЮВ: 1077.0012

BY: DLS

SCALE: 1 " = 400 '

FIGURE NO. 1 of 5





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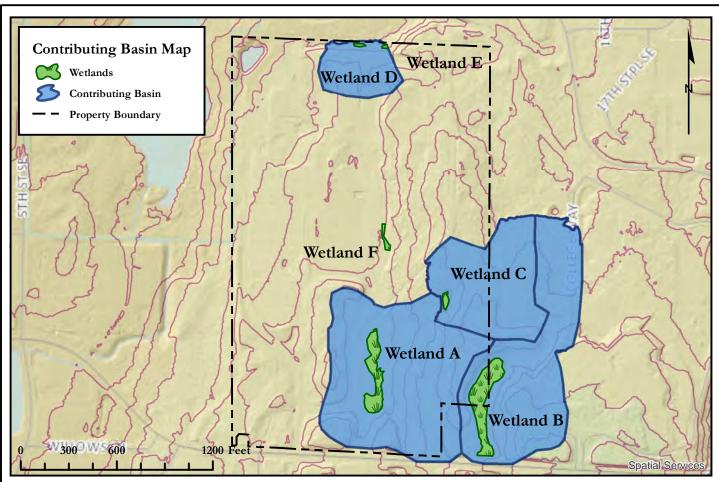
PIERCE COUNTY PARCEL NUMBER: 0419034031, 0419034032, & 0419034034

DATE: 4/25/2018	l
JOB: 1077.0012	

BY: DLS

SCALE: 1 " = 400 '

FIGURE NO. 2 of 5



D.4.0		
D.4.3		
	Area of Contributing Basin (SF)	872,950
	Area of Wetland A (SF)	34,089
	Percent of Wetland A within Contributing Basin	3.905%
	Area of Intensive Human Land Uses (SF)	387,728
	Percent of Intensive Human Land Use within Contributing Basin for Wetland A	44%
	Area of Contributing Basin (SF)	651,998
	Area of Wetland B (SF)	53,041
	Percent of Wetland B within Contributing Basin	8.135%
	Area of Intensive Human Land Uses (SF)	402,701
	Percent of Intensive Human Land Use within Contributing Basin for Wetland B	62%
	Area of Contributing Basin (SF)	412,836
	Area of Wetland C (SF)	2,949
	Percent of Wetland C within Contributing Basin	0.714%
	Area of Intensive Human Land Uses (SF)	219,894
	Percent of Intensive Human Land Use within Contributing Basin for Wetland C	53%
	Area of Contributing Basin (SF)	150,054
	Area of Wetland D (SF)	1,016
	Percent of Wetland D within Contributing Basin	0.677%
	Area of Intensive Human Land Uses (SF)	133,814
	Percent of Intensive Human Land Use within Contributing Basin for Wetland D	89%



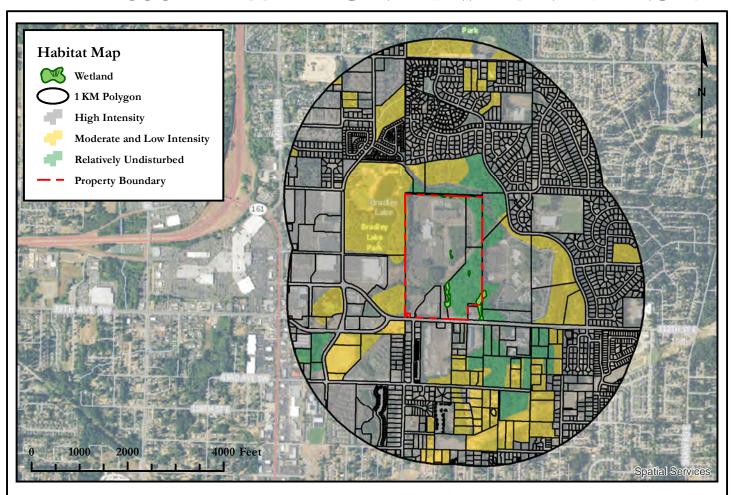
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PIERCE COUNTY PARCEL NUMBER: 0419034031, 0419034032, & 0419034034

DATE: 4/25/2018
ЈОВ: 1077.0012
BY: DLS
SCALE: 1 " = 600 '
FIGURE NO. $3$ of 5



H.2.0 Wetlands A-F		
H.2.1		
	Abutting Undisturbed Habitat	2.97%
	Abutting Moderate & Low Intensity Land Uses	0.00%
	Accessible Habitat	2.97%
H.2.2		
	Undisturbed Habitat	7.16%
	Moderate & Low Intensity Land Uses	19.74%
	Undisturbed Habitat in 1 KM Polygon	17.03%
H.2.3		
	High Intensity Land Use in 1 KM Polygon	73.10%



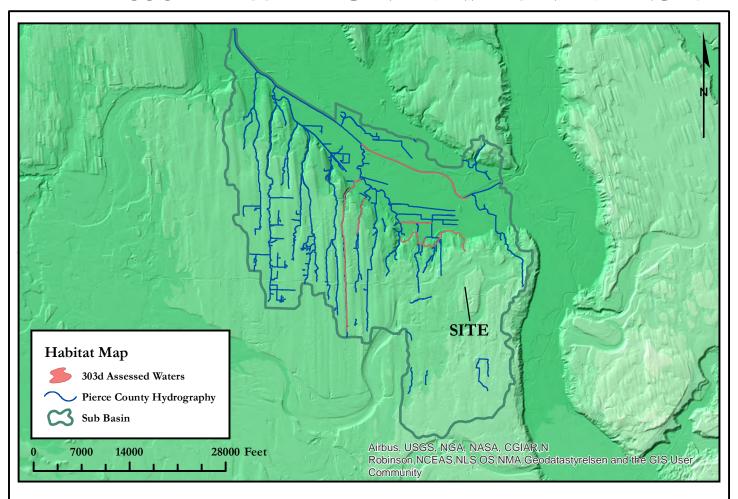
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PIERCE COUNTY PARCEL NUMBER: 0419034031, 0419034032, & 0419034034

DATE: 4/25/2018
ЈОВ: 1077.0012
BY: DLS
SCALE: 1 " = 2,000 '
FIGURE NO. $4$ of 5



LISTING ID	CATEGORY	PARAMETER	MEDIA	WATERBODY	WATERBODY TYPE
78052	. 5	Dissolved Oxygen	Water	DIRU CREEK	Rivers/Streams
10862	. 5	Temperature	Water	PUYALLUP RIVER	Rivers/Streams
10874	. 5	Mercury	Water	PUYALLUP RIVER	Rivers/Streams
10848	5	Temperature	Water	WHITE RIVER	Rivers/Streams
79712	. 5	Fine Sediment	Habitat	UNNAMED CREEK (TRIB TO SILVER CREEK)	Rivers/Streams
78998	5	Fine Sediment	Habitat	RODY CREEK	Rivers/Streams
7511	. 5	5 pH	Water	MEEKER CREEK	Rivers/Streams
78999	5	Fine Sediment	Habitat	SILVER CREEK	Rivers/Streams
7509	5	Temperature	Water	MEEKER CREEK	Rivers/Streams
79714	. 5	Fine Sediment	Habitat	SILVER CREEK, E.F.	Rivers/Streams



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PIERCE COUNTY PARCEL NUMBER: 0419034031, 0419034032, & 0419034034

DATE: 4/25/2018
ЈОВ: 1077.0012
BY: DLS
SCALE: 1 " = 14,000 '
FIGURE NO. $4$ of 5

# Appendix G — Qualifications

All field inspections, OHW determinations, habitat assessments, and supporting documentation, including this <u>Wetland Delineation and Fish and Wildlife Habitat Assessment Report</u> prepared for the <u>South Hill Data Center</u> project were prepared by, or under the direction of, Matt DeCaro of SVC. In addition, the site investigations were performed by Richard Peel, Emily Swaim, and Matt DeCaro, and report preparation was completed by Kyla Caddey.

### Matt DeCaro

Environmental Planner / Project Manager Professional Experience: 9 years

Matt DeCaro is an Environmental Planner and Project Manager with a diverse background in stream ecology, water quality, wetland science, environmental due diligence, and site remediation. Matt currently provides permitting and regulatory compliance assistance for land use projects from their planning stages through review, approval, and construction. Matt performs wetland, stream, and shoreline delineations and fish & wildlife habitat assessments; provides land use planning assistance for residential, commercial, and industrial projects; conducts code and regulation analysis; prepares reports and permit applications for local, State, and Federal review; and provides restoration and mitigation design.

Matt earned a Bachelor of Science degree with a focus in Environmental Science from the Evergreen State College in Olympia, Washington, with additional graduate-level coursework and research in aquatic restoration and salmonid ecology at Alaska Pacific University in Anchorage, Alaska. Matt has been formally trained in the use of the Washington State Wetland Rating System and Determination of Ordinary High Water Mark by the Washington State Department of Ecology, and he has attended USFWS survey protocol workshops for multiple threatened and endangered species. Matt holds 40-hour HAZWOPER certification and has managed Phase I Environmental Site Assessments, subsurface investigations, and contaminant remediation projects throughout the Pacific Northwest. His diverse experience also includes NEPA compliance for federal projects; noxious weed abatement; spotted owl surveys on federal and private lands; and salmonid spawning and migration surveys.

### Richard Peel

Wetland Scientist

Professional Experience: 6 years

Richard Peel is a Wetland Scientist with diverse professional experience in wetland ecology, monitoring, and delineation throughout Washington and Oregon. Richard is Washington State trained in conducting wetland delineations, assessing wetland systems, mitigation planning and design, implementation of monitoring programs, mitigation monitoring and reporting. He also has extensive experience in an analytical laboratory using state-of-the-art equipment in bacteriological and chemical analysis of soil and water samples.

Richard is a graduate of The Evergreen State College, with dual degrees in Ecology and Economics. He has focused his academic career on ecology, disturbance ecology, chemistry, and the economic impacts of current environmental management. Richard has extensive training and field experience in wetland related disciplines, and has experience in wetland both east and west of The Cascades. He

has been trained by The Washington State Department of Transportation's (WSDOT) Wetland Ecology and Monitoring team in the use of the wetland delineation, mitigation, monitoring, and restoration techniques. In addition, he was directed by WSDOT's Wetland Protection and Preservation Policy to ensure wetlands are preserved and protected whenever possible. This direction ensures no net loss in the quantity or quality of wetlands in the future and minimization of impacts to wetlands in the present.

Richard is a certified Professional Wetland Scientist (#2858). He has been formally trained in the use of the Washington State Wetland Rating System, Shoreline Stabilization, Eelgrass Delineation, and several other critical area assessment and restoration projects from the Washington Department of Fish and Wildlife, and Washington State Department of Ecology. He is also a Pierce County Qualified Wetland Specialist, and he holds similar qualifications from other jurisdictions.

### **Emily Swaim**

Wetland Scientist/Field Geologist Professional Experience: 5 years

Emily Swaim is a Wetland Scientist and Field Geologist with a background in delineating and assessing wetland and aquatic systems, stormwater, floodplain, and wetland permitting, as well experience conducting Phase I, II and III Environmental Site Assessments (ESAs), underground natural gas pipeline and overhead electrical transmission line project assessment and environmental inspections, construction oversight, stormwater compliance inspections, and soil sampling. Ms. Swaim's expertise focuses on projects involving sensitive wetland and stream habitats where extensive team coordination and various regulatory challenges must be carefully and intelligently managed from project inception to completion.

Emily earned a Bachelor of Science degree in Geology from Illinois State University and Wetland Science and Management Professional Certification from the University of Washington, Seattle. She is also educated in Environmental Science from Iowa State University. Her education and experience has provided her with extensive knowledge on soils, wetland science, hydrogeology, sedimentology, environmental law, environmental geology, landscape ecology, and structural geology. Ms. Swaim has been formally trained in Hazardous Waste Operations and Emergency Response (HAZWOPER) and is Occupational Health and Safety Administration (OSHA) 30-hour Construction and 10-hour Construction certified.

She has been formally trained in the use of the Washington State Wetland Rating System, Grass, Sedge, and Rush Identification, How to Determine the Ordinary High Water Mark, Identifying Wetlands of High Conservation Value, and several other critical area assessment and restoration trainings from the Washington State Department of Ecology and Washington Department of Fish and Wildlife and. She is also a Pierce County Qualified Wetland Specialist and Wetland Professional In-Training (WPIT) through the Society of Wetland Scientists.

# Kyla Caddey

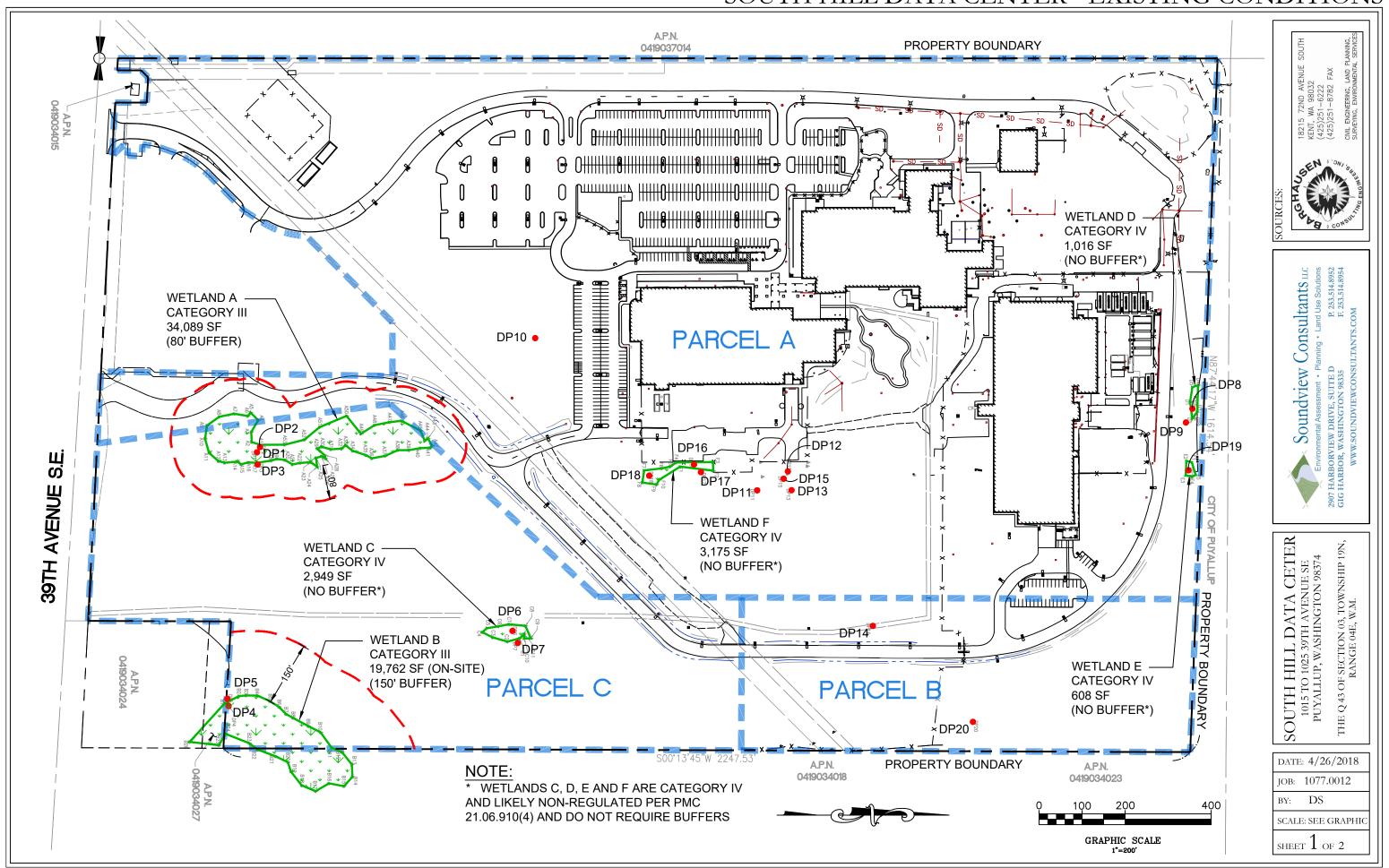
Staff Scientist

Professional Experience: 3 years

Kyla Caddey is a Staff Scientist and Pierce County Qualified Wildlife Biologist with a diverse background in riparian habitat restoration, stream and wetland ecology, wildlife ecology and conservation, and wildlife and natural resource assessments and monitoring. Kyla has advanced expertise in report preparation, grant writing, environmental education, data compilation and statistical analysis. Kyla has field experience performing in-depth studies in both the Pacific Northwest and Central American ecosystems. She currently performs wetland, stream, and shoreline delineations and fish and wildlife habitat assessments; conducts environmental code analysis; and prepares environmental assessment and mitigation reports, biological evaluations, and permit applications to support clients through the regulatory and planning process.

Kyla earned a Bachelor of Science degree in Environmental Science and Resource Management from the University of Washington, Seattle with a focus in Wildlife Conservation and a minor in Quantitative Science. She has received formal training through the Washington State Department of Ecology and Coastal Training Program in Using the Credit-Debit Method in Estimating Wetland Mitigation Needs, How to Determine the Ordinary High Water Mark, Using Field Indicators for Hydric Soils, How to Administer Development Permits in Washington Shorelines, Puget Sound Coastal Processes, and Forage Fish Survey Techniques.

# SOUTH HILL DATA CENTER - EXISTING CONDITIONS



# SOUTH HILL DATA CENTER - PROPOSED CONDITIONS

