Soundview Consultants LLC
Environmental Assessment • Planning • Land Use Solutions

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Technical Memorandum

To: **Justin Holland, Prospect Development** **File Number: 1310.0038**

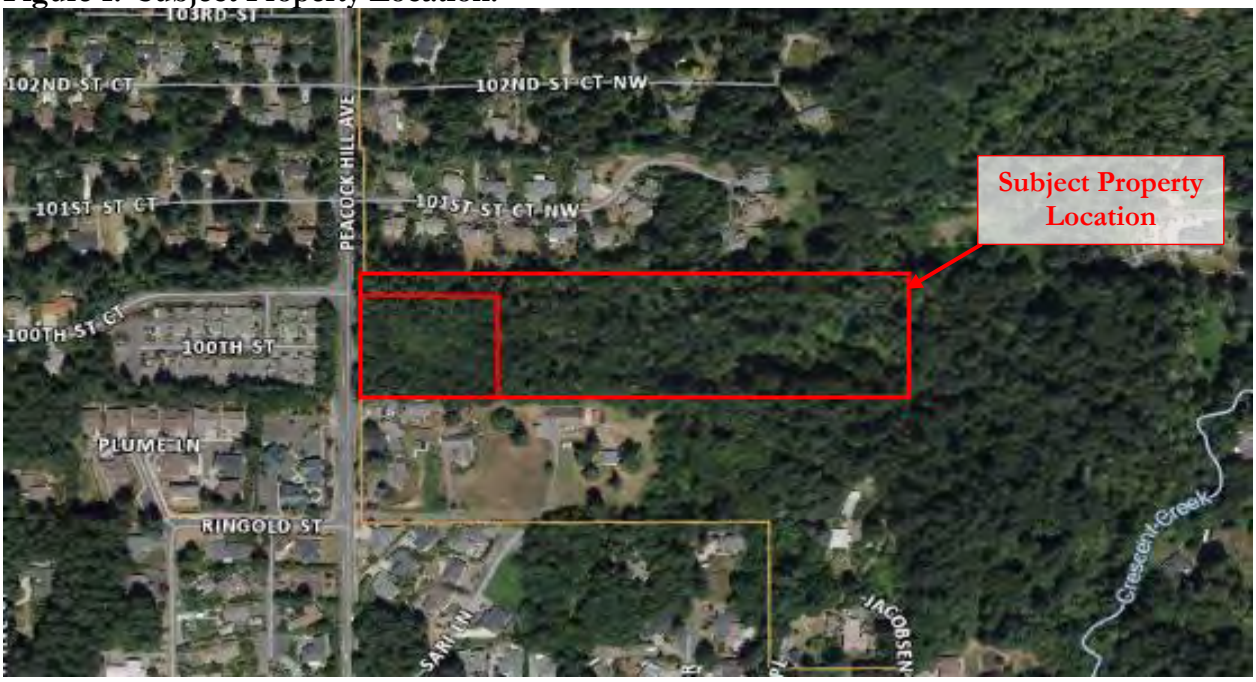
From: **Jon Pickett, Soundview Consultants LLC** **Revision Date: November 7, 2022**

Re: **Wetland and Fish and Wildlife Habitat Assessment**
The Reserve – Adjacent to: 101st Street Court and Peacock Hill Avenue, Gig Harbor, WA 98332

Dear Mr. Holland,

Soundview Consultants LLC (SVC) is assisting Prospect Development (Applicant) with a wetland and fish and wildlife habitat assessment of an approximately 9.62-acre property located adjacent to 101st Street Court Northwest and Peacock Hill Avenue in the City of Gig Harbor, Washington (Figure 1). The subject property consists of two parcels situated in the Southwest ¼ of Section 32, Township 22 North, Range 02 East, W.M. (Pierce County Tax Parcel Numbers 0222323134 and 0222323135). This assessment was conducted to support the future development of a residential plat. SVC investigated the subject property in December of 2021, to evaluate the results of a *Wetland Delineation and Critical Habitats Assessment Study* prepared by Russell and Associates (2016). This Technical Memorandum documents the results of the assessment completed by SVC on December 21, 2021 and has been revised following comments by Grette Associates (2022).

Figure 1. Subject Property Location.



Background Data

Prior to the site investigation, staff conducted background research using Pierce County Geographic Information System (GIS) data, Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) and SalmonScape mapping tools, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), Washington Department of Natural Resources (DNR) water typing system, and Natural Resource Conservation Service (NRCS) soil survey (Attachment B). All determinations were made using observable vegetation, hydrology, and soils in conjunction with data from the U.S. Geological Survey (USGS) topographic maps, USFWS, local precipitation data, and various orthophotographic resources.

The Pierce County stream and wetland inventory (Attachment B1) identifies one potential wetland offsite to the northeast, east, and southeast of the subject property. The USFWS NWI map (Attachment B2) identifies one potential linear riverine wetland on the southeast portion of the subject property extending offsite to the southeast. The DNR stream typing map (Attachment B3) identifies a potential Type N (non-fish bearing) stream originating on the central portion of the site and extending southeast offsite. The WDFW Salmonscape map (Attachment B4) does not identify any salmonid presence on or in the vicinity of the subject property. The WDFW PHS map (Attachment B5) identifies Crescent Creek and associated salmonid and wetland habitats offsite; however, these areas are located greater than 300 feet east of the subject property. No other potential wetlands, streams, fish and wildlife habitat, or priority habitats or species were identified on or within 300 feet of the subject property.

The NRCS soil survey map (Attachment B6) identifies three soil series on the study area: Harstine gravelly ashy sandy loam, 0 to 6 percent slopes (16B), Harstine gravelly ashy sandy loam, 6 to 15 percent slopes(16C), and Harstine gravelly ashy sandy loam, 15 to 30 percent slopes (16D). Harstine gravelly ashy sandy loam, 0 to 6 percent slopes is listed as non-hydric on the Pierce County Hydric Soils List, but as much as 10 percent of the soil map unit may contain inclusions of hydric Dupont, Norma, McKenna, and Bellingham soils. Harstine gravelly ashy sandy loam, 6 to 15 percent slopes is also listed as non-hydric, but as much as 8 percent of this soil map unit may contain inclusions of hydric Dupont, Norma, and McKenna soils. Harstine gravelly ashy sandy loam, 15 to 30 percent slopes is listed as non-hydric (NRCS, n.d.).

Prior Wetland Delineation

Russell and Associates completed a wetland and fish and wildlife habitat assessment in 2015 and documented their results in the revised *Wetland Analysis Report – The Reserve Preliminary Plat* dated October 2016. A copy of the report is provided in Attachment C. Russell and Associates (2016) identified one wetland (Wetland 1) on the eastern portion of the subject property and one stream on the southeast corner of the subject property, extending offsite to the southeast. Wetland 1 was classified as a Category III depressional wetland. The identified stream was classified as a Type 4 (Non-fish bearing) stream. These wetland and stream classifications were approved in the City of Gig Harbor Staff Report to the hearing examiner dated September 28, 2017 (PL-PPLAT-16-0001, PL-DR-16-0079, PL-SEPA-16-0008, PL-BLA-16-0002, PL-ALP-17-0003). However, these prior classifications by Russell and Associates are over 5 years old and no longer valid. Further, SVC disagrees with the previous Category III depressional rating for Wetland 1. SVC contends that Wetland 1 should be a Category IV Slope wetland based on more recent findings during the December 2021 site investigation as discussed in the Results section in this Technical Memorandum.

Precipitation

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

Table 1. Precipitation Summary[1].

Site Visit Date	Day Of	Day Before	1 Week Prior	2 Weeks Prior	30 Days Prior (Observed/ Normal)	Year to Date (Observed/ Normal)[2]	Percent of Normal (Month/Year)[3]
12/21/2021	0.18	0.76	2.25	5.33	8.47/8.06	23.42/18.56	105/126

Notes:
1. Precipitation levels provided in inches. Data obtained from NOAA (http://w2.weather.gov/climate/xmacis.php?wfo=sew) for Sea-Tac Airport.
2. Year-to-date precipitation is for the water year from October 1st to the site visit date.
3. Percent of normal is shown for the last 30 days and year-to-date.

Precipitation levels during the December 21, 2021 site investigation were within the statistical normal range for both the 2021/2022 water year (126 percent of normal) and the prior 30 days (105 percent of normal). However, over 2 inches of rainfall was observed in the week leading up to the site investigation, and over 0.75-inch of rainfall was observed the day before the site investigation. This precipitation data suggests that precipitation levels may have been exaggerated at the time of the site investigation resulting in potential wetter than normal hydrological conditions. Such conditions were considered in making professional wetland boundary determinations.

Methods

A formal site investigation was performed by qualified SVC staff in December of 2021. The investigation consisted of a targeted walk-through survey of the subject property to assess the prior critical areas findings by Russell and Associates (2016).

Wetlands, streams, and select fish and wildlife habitats and species are regulated features per Gig Harbor Municipal Code (GHMC) Chapter 18.08 – Critical Areas, and subject to restricted uses/activities under the same title. The previously delineated wetland boundary (Russell and Associates, 2016) was confirmed in accordance with the U.S. Army Corps of Engineers' (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) as 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) and *Field Indicators of Hydric Soils in the United States* (NRCS, 2018). Pink surveyor's flagging was labeled alpha-numerically and tied to a 3-foot lathe or vegetation at formal sampling locations to mark where detailed data was collected to confirm the wetland boundary (DP-1 and DP-2). Additional test pits were excavated at regular intervals inside and outside the wetland boundary to further confirm the boundary.

Wetlands were classified using both the hydrogeomorphic (Brinson, 1993) and Cowardin (Cowardin, 1979; Federal Geographic Data Committee, 2013) classification systems. Following classification and assessment, wetlands were rated and categorized using the current *Washington State Wetland Rating System for Western Washington* (Hruby, 2014) and the guidelines established under GHMC 18.08.040.B.

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 stationery and

walking survey methods for both aquatic and upland habitats noting any special habitat features or signs of fish and wildlife activity.

Results

General Findings

The 9.62-acre subject property is located in a residential setting and consists primarily of undeveloped forested areas. The subject property abuts a mix of residential developments and undeveloped forested areas to the north and south, an undeveloped forested area to the east, and is bound by Peacock Hill Road to the west with residential developments beyond. Upland vegetation onsite consists entirely of forested areas dominated by Douglas fir (*Pseudotsuga menziesii`),* red alder (*Alnus rubra*) bigleaf maple (*Acer macrophyllum*), salmonberry (*Rubus spectabilis*), salal (*Gaultheria shallon*), tall Oregon grape (*Mahonia aquifolium*), red huckleberry (*Vaccinium parvifolium*), and western swordfern (*Populus balsamifera*).

Topography onsite generally slopes down from the west to the east, with a ravine on the eastern half of the subject property. Elevations range from approximately 290 feet above mean sea level (amsl) on the northwest corner of the subject property to approximately 82 feet amsl on the southeast corner of the subject property (Attachment B7). The subject property is located in Water Resource Inventory Areas (WRIA) 15 – Kitsap.

The site investigation confirmed the presence and prior delineation of one potentially regulated wetland (Wetland A, formerly referred to as Wetland 1 by Russell and Associates [2016]) and the presence of one potentially regulated stream (Stream Z) on the subject property. No other potentially regulated wetlands, streams, or fish and wildlife habitat were identified on or within 300 feet of the subject property.

Wetlands

The site investigation confirmed the presence of one potentially regulated wetland (Wetland A) on the subject property, which was formerly referred to as Wetland 1 by Russell and Associates (2016). The identified wetland contained indicators of wetland hydrology, hydric soils, and a predominance of hydrophytic vegetation according to current wetland delineation methodology. The identified wetland is depicted in the Existing Conditions exhibit in Attachment A. Current wetland data forms, wetland rating form, and wetland rating figures are provided in Attachments D, E, and F, respectively.

Table 1. Wetland Summary.

Wetland	Predominant Wetland Classification / Rating				Wetland Size Onsite (Square Feet)	Buffer Width (feet)[5]
	Cowardin[1]	HGM[2]	WSDOE[3]	City of Gig Harbor[4]		
A	PFO/SSB	Slope	IV	IV	~46,931	50

Notes:
1. Cowardin et al. (1979) or NWI Class based on vegetation: PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub, Modifiers for Water Regime: B = Seasonally saturated
2. Brinson, M. M. (1993).
3. Washington State Department of Ecology (WSDOE) current wetland rating system for western Washington (Hruby, 2014).
4. GHMC 18.08.020.D wetland categories.
5. GHMC 18.08.060.A wetland buffer widths

Wetland A

Wetland A is approximately 46,931 square feet (1.08 acre) in size onsite and is located on the southeast corner of the subject property. Hydrology for Wetland A is provided primarily by a seasonally high groundwater table, direct precipitation, surface sheet flow from adjacent uplands, and occasional hydrology from stormwater infrastructure upslope to the northwest. Wetland vegetation is dominated by western red cedar (*Thuja plicata*), red alder (*Alnus rubra*), and Sitka willow (*Salix sitchensis*) with an understory of salmonberry (*Rubus spectabilis*), devil's club (*Oplopanax horridus*), water parsley (*Oenanthe sarmentosa*), and youth-on-age (*Tolmiea menziesii*). Hydric soil indicator F6 (Redox Dark Surface) was observed. The wetland was delineated based on a transition to wetland hydrology and hydrophytic vegetation. Wetland A is a Palustrine Forested/Scrub-Shrub, Seasonally Saturated wetland (PFO/SSB).

Russell and Associates (2016) previously classified Wetland A as a Category III depressional wetland with a moderate habitat score of 7 points. SVC's current assessment concluded that the wetland was misclassified. Considering the gradual slope, the lack of constriction downgradient, and the lack of evidence of ponding in this area, it is our determination that Wetland A is more accurately classified as a slope wetland. Additionally, Wetland A lacks forested overstory along the western half and should be classified as scrub-shrub in this area. Based on current site conditions, Wetland A is classified as a Category IV slope wetland with a low habitat score of 5 points. Photos of Wetland A are provided in Appendix G, and a summary of Wetland A is provided in Table 2.

Table 2. Wetland A Summary.

WETLAND A		
	Local Jurisdiction	City of Gig Harbor
	City of Gig Harbor Rating	IV
	Wetland Size (Onsite)	~46,931 square feet (1.08 acre)
	Cowardin Classification	PFO/SSB
	HGM Classification	Slope
	Wetland Data Sheet(s)	DP-1
	Upland Data Sheet(s)	DP-2
Wetland Functions Summary		
Water Quality (Scores 3 out of 9 points)	• Low site potential to trap sediment and pollutants due to moderate slopes and lack of dense herbaceous cover. • Low landscape potential to receive sediment and pollutants due to small contributing basin and lack of >10% of surrounding land uses that generate pollutants. • Low societal value for water quality functions due to the lack of degraded waters within the sub-basin.	
Hydrologic (Scores 6 out of 9 points)	• Moderate site potential to reduce surface velocity flows due to dense, uncut rigid plants in the wetland. • Low landscape potential to due to the lack of >25% of surrounding area generating excess surface runoff. • High societal value for hydrologic functions due to flooding problems immediately down-gradient of the site.	
Habitat (Scores 5 out of 9 points)	• Low site potential to provide diverse and complex wetland habitat due to a limited number of Cowardin classes and hydroperiods. • Low landscape potential to support habitat use due to the low amount of accessible undisturbed habitat and >50% of high land use intensity within 1-kilometer of the wetland. • High societal value for habitat functions due to the presence of 3 WDFW priority habitats including Instream, Riparian, and Snags and Logs.	

Stream Z

The site investigation confirmed the presence of one stream (Stream Z) on the southeast corner of the subject property. Stream Z originates from Wetland A. The stream contains a small, moderately defined channel approximately 1-foot wide with silt, sand, and gravel sorting. Riparian vegetation in intact with native species similar to Wetland A. The DNR stream typing map identifies Stream Z as a Type N (non-fish bearing stream). This is consistent with SVC's current finding as no fish were observed and the stream lacks fish use criteria (channel width less than 2 feet and slope gradient likely greater than 16 percent) per WDFW (2019). In addition, Stream Z was previously approved as a Type

4 stream (City of Gig Harbor, 2017). As such, Stream Z is currently classified as a Type 4 water per GHMC 18.08.182.B.4.

Regulatory Considerations

Buffer Requirements

GHMC 18.08.040 has adopted the current wetland rating system for western Washington (Hruby, 2014). Under the 2014 wetland rating system, Category IV wetlands are those that have the lowest levels of functions (scores fewer than 16 points) and are often heavily disturbed. Per GHMC 18.08.100, standard wetland buffers are based on wetland category, the level of impact from the proposed land use, and level of water quality or habitat functions. Wetland A is classified as a Category IV wetland with a low habitat score of 5 points and is subject to a standard 50-foot buffer when considering the high impact of the proposed land use per GHMC 18.08.100.F. An additional 15-foot building setback is required from the outer edge of the wetland buffer per GHMC 18.08.100.H.

Per GHMC 18.08.184.B.1, Stream Z is classified as a Type 4 stream and subject to a standard 25-foot buffer. An additional 15-foot building setback is required from the edge of the stream buffer per GHMC 18.08.184.7.

Conclusions

The site investigation identified and confirmed the previously delineated boundary of one potentially-regulated wetland (Wetland A) and one potentially-regulated stream (Stream Z) onsite by Russell and Associates (2016). Wetland A was previously classified as a Category III depressional wetland with a moderate habitat score of 7 points, and Stream Z was previously classified as a Type 4 (non-fish bearing) stream. Based on current site conditions and review of site topography, Wetland A more accurately classifies as a Category IV slope wetland with a low habitat score of 5 points. Additionally, SVC agrees with the prior classification of Stream Z as a Type 4 stream. Moving forward, Wetland A is a Category IV slope wetland and is subject to a standard 50-foot buffer. Stream Z is a Type 3 stream and is subject to a standard 25-foot buffer. An additional 15-foot building setback is required from the edge of the wetland and stream buffers. No other potentially regulated wetlands, waterbodies, fish and wildlife habitat, or priority habitats or species were identified on or within 300 feet of the subject property during the site investigation.

The proposed residential plat will be located on the western portion of the subject property, away from the steep slopes and ravine containing Wetland A and Stream Z. As such, the proposed development is not anticipated to impact the identified critical areas or associated buffers and building setbacks.

If you have any questions, please contact us at your earliest convenience.

Sincerely,

Jon Pickett
Associate Principal

November 7, 2022
Date

References

Brinson, M. M. 1993. *A hydrogeomorphic classification for wetlands, Technical Report WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS*.

City of Gig Harbor. 2017. *Planning Department Staff Report – PL-PPLAT-16-0001, PL-DR-16-0079, PL-SEPA-16-0008, PL-BLA-16-0002, PL-ALP-17-0003 – The Reserve Preliminary Plat*. Prepared September 28, 2017.

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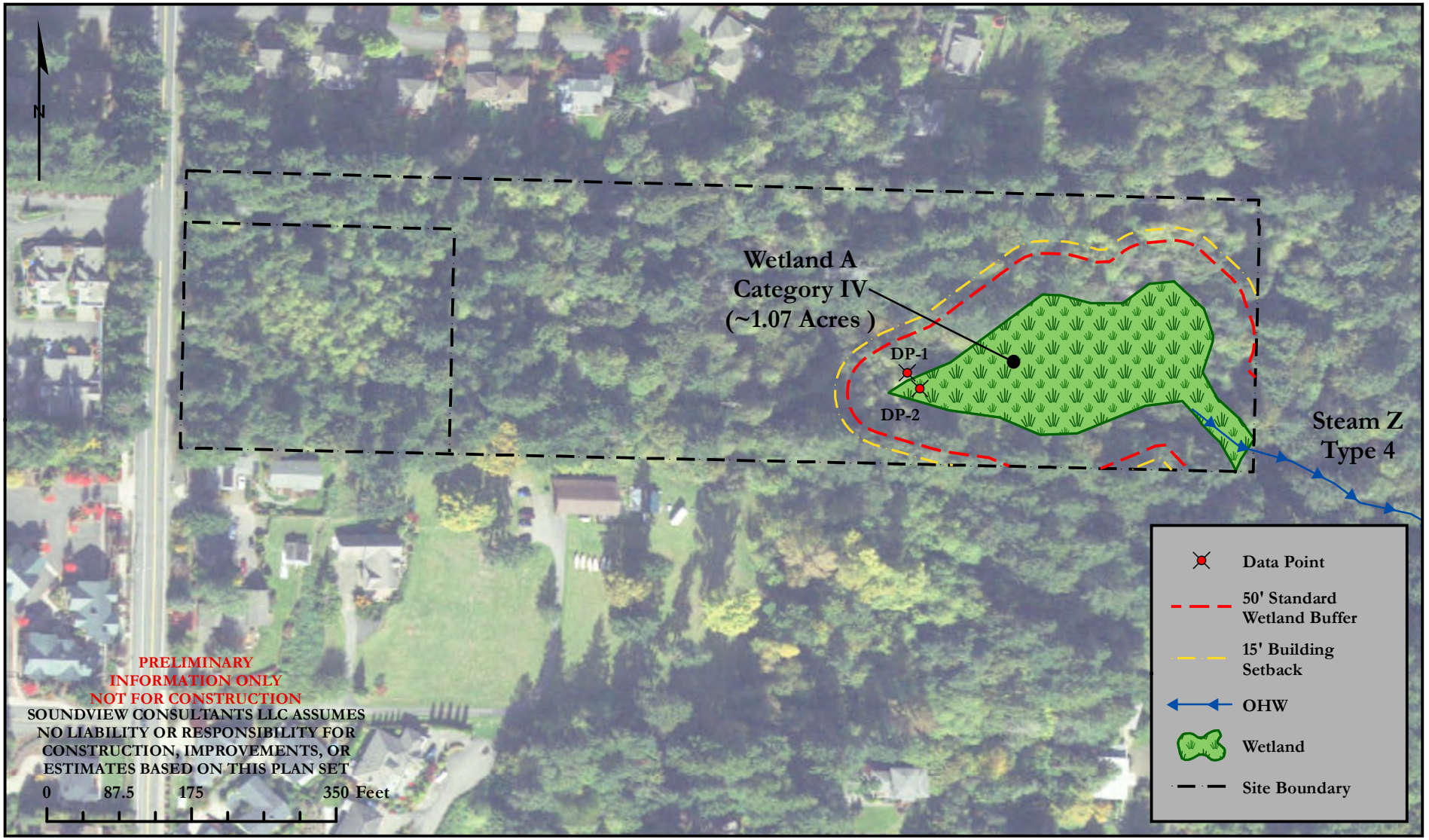
Attachment A – Existing Conditions Exhibit

EXISTING CONDITIONS



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THE RESERVE

NO SITE ADDRESS

PIERCE COUNTY PARCEL NUMBERS:
0222323134 & 0222323135

DATE:	11/3/2022
JOB:	1310.0038
BY:	JML/DS
SCALE:	1 " = 175 '
FIGURE NO.	1

Attachment B – Background Information

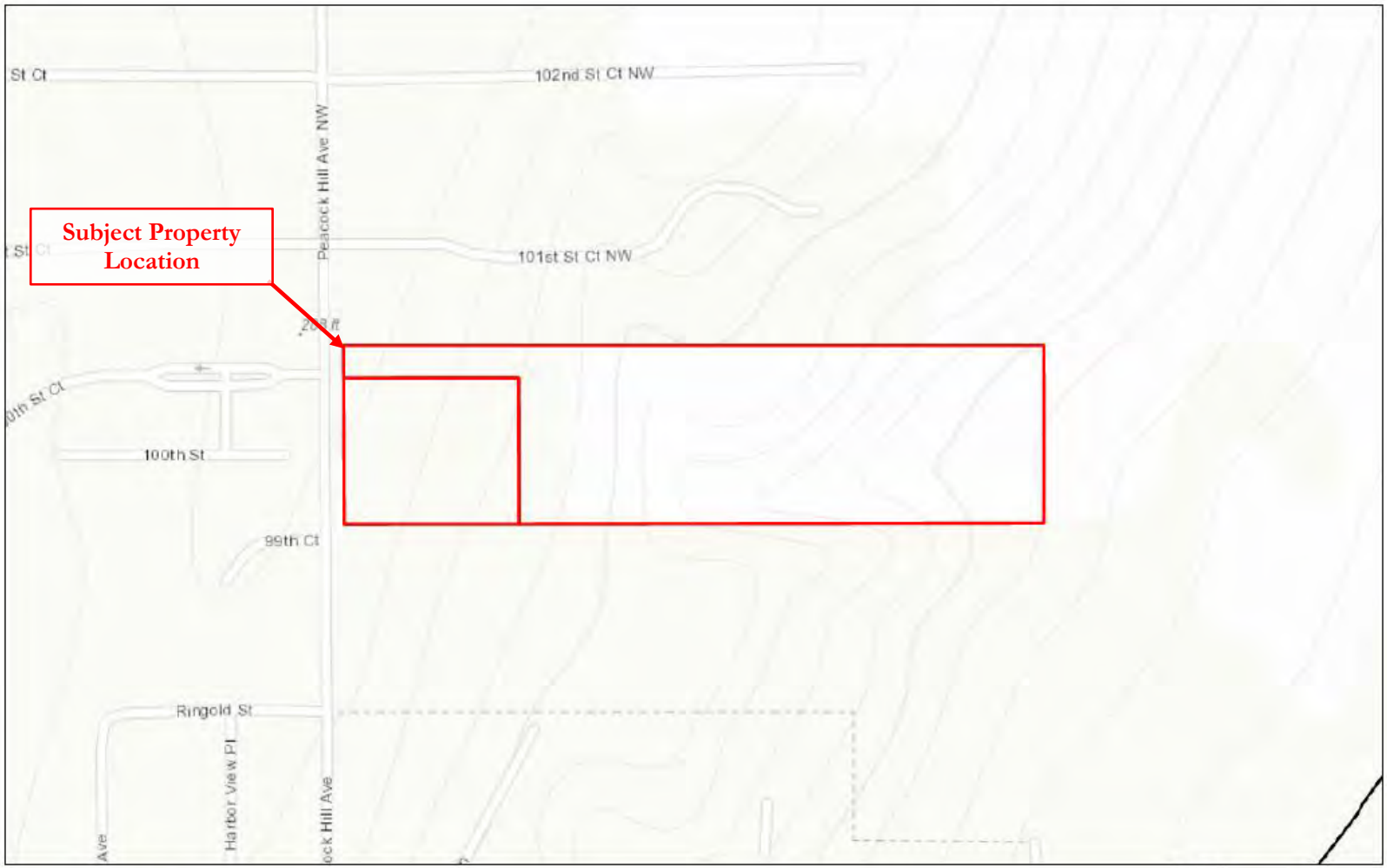
This attachment includes a Pierce County Stream and Wetland Inventory (B1); USFWS NWI Map (B2); DNR Stream Typing Map (B3); WDFW SalmonScape Map (B4); WDFW PHS map (B5); NRCS Soil Survey Map (B6); and Pierce County Topographic Map (B7).

Attachment B1 – Pierce County Stream and Wetland Inventory

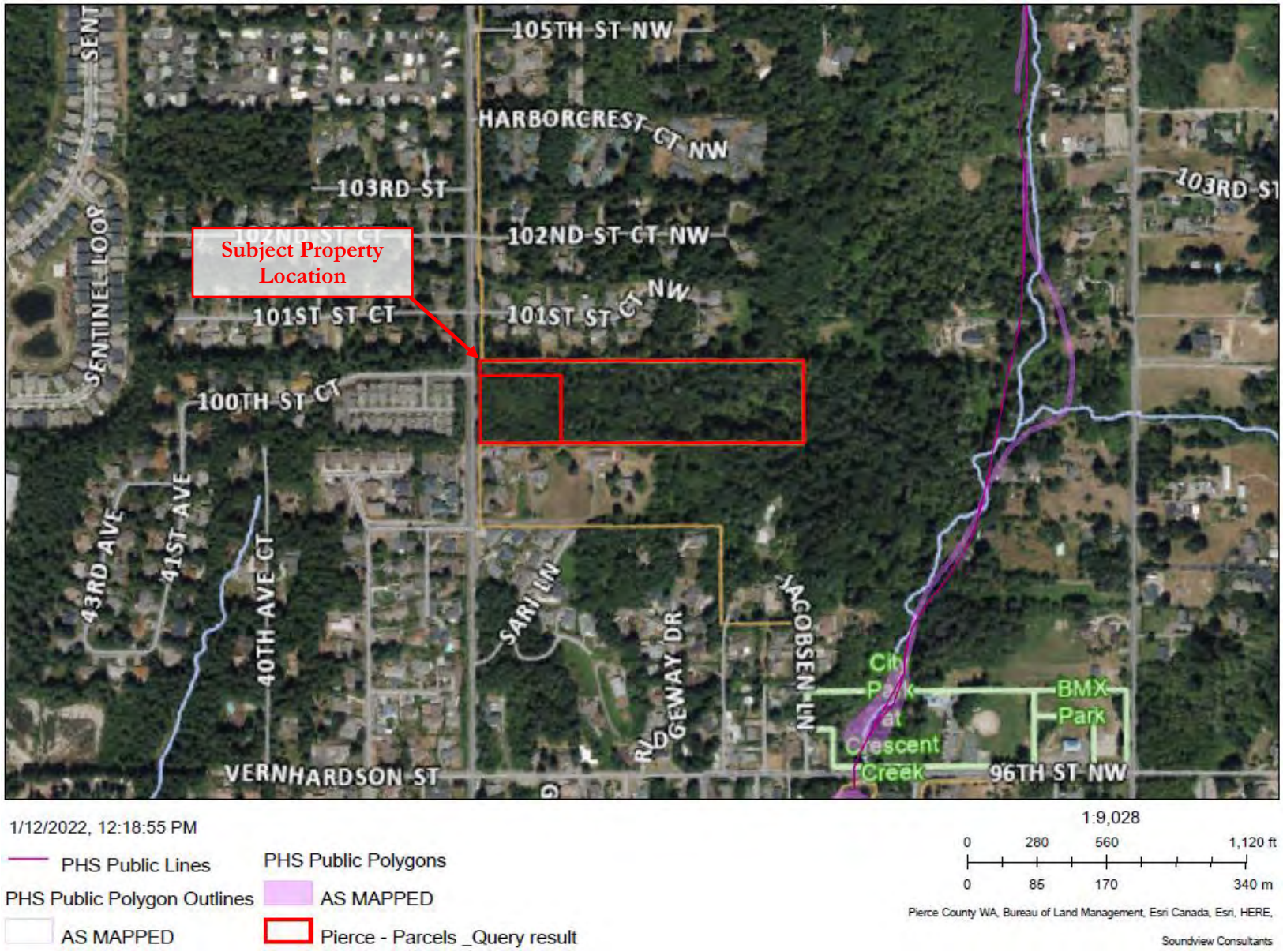
Attachment B2 – USFWS NWI Map

Attachment B3 – DNR Stream Typing Map

Attachment B4 – WDFW SalmonScape Map



Attachment B5 – WDFW PHS Map



Priority Habitats and Species on the Web

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Fall Chinook	N/A	N/A	No
Winter Steelhead	N/A	N/A	No
Coho	N/A	N/A	No
Chum	Not Warranted	N/A	No
Fall Chum	N/A	N/A	No
Coho	Candidate	N/A	No
Resident Coastal Cutthroat	N/A	N/A	No
Cutthroat	Not Warranted	N/A	No
Steelhead	Threatened	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No

PHS Species/Habitats Details:

Fall Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Occurrence/Migration
Site Name	Crescent Creek
Accuracy	NA
Notes	LLID: 1225810473466, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	47974
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence/Migration
Site Name	Crescent Creek
Accuracy	NA
Notes	LLID: 1225810473466, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	47980
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence/Migration
Site Name	Crescent Creek
Accuracy	NA
Notes	LLID: 1225810473466, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	47978
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Chum	
Scientific Name	*Oncorhynchus keta*
Priority Area	Occurrence
Site Name	Crescent Valley
Accuracy	NA
Notes	LLID: 1225810473466, Stock Name: Gig Harbor/Ollala Creek Fall Chum, Run: Fall, Status: Healthy
Source Record	2239
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chum	
Scientific Name	*Oncorhynchus keta*
Priority Area	Occurrence/Migration
Site Name	Crescent Creek
Accuracy	NA
Notes	LLID: 1225810473466, Fish Name: Chum Salmon, Run Time: Fall, Life History: Anadromous
Source Record	47975
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence
Site Name	Crescent Valley
Accuracy	NA
Notes	LLID: 1225810473466, Stock Name: East Kitsap Coho, Run: Unspecified, Status: Healthy
Source Record	3203
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Candidate
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Resident Coastal Cutthroat	
Scientific Name	*Oncorhynchus clarki*
Priority Area	Occurrence/Migration
Site Name	Crescent Creek
Accuracy	NA
Notes	LLID: 1225810473466, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	47973
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Cutthroat	
Scientific Name	*Oncorhynchus clarki*
Priority Area	Occurrence
Site Name	Crescent Valley
Accuracy	NA
Notes	LLID: 1225810473466, Stock Name: West South Sound Coastal Cutthroat, Run: Unspecified, Status: Unknown
Source Record	7020
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chum	
Scientific Name	*Oncorhynchus keta*
Priority Area	Breeding Area
Site Name	Crescent Creek
Accuracy	NA
Notes	LLID: 1225810473466, Fish Name: Chum Salmon, Run Time: Fall, Life History: Anadromous
Source Record	47976
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence
Site Name	Crescent Valley
Accuracy	NA
Notes	LLID: 1225810473466, Stock Name: East Kitsap Winter Steelhead, Run: Winter, Status: Unknown
Source Record	6220
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Breeding Area
Site Name	Crescent Creek
Accuracy	NA
Notes	LLID: 1225810473466, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	47979
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSS/EM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Attachment B6 – NRCS Soil Survey Map

Attachment B7 – Pierce County Contours Map

Attachment C – Wetland Analysis Report - The Reserve Preliminary Plat (Russell and Associates, 2016)

RUSSELL & ASSOCIATES
WETLANDS • WILDLIFE • SEPTIC DESIGNS

October 31, 2016

City of Gig Harbor
c/o Mr. Carl De Simas
3510 Grandview Street
Gig Harbor, Washington 98335

RE: The Reserve Preliminary Plat, City of Gig Harbor, Pierce County parcels #0222323134 and #0222323135

Dear Mr. De Simas:

This cover letter is in response to the memorandum from Grette Associates to the City of Gig Harbor (City), dated July 20, 2016, in regard to the above referenced project. I also had phone conversations with Chad Wallin, biologist of Grette Associates in late July and early October of 2016.

Grette has been contracted by the City to complete a third party review of the wetland analysis report, dated April 201, for the above referenced project.

The main recommendations provided to the City by Grette regarding the analysis include:

1. Additional information on rating of the wetland category under the 2014 Washington Department of Ecology wetland rating system; and specifically whether the wetland meets the criteria of a "mature forest" as defined by the rating system;

2. Additional information regarding the Type 4 stream which is associated with the wetland and located in the extreme southeastern corner of the site;

3. If the onsite wetland meets the criteria of a Category I wetland, discussing the need for a habitat assessment and habitat management plan per GHMC 18.08.186.

In the description of the onsite wetland in the analysis report, the term "mature forest" is used. The forested canopy (which is patchy within the wetland but has at least 30 percent canopy coverage) is dominated by red alder, with Western red cedar also present. Even though the red alder are mature, this species has a much shorter lifespan than native coniferous species. So even though the term "mature forest" was used to describe the

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somewhat mature state of the red alder canopy, the wetland does not meet the definition of a mature forest under the 2014 Ecology rating system definition. The wetland report has been revised to remove the term "mature forest" and provides details on why the wetland does not meet the Ecology rating definition. The wetland rating appears to still best meet the criteria of a Category III wetland with a 150 foot buffer under the City's Code.

The Type 4 stream which begins in the extreme southeastern corner of the site (near the eastern terminus of the onsite wetland) has been described in the revised wetland report, and its location and associated 25 foot required buffer have been shown on the revised site plan.

In regard to the classification of the onsite wetland as a critical fish and wildlife habitat area (as defined in GHMC 18.08.186), since the wetland has been determined to best meet the criteria of a Category III wetland under the 2014 Ecology rating system, it would not meet the definition of a critical fish and wildlife habitat area (CFWHA). Category I and II wetlands are considered (CFWHA), and in those cases a habitat assessment and habitat management plan would need to be completed for projects that are within 300 feet of these habitats. Since the wetland does not meet this criteria, and no other CFWHA are known to be located within 300 feet of the proposed project, no habitat assessment or habitat management plan would be required at this time.

The revised wetland analysis report and site plan referenced are attached for your review. Should you have any questions regarding my request, please feel free to call me at (360) 789-3607.

Sincerely,

Eric Russell
Russell & Associates, LLC

Attachment: revised wetland analysis report

RUSSELL & ASSOCIATES

WETLANDS • WILDLIFE • SEPTIC DESIGNS

Wetland Analysis Report
The Reserve Preliminary Plat

Pierce County Parcels #0222323134
& #0222323135

Prepared for:

Resource Properties LLC
PO Box 310
Spanaway, Washington 98387

Prepared by:

Russell and Associates
4205 North 26th Street
Tacoma, Washington 98407

April 2016
Revised October 2016

Wetland Analysis Report
The Reserve Preliminary Plat
Pierce County Parcels #0222323134 & 0222323135

INTRODUCTION

This report discusses the identification, delineation and classification of wetlands associated with The Reserve preliminary plat, a project located in the northern portion of the City of Gig Harbor, in Pierce County, Washington (Figure 1, Vicinity Map).

The purpose of this wetland analysis report is to delineate and categorize any wetlands on or adjacent to the project site, which may be affected by proposed development. This analysis is required by the City of Gig Harbor, Wetland Management Regulations, Chapter 18.08, whenever development is proposed in or near wetlands. This work is necessary due to the proposed plat of the project site for single family residential development (Figure 2, Site Map). A total of 14 lots, as well as storm drainage tract and a critical area/open space tract are proposed.

SETTING

The project is located in Pierce County, in Section 32, Township 22 North, Range 2 East, W.M. The project is made up of two tax parcels which total approximately 9.62 acres in size. The western parcel, Pierce County Parcel #0222323134, is a square shaped property that is two acres in size. The eastern property, Pierce County parcel #0222323135, is an "L" shaped parcel that is 7.62 acres in size. Both properties abut Peacock Hill Road Northwest along the west side. No addresses have been formally assigned to the properties at this time.

The project site is bordered by Peacock Hill Road on the west and by undeveloped property to the east. Moderate density single family residential development is located to the north of the project site, while lower density residential development is located to the south. The project area is currently undeveloped, and is not presently used for any purpose. Surrounding land use in the project vicinity is low and moderate density single family residential development and scattered undeveloped properties which are mainly forested.

Topography of the project site is gradually sloping downward generally from west to east in the western end of the site, and more steeply downward sloping toward the southeast in the eastern half. A ravine area extends from offsite to the north in the east half of the site, and bends south and southeast toward the southeastern site corner. Resulting ridges are located along the southern site boundary in the eastern end of the parcel (east-west oriented ridgeline), and a

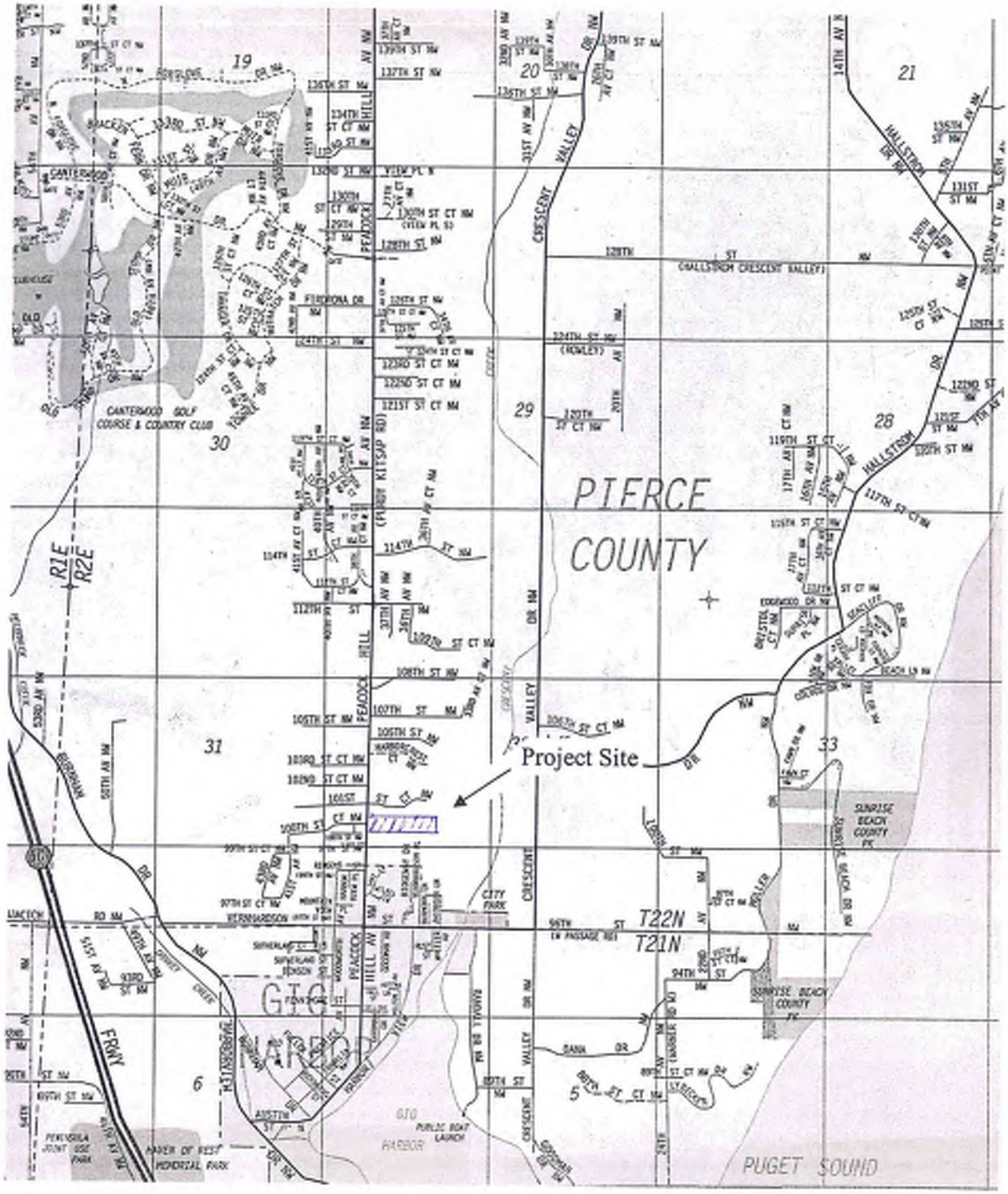


Figure 1. Project vicinity map.

PTN. SEC. 32, TWP 22 N, R2E W.M.

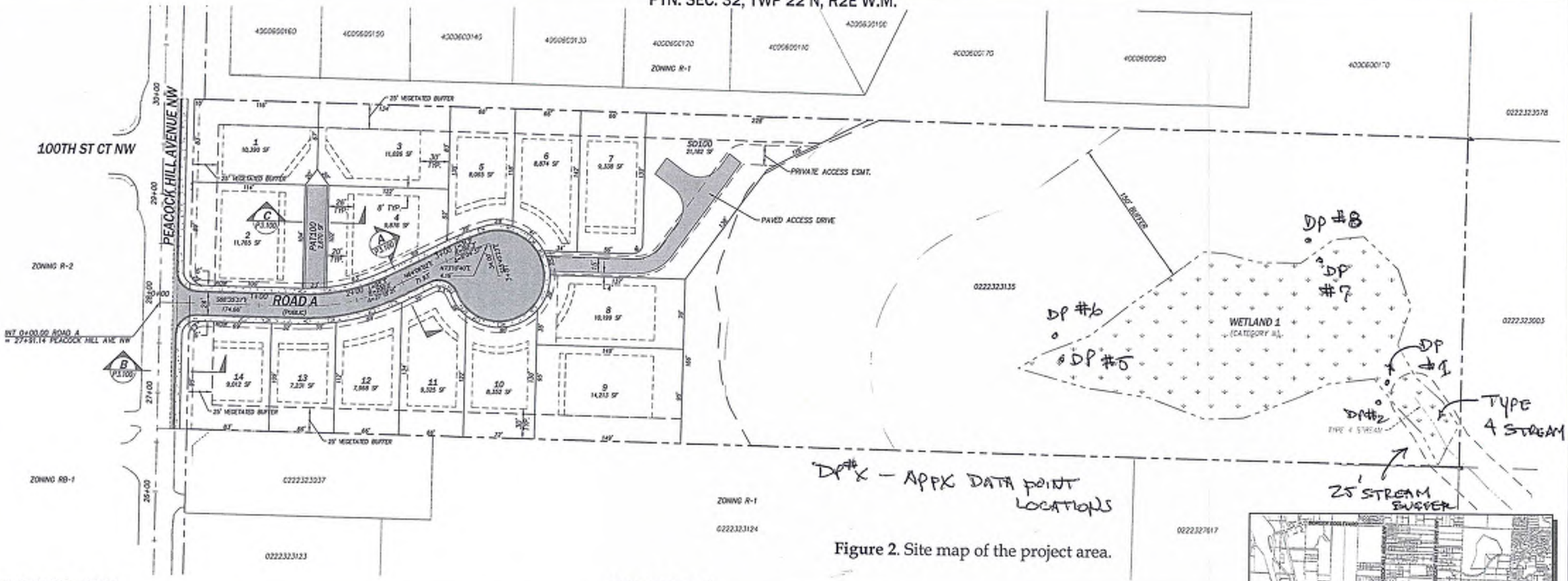


Figure 2. Site map of the project area.

PROJECT INFORMATION

GENERAL

PARCEL NO:	0222323134 AND 0222323135
ADDRESS:	PEACOCK HILL AVE NW GIG HARBOR, WA 98332
ZONING:	R-1
SITE AREA:	4.09 AC (BLA PARCEL A, 0222323134) 5.79 AC (BLA PARCEL B, 0222323135)

ZONING CRITERIA

MINIMUM LOT AREA:	7,200 SF
MINIMUM LOT WIDTH:	70 FT
MINIMUM FRONT YARD SETBACKS:	
HOUSE:	20 FT
PORCH:	12 FT
GARAGE:	26 FT
MINIMUM REAR YARD SETBACK:	30 FT
MINIMUM SIDE YARD SETBACK:	8 FT
MAXIMUM IMPERVIOUS LOT COVERAGE:	45%
MINIMUM STREET FRONTAGE:	20 FT
ALLOWED GROSS DENSITY:	4 DU/ACRE
MAXIMUM HEIGHT:	35 FT

PROPOSED

AVERAGE LOT SIZE:	9,688 SF
NET DEVELOPED AREA:	4.09 AC
TOTAL AREA OF PROPOSED LOTS (1-14)	3.11 AC
TOTAL RIGHT-OF-WAY AREA:	0.43 AC
TOTAL AREA DRIVEWAY TRACTS:	0.06 AC
STORM DRAINAGE TRACTS:	0.49 AC
NET DENSITY:	3.60 X 4 = 14.4 = 14 LOTS

EARTHWORK

CUT:	3,123 CU.YD.
FILL:	26,140 CU. YD.
NET:	23,017 CU. YD. (FILL)

UTILITY PURVEYORS

WATER:	WASHINGTON WATER SERVICE COMPANY
SEWER:	CITY OF GIG HARBOR
POWER:	PUGET SOUND ENERGY
GAS:	PUGET SOUND ENERGY
TELEPHONE:	CENTURY LINK
TV CABLE:	COMCAST
FIRE DISTRICT:	PIERCE COUNTY FIRE DISTRICT NO. 5, GIG HARBOR FIRE AND MEDIC ONE

PROJECT TEAM

APPLICANT
RESOURCE PROPERTIES, LLC
CONTACT: BEN PENTECOST
P.O. BOX 310
SPANAWAY, WA 98387
PHONE: (253) 875-0212

GEOTECHNICAL ENGINEER
TERRA ASSOCIATES, INC.
CONTACT: TED SCHEPPER, PE
12220 113TH AVENUE NE, SUITE 130
KIRKLAND, WA 98034
PHONE: (425) 821-7777

WETLAND CONSULTANT
RUSSELL & ASSOCIATES
CONTACT: ERIC RUSSELL
4205 NORTH 26TH STREET
TACOMA, WA 98407
PHONE: (360)789-3607

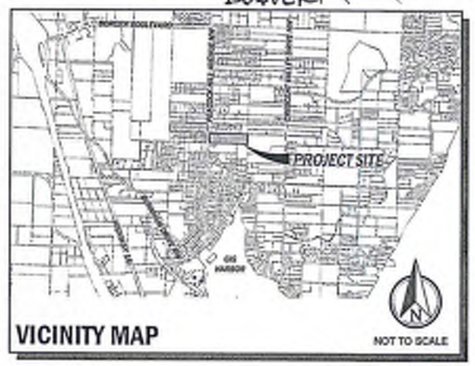
CIVIL ENGINEER/PLANNER
CPH CONSULTANTS
CONTACT: MATT HOUGH, PE
11431 WILLOWS ROAD NE, SUITE 120
REDMOND, WA 98052
PHONE: (425) 285-2390
FAX: (425) 285-2389

SURVEYOR
OTAK, INC.
CONTACT: BILL LAWRENCE, PLS
11261 WILLOWS ROAD NE, SUITE 200
REDMOND, WA 98052
PHONE: (425) 822-4446
FAX: (425) 827-9577

ARBORIST
WASHINGTON FORESTRY CONSULTANTS, INC.
CONTACT: GALEN WRIGHT
1919 YELM HIGHWAY SE, SUITE C
OLYMPIA, WA 98501
PHONE: (306)943-1723

TRACT USE AND OWNERSHIP

TRACT	USE	OWNERSHIP	NOTES
PAT100	INGRESS/EGRESS, UTILITIES AND STORM DRAINAGE	PRIVATE; LOTS 1, 2, 3, AND 4	
SD100	INGRESS/EGRESS, UTILITIES AND STORM DRAINAGE, RECREATION	PRIVATE; HOA	INCL. ACCESS ESMT. TO 022232-3135



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REVISIONS		
1	04/18/2016	PRELIMINARY SUBDIVISION APPLICATION SUBMITTAL

CP|H CONSULTANTS
Site Planning • Civil Engineering
Land Use Consulting • Project Management
11431 WILLOWS ROAD NE, SUITE 120
REDMOND, WA 98052
425.285.2390
www.cphconsultants.com

DESIGNED BY:	GG/MH
DRAWN BY:	GG/PE/MH
CHECKED BY:	MH
APPROVED BY:	
SCALE:	AS NOTED
PROJECT NO:	0004-15-003

THE RESERVE
PRELIMINARY PLAT

PRELIMINARY SITE PLAN

PERMIT NO.: XX-XX-XXX
DRAWING NO.: P2.00
SHEET OF: 4 11

second ridge extending across the northern boundary (north-south oriented ridgeline) in the northeastern portion of the site. Surface and subsurface drainage appears to be directed toward the eastern portion of the site and into the ravine area previously described, consistent with topography on the project. Soils in the project vicinity were mainly formed in glacial till and glacial outwash. Soils on the project site are mapped as Harstine gravelly loam, 0-6 percent slopes, 6-15 percent slopes, and 15-30 percent slopes.

The Harstine series is described as moderately well drained, and is extensive throughout portions of Pierce County, especially in the western portion of the county, west of the Tacoma Narrows. The western end of the site is mapped as the least sloping soils (0-6 percent slopes), while the eastern end of the site is mapped as having the steepest soils (15-30 percent slopes).

In a typical profile of the Harstine series, a mat of undecomposed needles and wood fragments cover a 5 inch thick layer of dark yellowish brown gravelly sandy loam. The subsoil, to a depth of 31 inches, is dark yellowish brown, brown, and dark brown gravelly sandy loam. The substratum, to a depth of more than 60 inches, is compact glacial till that is cemented in places.

Actual soils observed on the project are somewhat varied, although soils across the western portion of the project area are somewhat consistent with the Harstine series description. Soils across the western and central portions of the project area are generally 10YR 3/3 or 10YR 4/3 gravelly sand or gravelly loamy sand from 0-8 inches in depth. The "B" horizon, from 8-18 inches, is mainly 10YR 4/4 or 10YR 5/3 gravelly sand or sand. Soils are generally well drained or somewhat excessively drained across the western two-thirds of the site.

The southeastern portion of the site, which is generally the lowest in elevation, is damper, and soils in this area are more indicative of seasonal saturation or inundation. At the lower end of the previously discussed ravine area, soils are darker in color and finer in texture. Soils observed in the eastern depressional area are generally 10YR 2/2 muck in the "A" horizon, in the upper 4-8 inches. The "B" horizon, to 18 inches, is generally 10YR 4/2 or 10YR 4/1, sand, with extensive 7.5YR 4/4 and 7.5YR 4/6 iron soft masses. Redoximorphic features, including iron soft masses and oxidized rhizospheres, were observed in the upper 12 inches of the soil profile, in mineral soils evaluated.

Vegetation across the site is mostly dominated by mixed second growth forest, with a shrub and herbaceous understory. The western two-thirds of the site are dominated by a variety of trees and shrubs typical of Western Washington forested upland areas. Species observed across the western two-thirds of the site include: Douglas fir, red alder, bigleaf maple, Pacific madrone, Western hemlock,

Western red cedar, Himalayan blackberry, cutleaf blackberry, osoberry, evergreen huckleberry, sword fern, salal, Oregon grape, hazelnut, vine maple, Pacific bleedingheart, and trailing blackberry. Species observed in the sloping depressional area in the southeastern end of the site include: red alder, Western red cedar, salmonberry, skunk cabbage, piggyback plant, water parsley, and subarctic ladyfern. It should be noted that the upper end of the ravine area in the northeastern portion of the site was dominated by similar species to the western end of the site, specifically: Western red cedar, bigleaf maple, sword fern, Oregon grape, and trailing blackberry.

Hydrology on the project site is mainly the result of surface water retention, sheet flow from the surrounding uplands, and groundwater discharge along the slopes in the southeastern portion of the site. Groundwater discharge (seepage) was observed from several locations in the sloped depressional area in the southeastern corner of the site.

In this part of the county, many sloped wetlands are supported by groundwater discharge (seeps or springs) flowing from hillsides and within depressional areas. Saturation and/or inundation were directly observed in the sloped depressional areas in the eastern end of the project site. Flowing water was observed within narrow drainage channels within the depressional area. Hydrology indicators observed in the eastern portion of the site include: inundation, saturation, water stained leaves, scour marks, and drainage patterns.

WETLANDS

Field work to identify and delineate wetlands at the site was completed during site visits in the summer and fall of 2005, and more recently in the late fall of 2015. Wetland determinations were made using observable vegetation, hydrology, and soils in accordance with the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), the *Washington State Wetlands Delineation Manual* (Ecology, 1997), and the City of Gig Harbor Critical Areas Ordinance, Chapter 18.08.

A single regulated wetland has been delineated on the project site. A detailed description of the wetland is given below. The wetland is also shown on the site map (Figure 2), and has been classified according to the USFWS system (Cowardin et al. 1979), and categorized in accordance with the Washington State Department of Ecology rating system (WSDOE, 2014) in accordance with the Gig Harbor's Critical Areas Ordinance. A Washington Department of Ecology wetland rating form for the wetland is found in Appendix #1. Data sheets are presented in Appendix #2.

Wetland 1

Palustrine Forested Broad Leaf Deciduous Seasonally Flooded (PFO1E) - - Category III

Wetland #1 dominates the eastern end of the site (specifically in the southeastern portion of the property), and may extend offsite to the southeast. The wetland is a palustrine forested broadleaf deciduous seasonally saturated wetland that is dominated by mixed forest, with a shrub and herbaceous understory. The dominant tree species is red alder, with scattered Western red cedar also present. The onsite portion of the wetland is approximately 1 acre in size. Although drainage from the wetland does flow offsite to the southeast, it is unclear whether the wetland extends offsite (at the point that drainage flows offsite in the southeastern corner of the site, it is in a narrow drainage rather than a wetland area).

Flow from upland slopes to the west discharge surface water (seepage) along slopes in the western end of the wetland area. The wetland was rated as a Category III wetland using the 2014 Department of Ecology rating system consistent with Gig Harbor's Critical Areas Ordinance, Chapter 18.08.

The wetland does not meet the criteria of a forested wetland under the "Categorization for Special Characteristics" section of the 2014 Ecology rating form. To meet this criteria west of the Cascades, forested wetlands must have at least one contiguous acre of forest where the largest trees are 80-200 years old or the species that make up the canopy have an average diameter at breast height (dbh) exceeding 21 inches. The dominant species in this wetland is red alder, and trees within the wetland do not have an average diameter exceeding 21inches dbh.

This wetland is dominated by a forested canopy, with a shrub and herbaceous understory. Species observed in this wetland include: red alder, Western red cedar, salmonberry, skunk cabbage, piggyback plant, water parsley, and subarctic ladyfern.

Sheet flow from the surrounding uplands, surface water retention, and groundwater discharge (various seeps along side slopes) provide hydrologic support for this system. Saturation and/or inundation were directly observed during field workin both 2005 and 2015. In addition, there are narrow, steep drainage channels within the wetland area which direct channelized flow from west to east, and discharge offsite in the southeastern corner of the project area.

Drainage from the wetland is assumed to flow into Crescent Creek, which flows

from north to south east of the site before draining into Gig Harbor Bay southeast of the project site. Saturation within 12 inches of the soil surface or inundation is assumed to be present during the winter and spring months, and extending well into the growing season.

Soils in the area of wetland #1 are mapped as Harstine gravelly loam, 6-15% and 15-30% slopes. Soils within the wetland are inconsistent with the Harstine series description. Soils observed in the wetland are generally 10YR 2/2 muck in the "A" horizon, in the upper 4-8 inches. The "B" horizon, to 18 inches, is generally 10YR 4/2 or 10YR 4/1, sand, with extensive 7.5YR 4/4 and 7.5YR 4/6 iron soft masses. Redoximorphic features, including iron soft masses and oxidized rhizospheres, were observed in the upper 12 inches of the soil profile, in mineral soils evaluated.

This wetland provides functions related to water quality, groundwater discharge, and wildlife habitat. The wetland functions to provide groundwater discharge, providing baseflow support for Crescent Creek, sediment/toxicant trapping, and groundwater recharge. Wildlife habitat for a diversity of species is provided by the wetland. These functions are provided in a semi-urban setting.

Under the City of Gig Harbor Wetland Management Regulations, Chapter 18.08, this Category III wetland would require a 150 foot buffer from the delineated edge of the wetland. This is based on the proposed land use intensity (high), and the moderate level of function for habitat provided by the wetland.

STREAMS

Gig Harbor Municipal Code 18.08.183 requires a stream analysis report be prepared for any proposals that are within 200 feet of a stream. Based on 18.08.183, "The stream analysis report shall be prepared in accordance with the methods provided by the Washington State Department of Fish and Wildlife or Pierce County planning and land services or other acceptable scientific method and submitted to the department for review for any proposals that are within 200 feet of a stream".

In cases where streams and their buffers are not proposed to be impacted, Pierce County Critical Areas Ordinance, Title 18E.40.070 outlines the requirements for a habitat assessment study, which is required when a habitat area (such as a stream) or species occurrence is located on or adjacent to a project site. The information requirements for studies are outlined in 18E.40.070(B). Generally, the information required (project location, project description and objectives, existing site conditions, vegetation, and habitats) are already contained within this report.

In the southeastern corner of the site, a small drainage area (as previously discussed) discharges from the wetland, and drains offsite to the southeast.

Near the southeastern corner of the site, the critical area transitions from a wetland to a stream, with a narrow (approximately no greater than two feet in width) scour channel with sand, small gravel, and cobble. Riparian vegetation is similar to that found within the wetland, as these critical areas are closely associated and essentially part of the same critical area system. Species along the stream in the southeastern corner of the site and visible offsite to the southeast include: red alder, salmonberry, creeping buttercup, and sub-arctic ladyfern. The unnamed stream flows into Crescent Creek, which drains from north to south east of the project site.

This area appears to be a non-fish bearing stream, and would meet the criteria of Type 4 water under GHMC 18.08.182. GHMC 18.08.184 establishes a 25 foot buffer for Type 4 streams.

Based on the GHMC 18.08.183, stream analysis reports are required for any proposals that are within 200 feet of a stream. Although the stream is located onsite (in the extreme southeastern corner of the site as shown on Figure 2), it is well over 200 feet from any proposed development associated with the project. Furthermore, the stream and its required 25 foot buffer are completely encompassed onsite by the wetland and its required 150 foot buffer.

IMPACTS

Under the current design of the project, there will be no impacts to the wetland or its required 150 foot standard buffer. Should the project design be modified, impacts will need to be re-evaluated.

MITIGATION

Mitigation measures should include, but not be limited to, the following:

1. Avoiding the impact altogether by not taking a certain action or part of an action;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;
6. Monitoring the impact and taking appropriate corrective measures.

This project has followed the mitigation sequence by avoiding all impacts to wetlands and wetland buffers associated with the project site.

REFERENCES

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service. FWS/OBS 79/31.

Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Franklin, J.T. and C.T. Dyrness. 1973. Natural vegetation of Oregon and Washington. USDA, Forest Service, Gen. Tech. Rep. PNW-8.

Reed, P.B., Jr. 1988. National list of plant species that occur in wetlands: Northwest (Region 9). U.S.D.I. Fish and Wildlife Service Biological Report 88 (26.9). 89 pp.

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USDA Soil Conservation Service. 1991. Hydric Soils of the United States. Misc. Publication #1491.

Washington State Department of Ecology. 2014. Washington State Wetlands Rating System for Western Washington.

Washington State Department of Ecology. 1997. Washington State Wetlands Identifcation and Delineation Manual. Publication #96-94.

Appendix 1. Wetland Rating Form.

Wetland name or number 1

RATING SUMMARY – Western Washington

Name of wetland (or ID #): THE RESERVE WL #1 Date of site visit: 2005, 2015

Rated by RVSSEW Trained by Ecology? X Yes ___No Date of training MULTIPLE YRS

HGM Class used for rating DEPRESSIONAL Wetland has multiple HGM classes? X Y ___N

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

Source of base aerial photo/map PC GIS, GOOGLE EARTH, NRCS MAPS

OVERALL WETLAND CATEGORY III (based on functions ✓ or special characteristics___)

1. Category of wetland based on FUNCTIONS

___Category I – Total score = 23 - 27

___Category II – Total score = 20 - 22

✓ **Category III** – Total score = 16 - 19

___Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	TOTAL
Score Based on Ratings	5	5	7	17

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	N/A

Wetland name or number 1

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes WL IS SINGLE VEG CLASS	D 1.3, H 1.1, H 1.4	2 RPT
Hydroperiods WL IS SINGLE HYDROPERIOD	D 1.4, H 1.2	2 RPT
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	2 RPT
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3 ATTACHED TO FORM	FIG B
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2 ATTACHED	FIG A
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3 SEE	FIG C

Riverine Wetlands

FIG C ATTACHED DISSOLVED OXYGEN STUDY IS ONLY ONE.

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

Lake Fringe Wetlands

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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
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 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)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number 1

HGM Classification of Wetlands in Western Washington

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

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

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

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

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

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

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

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

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

Wetland name or number 1

NO – go to 6 **YES** – The wetland class is **Riverine**

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

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

NO – go to 7 **YES** – The wetland class is **Depressional**

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

NO – go to 8 **YES** – The wetland class is **Depressional**

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

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

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

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

Wetland name or number 1

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).	points = 3	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*.	Yes = 4 No = 0	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	points = 5	
Wetland has persistent, ungrazed, plants > ½ of area	points = 3	
Wetland has persistent, ungrazed plants > 1/10 of area	points = 1	
Wetland has persistent, ungrazed plants < 1/10 of area	points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation:		
This is the area that is ponded for at least 2 months. See description in manual.		
Area seasonally ponded is > ½ total area of wetland	points = 4	
Area seasonally ponded is > ¼ total area of wetland	points = 2	4
Area seasonally ponded is < ¼ total area of wetland	points = 0	
Total for D 1	Add the points in the boxes above	13

Rating of Site Potential If score is: X **12-16 = H** ___**6-11 = M** ___**0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
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	0
Total for D 2	Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___**3 or 4 = H** ___**1 or 2 = M** X **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	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	0
Total for D 3	Add the points in the boxes above	0

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

Wetland name or number 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)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	2
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		
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	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. 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	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	
Total for D 4	Add the points in the boxes above	8

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 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.	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 X 0 = L *Record the rating on the first page*

Wetland name or number 1

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

____Aquatic bed	4 structures or more: points = 4
____Emergent	3 structures: points = 2
____Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
X Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

X The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

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

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

1

H 1.3. Richness of plant species

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

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

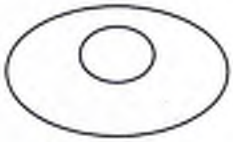
If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

1

H 1.4. Interspersion of habitats

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

None = 0 points



Low = 1 point

Moderate = 2 points

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

0

Wetland name or number 1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* X 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*)	4
Total for H 1 — Add the points in the boxes above	4

Rating of Site Potential If score is: ___ 15-18 = H X 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:* % undisturbed habitat 70 + [(% moderate and low intensity land uses)/2] 15 = 85 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 25 + [(% moderate and low intensity land uses)/2] 25 = 50 % Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	2
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	5

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

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — 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	1

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

Wetland name or number 1

WDFW Priority Habitats

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

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

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **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*).

X **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 A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
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**	**Cat. I**
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 ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. 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**)	**Cat. I**
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? Yes – Go to **SC 3.3** 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? 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? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** (No = **Is not a bog**)	**Cat. I**

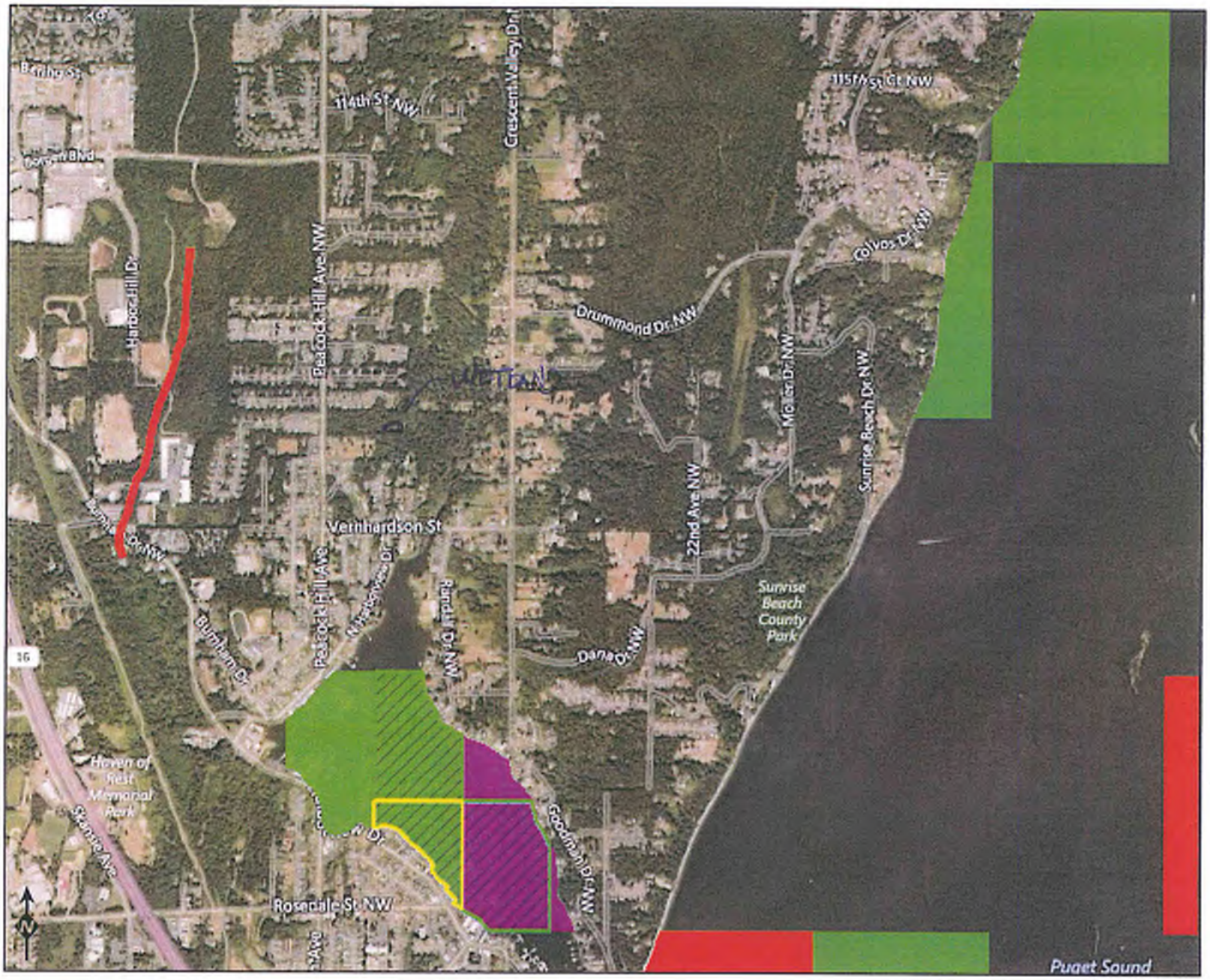
Wetland name or number 1

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**	**Cat. I**
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 ⅓ 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^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. 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**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	N/A

FIGURE A

303d map

November 2, 2016



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles
0 0.25 0.5 1

DEPARTMENT OF ECOLOGY

FIGURE B

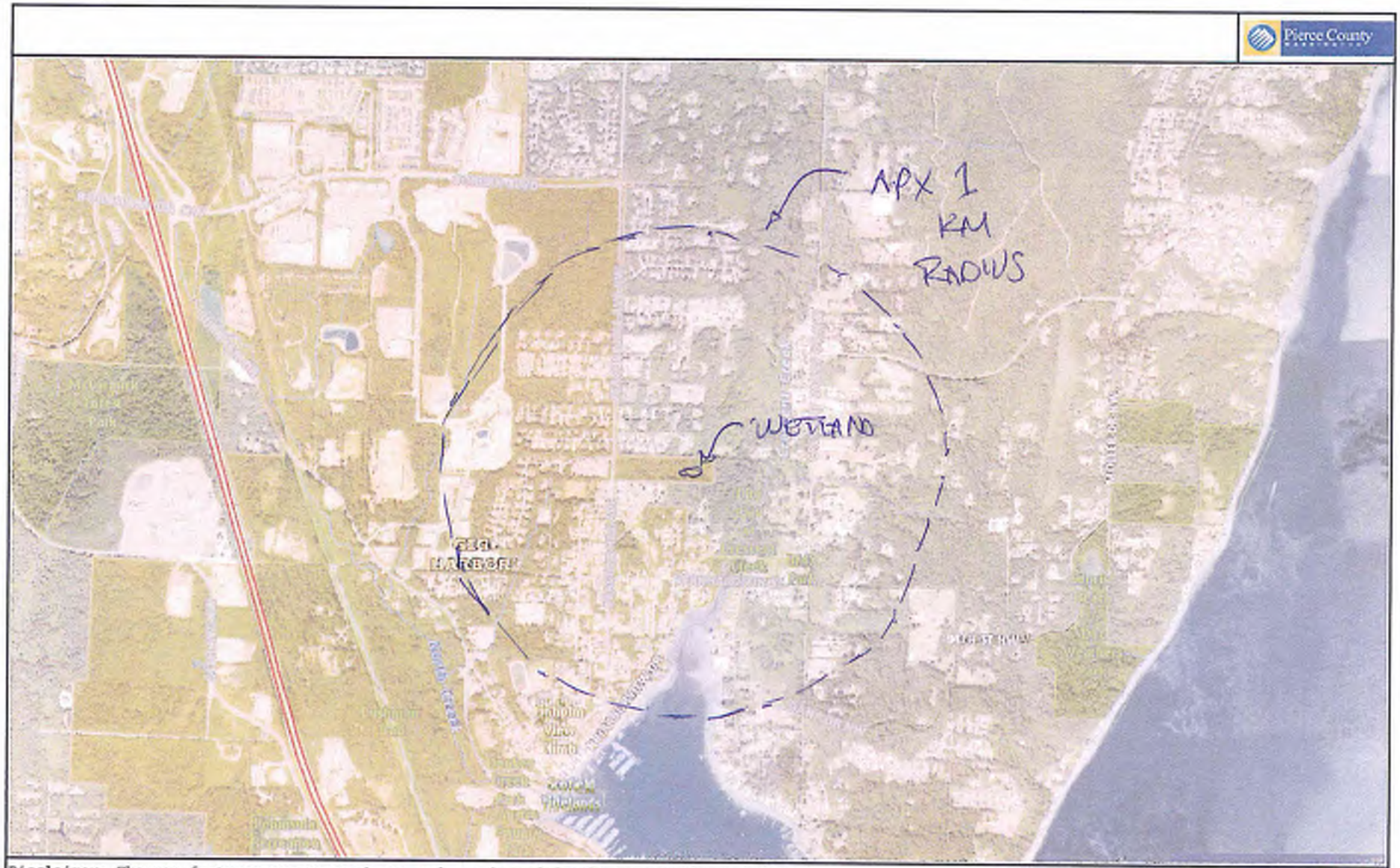


FIGURE C

Water Quality Improvement Projects (TMDLs)

WRIA 15: Kitsap

The following table lists overview information and links to specific water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.

Counties

- King
- Kitsap
- Mason
- Pierce

Waterbody Name	Pollutant(s)	Status**	TMDL Lead
Liberty Bay Tributaries	Fecal Coliform	Approved by EPA Has an implementation plan	Danielle DeVoe 425-649-7036
Sinclair-Dyes Inlets	Fecal Coliform	Approved by EPA Has an implementation plan	Danielle DeVoe 425-649-7036
Union River Tributary: Bear Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Danielle DeVoe 425-649-7036

** ***Status*** *will be listed as one of the following: Approved by EPA, Under Development or Implementation*

For more information about WRIA 15:

- Waterbodies in WRIA 15 - using the Water Quality Assessment Query Tool
- Watershed Information for WRIA 15

* The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins.

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Last updated December 2013

Feedback?

Appendix 2. Field Data Forms.

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

Project/Site: The Reserve City/County: Gig Harbor, Pierce County Sampling Date: 10/24/2015
Applicant/Owner: Resource Properties State: WA Sampling Point: 1 (wl side of 1-3)
Investigator(s): E. Russell Section, Township, Range: Section 32, Twp 22 North, Range 2 East, WM
Landform (hillslope, terrace, etc.): Valley/Floodplain Local relief (concave, convex, none): none Slope (%): 0-6
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47-20' 58" Long: 122-35'14" Datum: WGS 84
Soil Map Unit Name: Harstine gravelly sandy loam NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x No	**Is the Sampled Area within a Wetland?** Yes x No
Hydric Soil Present?	Yes x No	
Wetland Hydrology Present?	Yes x No	

Remarks: three parameter criteria met.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Alnus rubra*	50	yes	FAC
2.			
3.			
4.			
Total Cover:	50		
Shrub Stratum			
1. *Rubus spectabilis*	60	yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	60		
Herb Stratum			
1. *Lysichiton americanus*	40	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	40		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	0
FACW species	x2 =	0
FAC species	x3 =	0
FACU species	x4 =	0
UPL species	x5 =	0
Column Totals:	(A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No

Remarks: dominance test met.

SOIL

Sampling Point: 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					silt loam	
8-16+	10YR 4/1	80	7.5YR 4/6	20	C	M	fine sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes x No ___

Remarks: Hydric soil critieria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

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 (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): 8

Wetland Hydrology Present? Yes x No ___

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

Remarks: Hydrology and indicators observed.

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

Project/Site: The Reserve City/County: Gig Harbor, Pierce County Sampling Date: 10/24/2015
Applicant/Owner: Resource Properties State: WA Sampling Point: 2 (up side of 1-3)
Investigator(s): E. Russell Section, Township, Range: Section 32, Twp 22 North, Range 2 East, WM
Landform (hillslope, terrace, etc.): Valley/Floodplain Local relief (concave, convex, none): none Slope (%): 0-6
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47-20' 58" Long: 122-35'14" Datum: WGS 84
Soil Map Unit Name: Harstine gravelly sandy loam NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes x No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____ No x	**Is the Sampled Area within a Wetland?**	**Yes ____ No x**
Hydric Soil Present?	Yes ____ No x		
Wetland Hydrology Present?	Yes ____ No x		

Remarks: three parameter criteria not met.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Pseudotsuga menziesii*	30	yes	FACU
2.			
3.			
4.			
Total Cover:	30		
Shrub Stratum			
1. *Polystichum munitum*	30	yes	FACU
2. *Gaultheria shallon*	40	yes	FACU
3.			
4.			
5.			
Total Cover:	70		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	0		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust 0		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	0
FACW species	x2 =	0
FAC species	x3 =	0
FACU species	x4 =	0
UPL species	x5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No x

Remarks: dominance test not met.

SOIL

Sampling Point: 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/3	100					grav loam	
7-18	10YR 4/4	100					grav loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No x

Remarks: No hydric soil critieria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

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 (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water table Present? Yes ____ No ____ Depth (inches): _____

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

Wetland Hydrology Present? Yes ____ No x

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

Remarks: No hydrology indicators.

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

Project/Site: The Reserve City/County: Gig Harbor, Pierce County Sampling Date: 10/24/2015
Applicant/Owner: Resource Properties State: WA Sampling Point: 3 (wl side of 1-8)
Investigator(s): E. Russell Section, Township, Range: Section 32, Twp 22 North, Range 2 East, WM
Landform (hillslope, terrace, etc.): Valley/Floodplain Local relief (concave, convex, none): none Slope (%): 0-6
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47-20' 58" Long: 122-35'14" Datum: WGS 84
Soil Map Unit Name: Harstine gravelly sandy loam NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x No	**Is the Sampled Area within a Wetland?** Yes x No
Hydric Soil Present?	Yes x No	
Wetland Hydrology Present?	Yes x No	

Remarks: three parameter criteria met.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Alnus rubra*	40	yes	FAC
2. *Thuja plicata*	40	yes	FAC
3.			
4.			
Total Cover:	80		
Shrub Stratum			
1. *Rubus spectabilis*	50	yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	50		
Herb Stratum			
1. *Athyrium filix-femina*	40	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	40		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	0
FACW species		x2 =	0
FAC species		x3 =	0
FACU species		x4 =	0
UPL species		x5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No

Remarks: dominance test met.

SOIL

Sampling Point: 3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	100					muck	
9-18	10YR 4/1	80	7.5YR 4/6	20	C	M	fine sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes x No ___

Remarks: Hydric soil critieria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

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 (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): 8

Wetland Hydrology Present? Yes x No ___

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

Remarks: Hydrology and indicators observed.

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

Project/Site: The Reserve City/County: Gig Harbor, Pierce County Sampling Date: 10/24/2015
Applicant/Owner: Resource Properties State: WA Sampling Point: 4 (up side of 1-8)
Investigator(s): E. Russell Section, Township, Range: Section 32, Twp 22 North, Range 2 East, WM
Landform (hillslope, terrace, etc.): Valley/Floodplain Local relief (concave, convex, none): none Slope (%): 0-6
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47-20' 58" Long: 122-35'14" Datum: WGS 84
Soil Map Unit Name: Harstine gravelly sandy loam NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" Present? Yes x No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No x	**Is the Sampled Area within a Wetland?** Yes _____ No x
Hydric Soil Present?	Yes _____ No x	
Wetland Hydrology Present?	Yes _____ No x	

Remarks: three parameter criteria not met.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Acer macrophyllum*	50	yes	FACU
2.			
3.			
4.			
Total Cover:	50		
Shrub Stratum			
1. *Polystichum munitum*	30	yes	FACU
2. *Rubus spectabilis*	30	yes	FAC
3. *Rubus armeniacus*	40	yes	FACU
4.			
5.			
Total Cover:	100		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	0		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	0
FACW species		x2 =	0
FAC species		x3 =	0
FACU species		x4 =	0
UPL species		x5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
_____ 1 - Rapid Test for Hydrophytic Vegetation
_____ 2 - Dominance Test is >50%
_____ 3 - Prevalence Index is ≤3.0[1]
_____ 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
_____ 5 - Wetland Non-Vascular Plants[1]
_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: dominance test not met.

SOIL

Sampling Point: 4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/4	100					grav lm sand	
9-16	10YR 4/4	100					grav sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No x

Remarks: No hydric soil critieria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

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 (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water table Present? Yes ___ No ___ Depth (inches): ___

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

Wetland Hydrology Present? Yes ___ No x

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

Remarks: No hydrology indicators.

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

Project/Site: The Reserve City/County: Gig Harbor, Pierce County Sampling Date: 10/24/2015
Applicant/Owner: Resource Properties State: WA Sampling Point: 5 (wl side of 1-12)
Investigator(s): E. Russell Section, Township, Range: Section 32, Twp 22 North, Range 2 East, WM
Landform (hillslope, terrace, etc.): Valley/Floodplain Local relief (concave, convex, none): none Slope (%): 0-6
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47-20' 58" Long: 122-35'14" Datum: WGS 84
Soil Map Unit Name: Harstine gravelly sandy loam NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x No	**Is the Sampled Area within a Wetland?** Yes x No
Hydric Soil Present?	Yes x No	
Wetland Hydrology Present?	Yes x No	

Remarks: three parameter criteria met.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Alnus rubra*	50	yes	FAC
2.			
3.			
4.			
Total Cover:	50		
Shrub Stratum			
1. *Rubus spectabilis*	50	yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	50		
Herb Stratum			
1. *Oenanthe sarmentosa*	50	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	50		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	0
FACW species	x2 =	0
FAC species	x3 =	0
FACU species	x4 =	0
UPL species	x5 =	0
Column Totals: (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No

Remarks: dominance test met.

SOIL

Sampling Point: 5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					muck	
6-18	10YR 4/2	85	7.5YR 4/4	15	C	M	compact till	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes x No ___

Remarks: Hydric soil critieria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

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 (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): 4

Wetland Hydrology Present? Yes x No ___

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

Remarks: Hydrology and indicators observed.

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

Project/Site: The Reserve City/County: Gig Harbor, Pierce County Sampling Date: 10/24/2015
Applicant/Owner: Resource Properties State: WA Sampling Point: 6 (up side of 1-12
Investigator(s): E. Russell Section, Township, Range: Section 32, Twp 22 North, Range 2 East, WM
Landform (hillslope, terrace, etc.): Valley/Floodplain Local relief (concave, convex, none): none Slope (%): 0-6
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47-20' 58" Long: 122-35'14" Datum: WGS 84
Soil Map Unit Name: Harstine gravelly sandy loam NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes x No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____ No x	Is the Sampled Area within a Wetland? Yes ____ No x
Hydric Soil Present?	Yes ____ No x	
Wetland Hydrology Present?	Yes ____ No x	

Remarks: three parameter criteria not met.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Acer macrophyllum*	40	yes	FACU
2. *Alnus rubra*	40	yes	FAC
3.			
4.			
Total Cover:	80		

Shrub Stratum			
1. *Polystichum munitum*	30	yes	FACU
2. *Rubus spectabilis*	30	yes	FAC
3. *Oemleria cerasiformis*	40	yes	FACU
4.			
5.			
Total Cover:	100		

Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	0		

Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	0
FACW species	____	x2 =	0
FAC species	____	x3 =	0
FACU species	____	x4 =	0
UPL species	____	x5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No x

Remarks: dominance test not met.

SOIL

Sampling Point: 6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	100					grav lm sand	
7-16	10YR 5/3	100					grav sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No x

Remarks: No hydric soil critieria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

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 (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water table Present? Yes ___ No ___ Depth (inches): ___

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

Wetland Hydrology Present? Yes ___ No x

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

Remarks: No hydrology indicators.

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

Project/Site: The Reserve City/County: Gig Harbor, Pierce County Sampling Date: 10/24/2015
Applicant/Owner: Resource Properties State: WA Sampling Point: 7 (wl side of 1-20)
Investigator(s): E. Russell Section, Township, Range: Section 32, Twp 22 North, Range 2 East, WM
Landform (hillslope, terrace, etc.): Valley/Floodplain Local relief (concave, convex, none): none Slope (%): 0-6
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47-20' 58" Long: 122-35'14" Datum: WGS 84
Soil Map Unit Name: Harstine gravelly sandy loam NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes x No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x No	**Is the Sampled Area within a Wetland?** Yes x No
Hydric Soil Present?	Yes x No	
Wetland Hydrology Present?	Yes x No	

Remarks: three parameter criteria met.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Alnus rubra*	60	yes	FAC
2.			
3.			
4.			
Total Cover:	60		
Shrub Stratum			
1. *Rubus spectabilis*	40	yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	40		
Herb Stratum			
1. *Oenanthe sarmentosa*	50	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	50		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	0
FACW species	x2 =	0
FAC species	x3 =	0
FACU species	x4 =	0
UPL species	x5 =	0
Column Totals:	(A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No

Remarks: dominance test met.

SOIL

Sampling Point: 7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	100					muck	
10-16+	10YR 4/1	85	7.5YR 4/6	15	C	M	fine sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes x No ___

Remarks: Hydric soil critieria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

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 (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): 4

Wetland Hydrology Present? Yes x No ___

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

Remarks: Hydrology and indicators observed.

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

Project/Site: The Reserve City/County: Gig Harbor, Pierce County Sampling Date: 10/24/2015
Applicant/Owner: Resource Properties State: WA Sampling Point: 8 (up side of 1-20
Investigator(s): E. Russell Section, Township, Range: Section 32, Twp 22 North, Range 2 East, WM
Landform (hillslope, terrace, etc.): Valley/Floodplain Local relief (concave, convex, none): none Slope (%): 0-6
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47-20' 58" Long: 122-35'14" Datum: WGS 84
Soil Map Unit Name: Harstine gravelly sandy loam NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____ No x	**Is the Sampled Area within a Wetland?** Yes ____ No x
Hydric Soil Present?	Yes ____ No x	
Wetland Hydrology Present?	Yes ____ No x	

Remarks: three parameter criteria not met.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Pseudotsuga menziesii*	40	yes	FACU
2. *Tsuga heterophylla*	40	yes	FACU
3.			
4.			
Total Cover:	80		
Shrub Stratum			
1. *Polystichum munitum*	30	yes	FACU
2. *Rubus spectabilis*	50	yes	FAC
3.			
4.			
5.			
Total Cover:	80		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	0		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:
OBL species	x1 =	0
FACW species	x2 =	0
FAC species	x3 =	0
FACU species	x4 =	0
UPL species	x5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptation1 (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No x

Remarks: dominance test not met.

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/3	100					grav lm sand	
9-16+	10YR 4/4	100					grav sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No x

Remarks: No hydric soil critieria met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

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 (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water table Present? Yes ___ No ___ Depth (inches): ___

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

Wetland Hydrology Present? Yes ___ No x

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

Remarks: No hydrology indicators.

Attachment D — Data Forms

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

Project/Site: 1310.0038 The Reserve City/County: Gig Harbor/ Pierce Sampling Date: 12/21/21

Applicant/Owner: Prospect Developement -Justin Holland State: WA Sampling Point: DP-1

Investigator(s): Jake Layman Section, Township, Range: 32/22N/2E

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): A2 Lat: 47.349320 Long: -122.58556955 Datum: WGS84

Soil Map Unit Name: 16D- Harstine gravelly ashy sandy loam, 15 to 30 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: Not all three wetland criteria met; lack of wetland hydrology. Data collected near foot of slope on the south-central portion of the site approximately 10 feet north of Wetland A. Over 2 inches of rainfall was observed in the week leading up to the site investigation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	10	Yes	FAC
2.			
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Rubus spectabilis	35	Yes	FAC
2. Rubus armeniacus	5	No	FAC
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. Polystichum munitum	60	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1. Rubus ursinus	5	Yes	FACU
2.			
	5	= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: No hydrophytic vegetation criteria met; did not meet the dominance test. Prevalence index not warranted due to lack of wetland hydrology.

SOIL

Sampling Point: DP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	5YR 2.5/1	100	-	-	-	-	SiLo	Silt Loam
8 - 11	10YR 3/1	93	7.5YR 4/6	7	C	M	GrSaLo	Gravelly Sandy Loam
11 - 16	10YR 3/2	98	2.5Y 5/6	2	C	M	GrSaLo	Gravelly Sandy Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: None

Depth (inches): --

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soil criteria met through Indicator F6

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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 (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): None

Water Table Present? Yes ☐ No ☒ Depth (inches): None

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): None

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No wetland hydrology criteria met.

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

Project/Site: 1310.0038 The Reserve City/County: Gig Harbor/ Pierce Sampling Date: 12/21/21

Applicant/Owner: Prospect Developement - Justin Holland State: WA Sampling Point: DP-2

Investigator(s): Jake Layman Section, Township, Range: 32/22N/2E

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): A2 Lat: 47.349268 Long: -122.58550587 Datum: WGS84

Soil Map Unit Name: 16D- Harstine gravelly ashy sandy loam, 15 to 30 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks:
All three wetland criteria met. Data collected in Wetland A. Over 2 inches of rainfall was observed in the week leading up to the site investigation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	10	Yes	FAC
2.			
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Rubus spectabilis	50	Yes	FAC
2. Rubus armeniacus	5	No	FAC
3. Sambus racemosa	2	No	FACU
4.			
5.			
	57	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. Tolmiea menziesii	25	Yes	FAC
2. Polystichum munitum	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1. Rubus ursinus	5	Yes	FACU
2.			
	5	= Total Cover	

% Bare Ground in Herb Stratum 55

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:
Hydrophytic vegetation criteria met through the Dominance Test

SOIL

Sampling Point: DP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 2/1	100	-	-	-	-	Lo	Loam
4 - 9	10YR 2/1	100	-	-	-	-	SaLo	Sandy Loam
9 - 16	2.5Y 4/1	95	5Y 4/4	5	C	M	GrSaLo	Gravelly Sandy Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: None

Depth (inches): --

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric Soil criteria met through indicators A11 and F3.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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 (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): None

Water Table Present? Yes ☒ No ☐ Depth (inches): 7

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 4

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Wetland hydrology criteria met through primary indicators A2 and A3.

Attachment E — Wetland Rating

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): A Date of site visit: 12/21

Rated by Jake Layman Trained by Ecology? ✔ Yes ___No Date of training 11/19

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

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

Source of base aerial photo/map ESRI ArcGIS

OVERALL WETLAND CATEGORY IV (based on functions ✔ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	L	M	L	
Landscape Potential	L	L	L	
Value	L	H	H	TOTAL
Score Based on Ratings	3	6	5	14

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	N/A

Wetland name or number 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 polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
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 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)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number A

HGM Classification of Wetlands in Western Washington

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

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

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

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe** – go to 1.1

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

☐ **NO – Saltwater Tidal Fringe (Estuarine)** ☐ **YES – Freshwater Tidal Fringe**

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

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

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

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

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

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

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

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

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

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

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

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

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

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number A

☐ NO – go to 6 ☐ **YES** – The wetland class is **Riverine**

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

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

☐ NO – go to 7 ☐ **YES** – The wetland class is **Depressional**

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

☐ NO – go to 8 ☐ **YES** – The wetland class is **Depressional**

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

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

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

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

Wetland name or number A

SLOPE WETLANDS

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

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	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 points = 0	2
Total for S 1 Add the points in the boxes above	3

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

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

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

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

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

Wetland name or number A

SLOPE WETLANDS

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

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	1

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

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

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

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
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	2

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

____Aquatic bed	4 structures or more: points = 4
____Emergent	3 structures: points = 2
_×_Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
_×_Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

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

____Permanently flooded or inundated	4 or more types present: points = 3
____Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	2 types present: points = 1
_×_Saturated only	1 type present: points = 0
____Permanently flowing stream or river in, or adjacent to, the wetland	
_×_Seasonally flowing stream in, or adjacent to, the wetland	
____**Lake Fringe wetland**	**2 points**
____**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

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

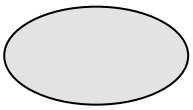
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

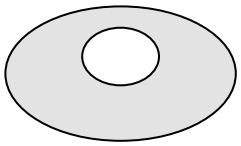
1

H 1.4. Interspersion of habitats

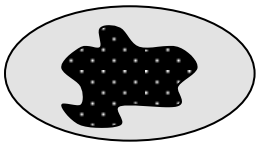
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points

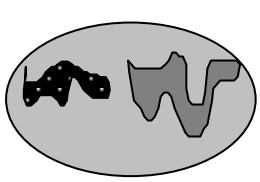


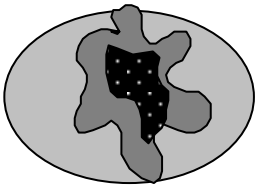
Low = 1 point

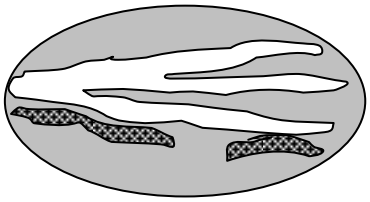


Moderate = 2 points

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







1

Wetland name or number A

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

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* [10.18] % undisturbed habitat **+** [(% moderate and low intensity land uses) [8.45] /2] = 14.405 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* [18.57] % undisturbed habitat **+** [(% moderate and low intensity land uses) [30.00] /2] = 33.57 % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	0

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

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

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

Wetland name or number A

WDFW Priority Habitats

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

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

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **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*).

X **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.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
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? ☐ 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? ☐ 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 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? ☐ Yes – Go to **SC 3.3** ☒ 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? ☐ 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? ☐ Yes = **Is a Category I bog** ☐ No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No **= Is not a bog**	

Wetland name or number A

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^2)

☐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

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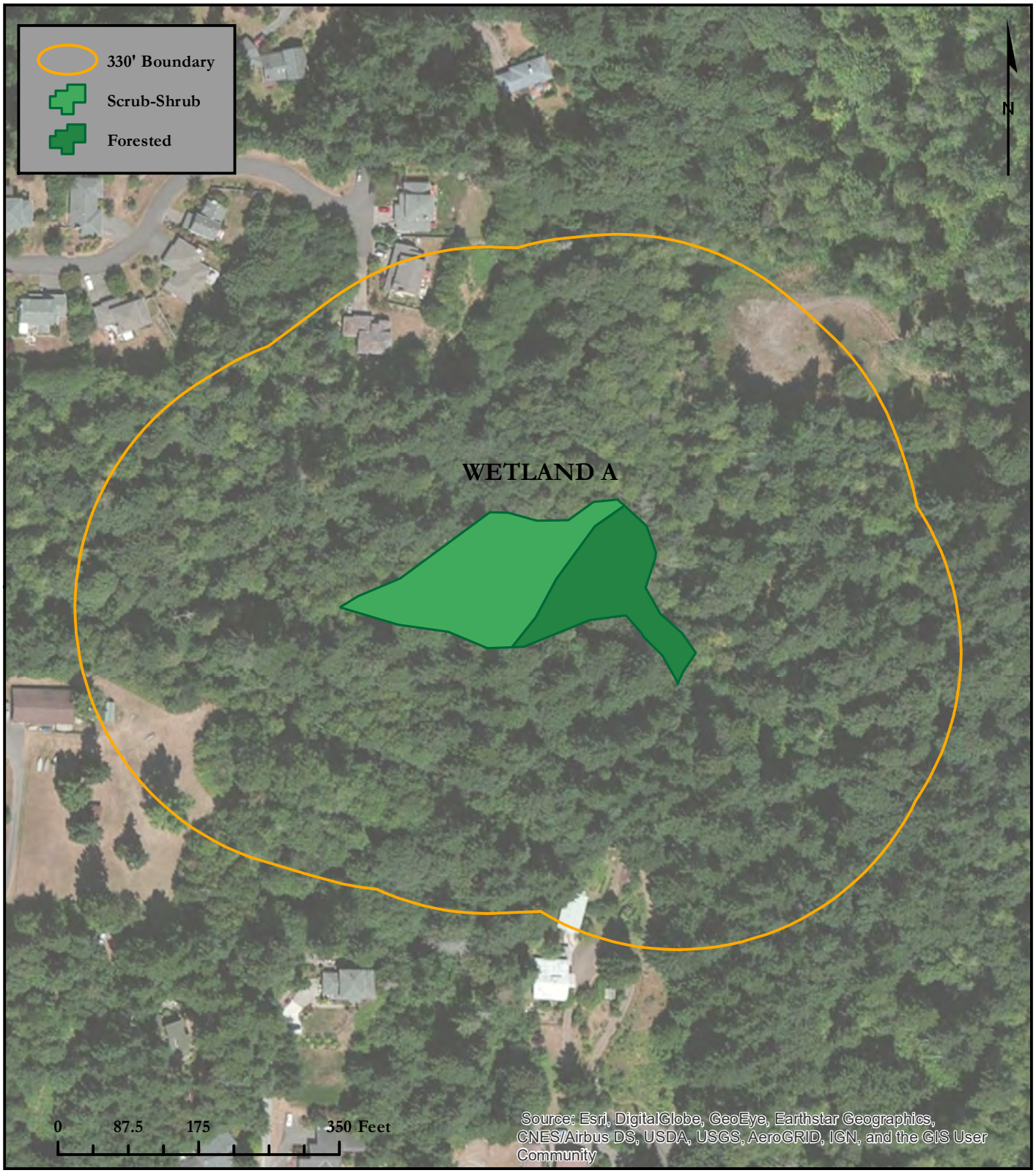
Attachment F —Wetland Rating Figures

THE RESERVE - COWARDIN MAP



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Phone: (253) 514-8952 Fax: (253) 514-8954
www.soundviewconsultants.com

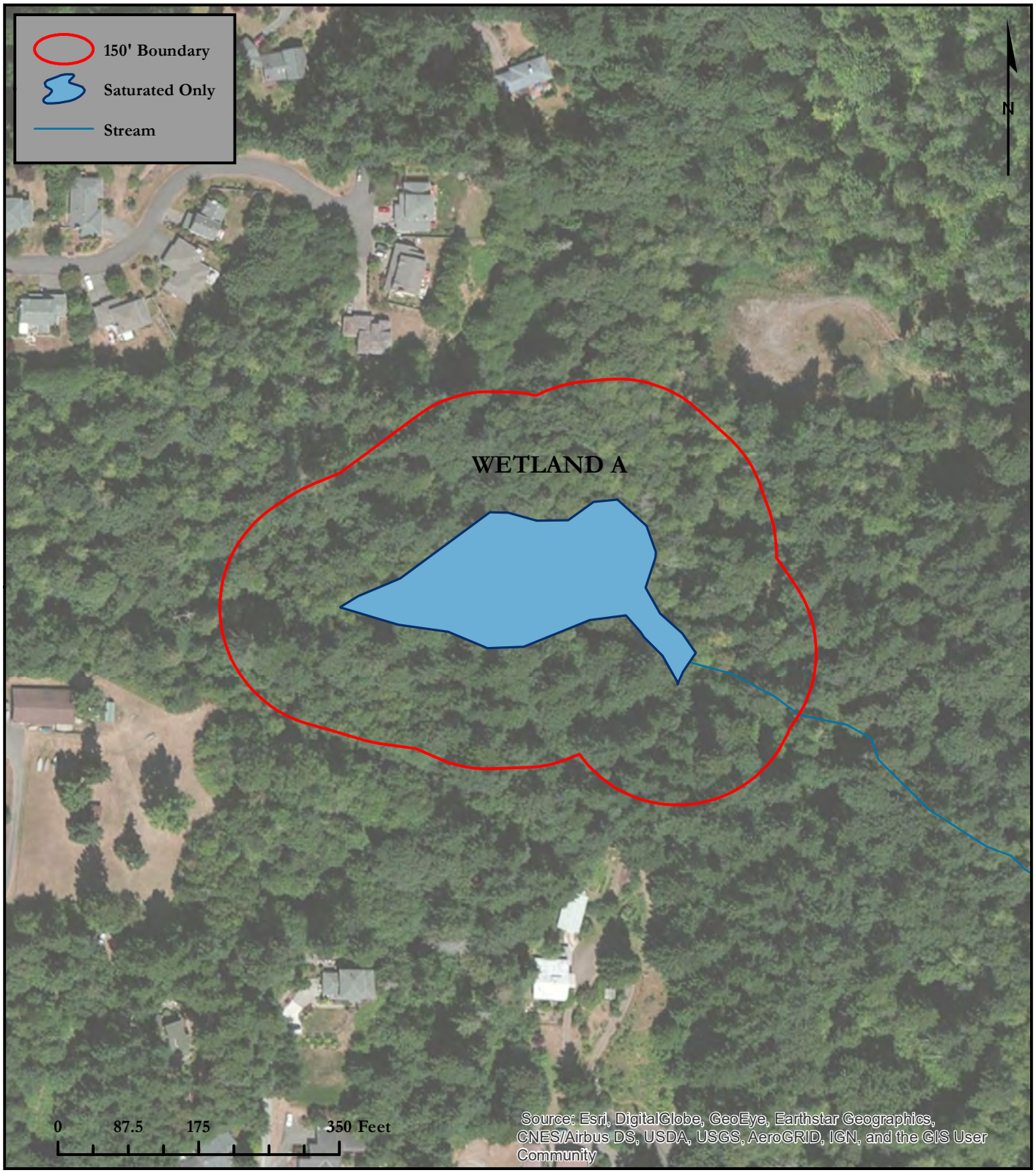
THE RESERVE

NO SITE ADDRESS

PIERCE COUNTY PARCEL NUMBERS:
XXXXXXXX

DATE:	11/3/2022
JOB:	1310.0038
BY:	JML
SCALE:	1" = 175'
FIGURE NO.	1 of 4

THE RESERVE - HYDROPERIOD MAP



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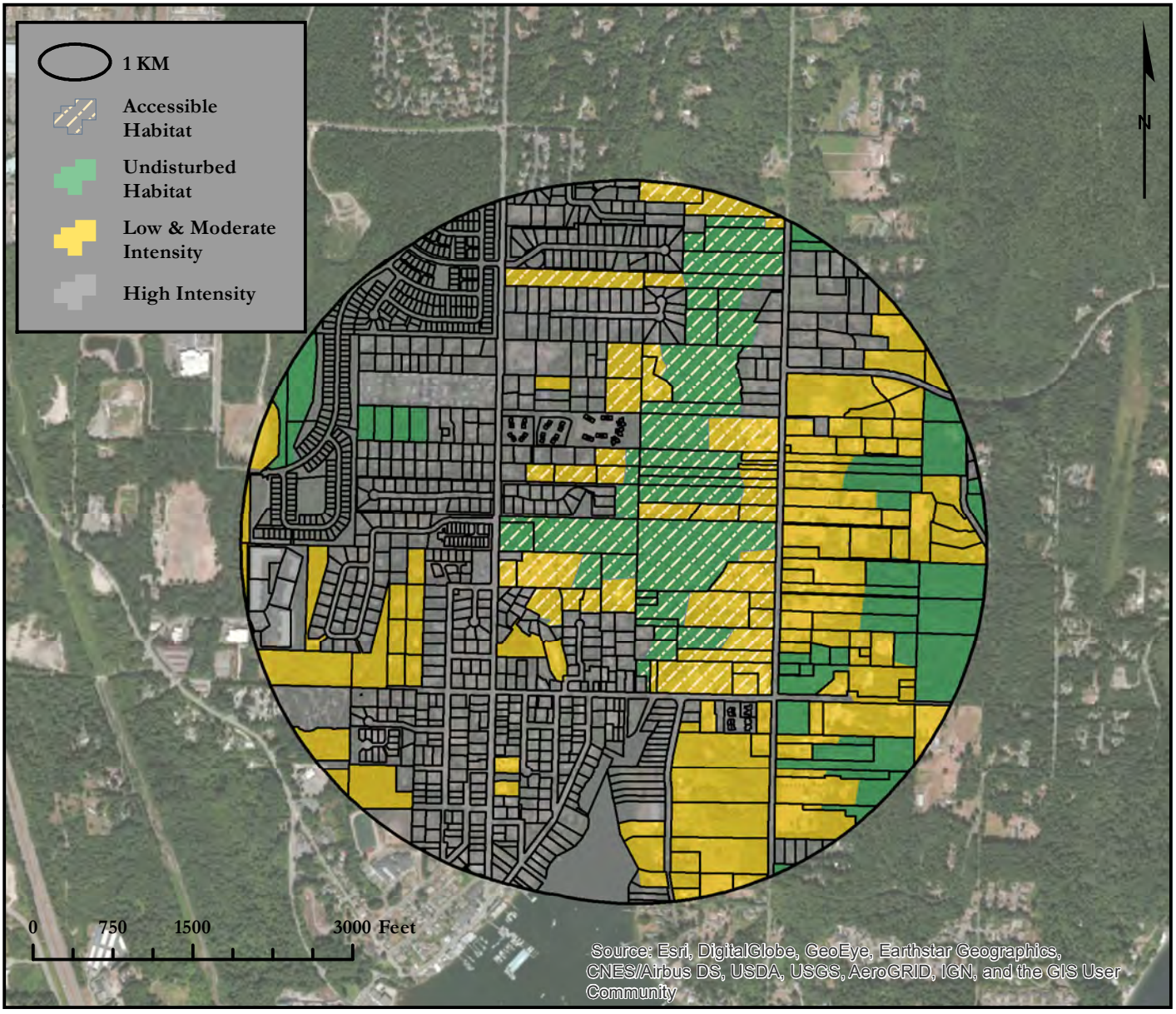
THE RESERVE

NO SITE ADDRESS

PIERCE COUNTY PARCEL NUMBERS:
0222323134 & 0222323135

DATE:	11/3/2022
JOB:	1310.0038
BY:	JML
SCALE:	1" = 175'
FIGURE NO.	2 OF 4

THE RESERVE - HABITAT MAP



H.2.0 Wetland A		
H.2.1		
	Abutting Undisturbed Habitat	10.18%
	Abutting Moderate & Low Intensity Land Uses	8.45%
	Accessible Habitat	**14.41%**
H.2.2		
	Undisturbed Habitat	18.57%
	Moderate & Low Intensity Land Uses	30.00%
	Undisturbed Habitat in 1 KM Polygon	**33.57%**
H.2.3		
	High Intensity Land Use in 1 KM Polygon	**51.43%**

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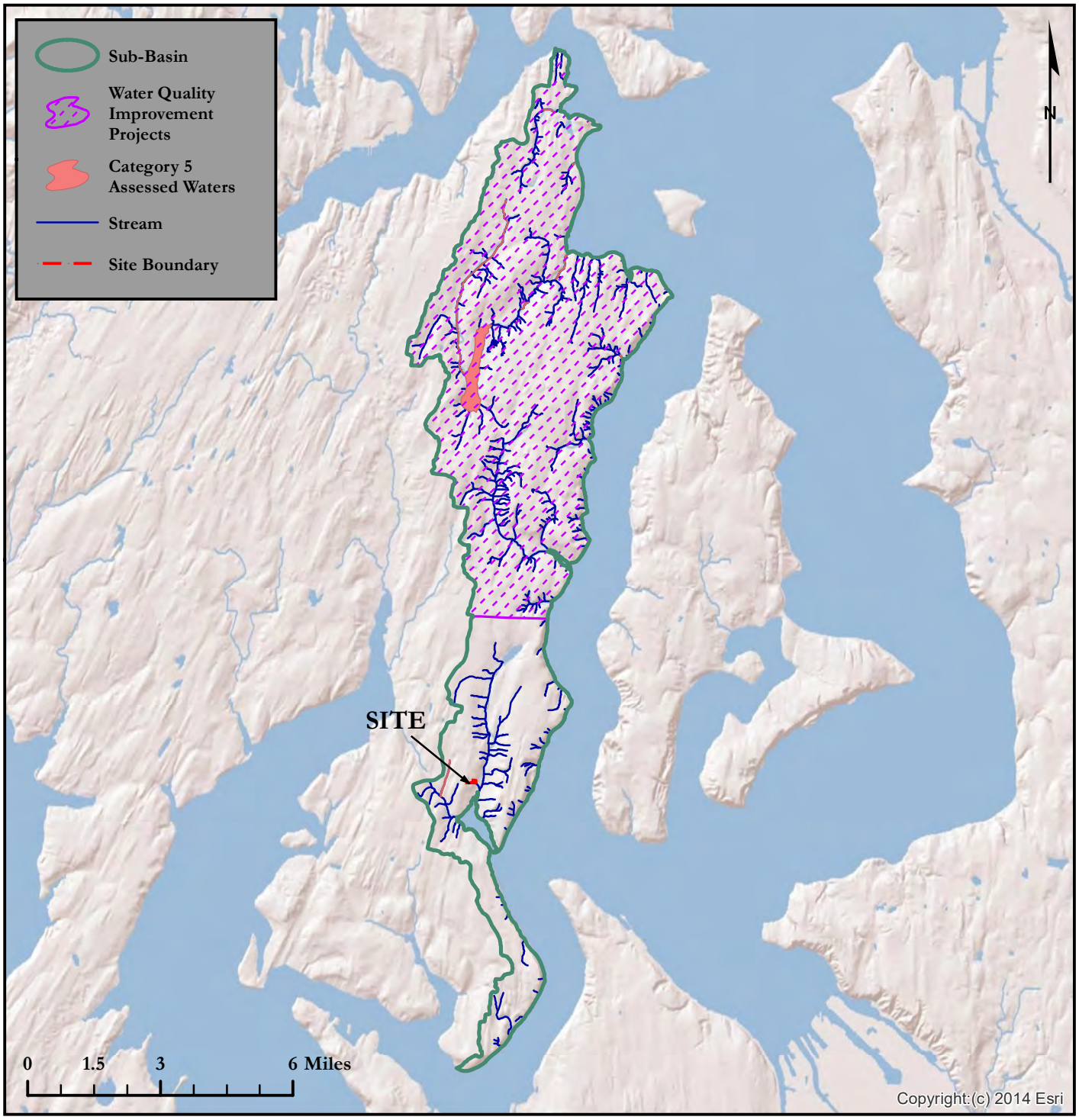
THE RESERVE

NO SITE ADDRESS

PIERCE COUNTY PARCEL NUMBERS:
0222323134 & 0222323135

DATE: 11/3/2022
JOB: 1310.0038
BY: JML
SCALE: " = 1,500 '
FIGURE NO. 3 OF 4



Name	Pollutants	TMDL ID	WRIA	Year Approved
Sinclair and Dyes Inlets Tributaries Bacteria TMDL	Bacteria	130	15	2012

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THE RESERVE

NO SITE ADDRESS

PIERCE COUNTY PARCEL NUMBERS:
0222323134 & 0222323135

DATE: 11/3/2022
JOB: 1310.0038
BY: JML
SCALE: 1 " = 3 mi
FIGURE NO. 4 OF 4

Attachment G — Site Photographs

DP-1- Upland Plot

DP-1 Soil Profile

DP-1 Soil Pit

DP-1 Surrounding Conditions

DP-2 Wetland A

DP-2 Soil Profile

DP-2 Surrounding Conditions

DP-2 Surrounding Conditions

Typical Sloped Wetland Conditions

Sloped Wetland A boundary

Looking downslope to east and Wetland A. Sparse tree canopy in Wetland A.

Attachment H — Qualifications

All field inspections, wetland and habitat assessment confirmations and supporting documentation, including this ***Wetland and Fish and Wildlife Habitat Assessment Technical Memorandum*** prepared for ***The Reserve*** project, were prepared by, or under the direction of, Jon Pickett of SVC. The site inspection was performed by Jake Layman. Report preparation was completed by Kramer Canup. Final quality assurance was completed by Kyla Caddey.

Jon Pickett

Associate Principal
Professional Experience: 10+ years

Jon Pickett is an Associate Principal and Senior Scientist with a diverse background in environmental and shoreline compliance and permitting, wetland and stream ecology, fish and wildlife biology, mitigation compliance and design, and environmental planning and land use due diligence. Jon oversees a wide range of large-scale industrial, commercial, and multi-family residential projects throughout Western Washington, providing environmental permitting and regulatory compliance assistance for land use entitlement projects from feasibility through mitigation compliance. Jon performs wetland, stream, and shoreline delineations and fish & wildlife habitat assessments; conducts code and regulation analysis and review; prepares reports and permit applications and documents; provides environmental compliance recommendation; and provides restoration and mitigation design.

Jon earned a Bachelor of Science degree in Natural Resource Sciences from Washington State University and Bachelor of Science and Minor in Forestry from Washington State University. Jon has received 40-hour wetland delineation training (Western Mountains, Valleys, & Coast and Arid West Regional Supplements) and regularly performs wetland, stream, and shoreline delineations. Jon is a Whatcom County Qualified Wetland Specialist and Wildlife Biologist and is a Pierce County Qualified Wetland Specialist. He has been formally trained by WSDOE in the use of the Washington State Wetland Rating System 2014, How to Determine the Ordinary High-Water Mark (Freshwater and Marine), Using Field Indicators for Hydric Soils, and the Using the Credit-Debit Method for Estimating Mitigation Needs.

Kyla Caddey, PWS, Certified Ecologist

Senior Environmental Scientist
Professional Experience: 8 years

Kyla Caddey is a Senior Environmental Scientist with a diverse background in stream and wetland ecology, wildlife ecology and conservation, wildlife and natural resource assessments and monitoring, and riparian habitat restoration at various public and private entities. Kyla has field experience performing in-depth studies in both the Pacific Northwest and Central American ecosystems which included various environmental science research and statistical analysis. Kyla has advanced expertise in federal- and state-listed endangered, threatened, and sensitive species surveys and assessment of aquatic and terrestrial systems throughout the Puget Sound region. She has completed hundreds of wetland delineations and has extensive knowledge and interest in hydric soil identification. As the senior writer, she provides informed project oversight and performs final quality assurance / quality control on various types of scientific reports for agency submittal, including: Biological

Assessments/Evaluations; Wetland, Shoreline, and Fish and Wildlife Habitat Assessments; Mitigation Plans, and Mitigation Monitoring Reports. She currently performs wetland, stream, and shoreline delineations and fish and wildlife habitat assessments; prepares scientific reports; and provides environmental permitting and regulatory compliance assistance to support a wide range of commercial, industrial, and multi-family residential land use projects.

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 also completed additional coursework in Comprehensive Bird Biology from Cornell University. Ms. Caddey is a Certified Professional Wetland Scientist (PWS #3479) through the Society of Wetland Scientists and Certified Ecologist through the Ecological Society of America. She has received 40-hour wetland delineation training (Western Mtns, Valleys, & Coast and Arid West Regional Supplement), is a Pierce County Qualified Wetland Specialist and Wildlife Biologist, and is a USFWS-approved Mazama pocket gopher survey biologist. Kyla has been formally trained through the Washington State Department of Ecology, Coastal Training Program, and the Washington Native Plant Society in winter twig and grass, sedge, and rush identification for Western WA; 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. Additionally, she has received formal training in preparing WSDOT Biological Assessments.

Jake Layman

Environmental Scientist and Fisheries Biologist
Professional Experience: 13+ years

Jake Layman is an Environmental Scientist with a varied background in fisheries, wildlife, and aquatic invertebrate biology, as well as wetland habitat, stream, and lake ecology. Jakes's expertise includes endangered species monitoring, lake limnology assessments, water chemistry profiles, off-channel habitat characterization, laboratory management, wetland delineation, and terrestrial and aquatic amphibian identification with associated habitat assessments. Jake also has experience in fish population assessments, stream typing, spawning escapement, environmental disaster recovery, and amphibian toxicology research. Jake has over 10 years of experience at the federal and state levels conducting ecological monitoring surveys throughout Eastern and Western Washington. He worked with the National Park Service to conduct environmental compliance monitoring on park construction projects, infrastructure maintenance projects, and federal highways projects. This position also included environmental spill response, fish exclusion surveys in support of construction, and effectiveness monitoring on Engineered Log Jam (ELJ) projects. Jake has worked with the Washington Department of Fish and Wildlife (WDFW) to assess and inventory fish passage barriers and monitor culvert removal projects throughout Western Washington. While working for WDFW, Jake managed the daily operation for the intensive habitat study, on off-channel wetlands, for the Chehalis Aquatic Resources Protection Plan (ASRP).

Jake earned Bachelor's degrees in both Biology, with an Ecology specialization, and Geography, with a Natural Resource Management specialization, from Central Washington University. In addition, Jake has a Minor in Environmental Studies and a Certificate in Geographic Information Systems (GIS) and Cartography form Central Washington University. Jake has received a 40-hour wetland delineation

training (Western Mtns, Valleys, & Coast and Arid West Regional Supplement) and training from the Washington State Department of Ecology in Environmental Negotiations; Navigating SEPA; Conducting Forage Fish Surveys; Puget Sound Coastal Processes, Shoreline Modifications, and Beach Restoration; Using the Marine Shoreline Design Guidelines for Marine Shoreline Stabilization; How to Determine the Ordinary High Water Mark; Wetland Identification, and Using the Revised Washington State Wetland Rating System (2014) in Western Washington. Jake is a USFWS-approved Mazama pocket gopher survey biologist.

Kramer Canup

Environmental Project Coordinator
Professional Experience: 5 years

Kramer Canup is an Environmental Project Coordinator with a professional background in project management, habitat restoration, wetland ecology, vegetation monitoring, invasive plant management, monitoring protocol development, grant writing, tropical ecology, wildlife monitoring and environmental education. Kramer brings years of experience coordinating logistics for a variety of habitat restoration projects, vegetation monitoring programs, along with study abroad and backpacking courses. Previously, Kramer has managed riparian and upland habitat restoration projects, managed vegetation monitoring programs, and he has taught study abroad courses in the Peruvian Amazon and Andes for the University of Washington. Beyond Kramer's project management and coordination skills, he brings over 10 years of experience performing ecological field work such as vegetation monitoring, plant installation and invasive plant control.

Kramer currently completes 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 for various land use projects.