

November 2023 Freeman Road Logistics



Critical Areas Report

Prepared for Vector Development Company

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Prepared for

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ABBREVIATIONS

2010 Regional Supplement	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region
BFE	base flood elevation
BMP	best management practice
CAR	Critical Areas Report
City	City of Puyallup
DP	data plot
EC	Employment Center zoning designation
Ecology	Washington State Department of Ecology
ESA	Endangered Species Act
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FRO	Freeman Road Overlay
HGM	hydrogeomorphic
I-5	Interstate 5
LM/W	Light Manufacturing/Warehousing zoning designation
NAVD88	North American Vertical Datum of 1988
NMFS	National Marine Fisheries Service
NRCS	National Resources Conservation Service
NWSA	Northwest Seaport Alliance
OBL	obligate wetland
OHWM	ordinary high water mark
PEM	palustrine emergent
PFO	palustrine forested
PHS	Priority Habitats and Species
PMC	Puyallup Municipal Code
Port	Port of Tacoma
Project	Freeman Road Logistics project
PSS	palustrine scrub-shrub
redox	redoximorphic
Third-Party Report	Third-Party Review of Critical Areas Report
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

1 Introduction

Vector Development Company is proposing construction of two new warehouse buildings as part of the Freeman Road Logistics Project (Project), east of Freeman Road East and west of the future Washington State Department of Transportation (WSDOT) State Route 167 Completion Project. The Project includes redevelopment of 15 adjacent parcels, henceforth referred to as the Main Development Area (parcels 0420174075, 0420201040, 0420201039, 0420201045, 0420201066, 0420201101, 0420205003, 0420205017, 0420201027, 0420201052, 0420201034, 0420201036, 0420201042, 0420205004, 0420205016) in Puyallup, Washington. Five other parcels will support the development through transportation or utility improvements (0420201104, 0420201008, 0420201114, 0420201115, and 0420174032), henceforth referred to as the Transportation and Utility parcels. A vicinity map is shown in Figure 1, and an aerial photograph of existing conditions at the Study Area, which includes the WSDOT-owned parcels and Transportation and Utility parcels is shown in Figure 2.

The proposed development would include two warehouses, associated utilities, vehicle and truck parking and maneuvering space, widening of access roads, stormwater management, landscaping, and improvements along Freeman Road East (Appendix A). The Project has been designed to be consistent with local regulations.

This Critical Areas Report (CAR) has been prepared by Anchor QEA, LLC, scientists to support the local permitting and land use review of the Project. The CAR evaluates the presence of critical areas within the Main Development Area and potential impacts to existing critical areas and associated regulated buffers, as defined in the City of Puyallup (City) Municipal Code (PMC) Chapter 21 (City of Puyallup 2023a). The format of this CAR has been prepared consistent with PMC 21.06. Critical areas regulated under PMC Chapter 21 include wetlands, streams, fish and wildlife habitat conservation areas, frequently flooded areas, and minor lakes.

Anchor QEA scientists gathered and reviewed existing information consistent with PMC Chapter 21 to identify and assess existing critical areas. To support this review, Anchor QEA biologists performed critical areas site visits to the Study Area on April 1 and September 28, 2021; March 11, 2022; and May 19, 2023. The information provided in this CAR has been prepared by professional biologists using the best available science to provide an accurate evaluation of critical areas and potential impacts.

1.1 Review of Existing Information

As part of the analysis to identify critical areas, Anchor QEA biologists reviewed the following sources of information to support field observations:

• PMC (City of Puyallup 2023a)

- City of Puyallup GIS Portal Wetland and Stream Maps (City of Puyallup 2023b)
- Fife Municipal Code (City of Fife 2023)
- Pierce County PublicGIS Interactive Mapping Tool (Pierce County 2023a)
- U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (USDA 2023)
- National Marine Fisheries Service (NMFS) Endangered Species Act (ESA) status reviews and listing information (NMFS 2023)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Wetlands Mapper (USFWS 2023a)
- USFWS ESA Status Reviews and Listing Information (USFWS 2023b)
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Maps (WDFW 2023a)
- WDFW SalmonScape Mapping System (WDFW 2023b)
- Aerial photographs publicly available
- Third-Party Review of Critical Areas Report (Third-Party Report) produced by Confluence Environmental Group (2022)

1.2 Qualifications

This CAR was prepared following site visits conducted by Anchor QEA on the following dates:

- April 1, 2021
- September 28, 2021
- March 11, 2022
- May 19, 2023

Personnel who contributed to the surveys and preparation of this CAR are listed as follows:

- Calvin Douglas: Former Anchor QEA Wetland Scientist, now working as a Senior Ecologist at Confluence Environmental Company. Responsible for 2021 and 2022 field investigations and reporting; BS Wildlife Biology, University of Washington; Pierce County Certified Wetland Scientist and Wildlife Biologist; Qualified Senior Writer for Biological Assessment, WSDOT, through 2024.
- Laura Caron: Former Anchor QEA Natural Resource Scientist now working as a Fisheries and Wetlands Biologist at WSDOT. Responsible for 2021 and 2022 field investigations and reporting; BA Environmental Studies and Geology, University of Colorado; MNRS Natural Resource Management and Ecological Restoration, Colorado State University; Certified Wetland Delineator, USACE; Certified Wetland Rater, Washington State Department of Ecology (Ecology); Qualified Junior Author for Biological Assessment, WSDOT, through 2028; Qualified Biologist for Preliminary Hydraulic Stream Design and Restoration, WSDOT.

- Jakob Rowny: Anchor QEA Senior Wetland Biologist and Environmental Scientist responsible for 2023 field investigation and reporting; BS Ecology and Evolutionary Biology, University of California; MS Environmental Sciences and Engineering, University of North Carolina; Pierce County Certified Wetland Scientist, 8 years of wetland delineation, categorization, and critical area assessment and reporting experience in Washington State and Oregon.
- Hannah Fotherby: Anchor QEA Wetland Biologist supporting 2023 field investigation and reporting; BA Environmental Studies, University of Washington; MS Restoration Ecology, University of Washington, Pierce County Certified Wetland Scientist.
- Josh Jensen: Anchor QEA Senior Managing Planner responsible for field oversight and code compliance; BS Economics and Environmental Studies, Western Washington University; MEM, Duke University.
- Dan Berlin, PWS: Anchor QEA Principal Scientist responsible for directing and reviewing all field work and documentation; BA Biology, Kalamazoo College; MEM Wetland Science, Duke University.

2 Project Purpose and Need

2.1 Project Purpose

The overall purpose of the Project is to provide 490,000 square feet of warehouse capacity and logistical support for receiving and distribution. The Project is intended to use existing and planned transportation infrastructure, including the WSDOT State Route 167 Completion Project, a portion of which is located just east of the Main Development Area, and includes construction of 4 miles of new highway between Meridian Avenue and I-5 and several new interchanges. The State Route 167 Completion Project will provide east-west linkages between the Port of Tacoma (Port) and manufacturing and industrial areas in Pierce County and will improve overall regional mobility by reducing congestion on surrounding local roads and highways.

The Project is also intended to use the nearby Pierce County Canyon Road Regional Connection Project that will extend Canyon Road East from Pioneer Way East to 70th Avenue East in Fife by constructing a new bridge across the Puyallup River. This Project will also improve regional mobility by providing freight haulers and other traffic faster, safer, and more direct access to State Route 167, I-5, and Port facilities.

The Project is situated in an area that was recently rezoned to support the planned receiving and distribution use by the City, as documented in the Freeman Road Comprehensive Plan Map Amendment, Case Number L-20-0001, and the Freeman Road Overlay (FRO), which was adopted by City Ordinance No 3278, passed June 27, 2023. The Freeman Road Comprehensive Plan Map Amendment and FRO annexed and provided Light Manufacturing/Warehousing (LM/W) zoning for 11 previously unincorporated parcels east of Freeman Road East and west of the WSDOT State Route 167 Completion Project. The proposed Project layout satisfies City requirements and achieves the applicant's purpose of providing additional warehouse capacity and logistical support in an area zoned for those uses and will be consistent with current and anticipated future land uses of the surrounding areas.

In the context of Pierce County and WSDOT projects—and the City's goals of bolstering a vibrant local economy by supporting land supply for business opportunities, and providing a safe, livable, and healthy community—the Project purpose provides an appropriate land use solution. The Project will create safer neighborhoods by separating truck activity away from residential uses, support the local economy by providing well-paying jobs, and protect and enhance environmental functions and values as part of the Project.

2.2 Project Need

The overall need of the Project is to address an existing shortage of receiving and distribution facilities east of Tacoma, which is expected to be more significant considering projected growth in

the region and associated shipping though the Port and other regional ports. The Northwest Seaport Alliance (NWSA), which includes Port shipping activities, is one of the largest marine cargo gateways in the United States. More than 3.7 million 20-foot equivalent units carrying 26.1 million metric tons of containerized cargo were handled at NWSA facilities (NWSA 2019). Shipping at the Port is anticipated to increase above pre-pandemic tonnages and will continue to be a primary driver of the regional economy (Pierce County 2023b). To support this growing demand for shipping and distribution, the U.S. Army Corps of Engineers (USACE) and NWSA plan to deepen the Port's Blair Waterway, which will allow extra-large container ships access to the Port. The Port is also planning future redevelopment to support economic growth, job creation, and trade, including several cleanup projects, completion of habitat and wetland mitigation bank projects, and ongoing maintenance and improvements to stormwater systems and Port-specific infrastructure such as dock, pier, and fender system upgrades (Port 2023).

The Freeman Road Logistics Project is designed to provide needed warehouse capacity and logistical receiving and distribution support in an area that is regionally important to continued economic growth and resiliency. The rezone of the properties within the Main Development Area acknowledges the need for more warehouse and logistical projects within the City, as described in the City's Freeman Road Comprehensive Plan Map Amendment and FRO. The design elements and standards included in the Freeman Road Comprehensive Plan Map Amendment and FRO were developed through a multiyear, multi-stakeholder planning process to achieve appropriate land use zoning for the area, provide high-quality amenities, support regional transportation, water, sewer, and stormwater infrastructure, and include reasonable setbacks for the neighborhood residents to retain the aesthetic character of the area and improve the safety of residents and visitors.

While meeting the specific purpose and need of the Project by supplying improved warehousing capacity and logistical support in the area, the Project is expected to result in no net loss of ecological function to the critical areas evaluated in this report. The Project will comply with federal, state, and local regulations that require mitigation for unavoidable net adverse impacts to fish and wildlife species that rely on highly functioning shoreline, stream, and wetland areas.

3 Study Area Description

The Study Area of this CAR encompasses 92.26 acres and is composed of the following sections (Figure 2):

- The Main Development Area, which is made up of the 15 adjacent parcels where the Project is located and encompasses 24.04 acres
- The Transportation and Utility parcels, which are the two undeveloped parcels located south of the Main Development Area in the City of Puyallup (parcels 0420201008 and 0420201114) and the two parcels located west of the Main Development Area and Freeman Road East and in the City of Fife (parcels 0420201104 and 0420174032) that encompass 47.74 acres
- The WSDOT-owned parcels located east of the Main Development Area (parcels 0420178009, 0420201110 and 0420201111) that encompass 20.48 acres

The Main Development Area is currently developed for residential and agricultural uses and consists of open lawn areas, residential housing, agricultural fields, and paved and gravel roadways. Many of the residential buildings were demolished and removed prior to Anchor QEA's May 2023 site visit. An agricultural drainage ditch is located off site on WSDOT properties, adjacent to the undeveloped northeast corner of the Main Development Area. The west boundary of the Main Development Area is bounded by Freeman Road East. Photographs of the Study Area are included in Appendix B. One wetland, Wetland A, was identified off site and one wetland, Wetland B, was identified on site. WSDOT and WDFW have provided a preliminary jurisdictional determination for the agricultural ditch, and WSDOT has provided boundary delineations and categorizations for wetlands located on their property off site to the east. Regulated buffers associated with the off-site ditch and wetland areas partially extend into the Main Development Area (per PMC 21.06). An area mapped as unverified wetland by the City of Puyallup located at Transportation and Utility parcel 0420201104 was investigated by Anchor QEA biologists in May 2023 and was determined to be an upland area.

3.1 Soils

Natural Resources Conservation Service (NRCS)-mapped soils are shown in Figure 3. The underlying soils in the Study Area consist of Sultan silt loam and Puyallup fine sandy loam, with Pilchuck fine sand mapped at the Transportation and Utility parcels to the south (USDA 2023). The NRCS Web Soil Survey (Figure 3; USDA 2023) identifies the following soil series in the vicinity of the Study Area:

 Pilchuck fine sand: This soil is very deep, excessively drained, and formed in recent sandy and gravelly alluvium on floodplains and moderate hill slopes. Pilchuck fine sand is not listed as hydric (USDA 2023b). Permeability is very fast, and it has very low water table. Typically, the surface layer to 10 inches is very dark gray fine sand and the subsurface layer to 60 inches is black and very dark gray gravelly sand.

- Puyallup fine sandy loam: This soil is very deep, well drained with high saturated hydraulic conductivity and formed in mixed recent alluvium on floodplains and low stream terraces.
 Puyallup fine sandy loam is not listed as hydric (USDA 2023b). Permeability is fast and it has a low water table. Typically, the surface layer to 10 inches is dark brown fine sandy loam and the subsurface layer to 60 inches is very dark grayish brown gravelly sand.
- Sultan silt loam: This soil is very deep, moderately well drained formed in recent alluvium on floodplains. Sultan silt loam is not listed as hydric (USDA 2023b). Permeability is moderately slow, and it has a moderately high water table. Typically, the surface layer to 10 inches is very dark grayish brown silt loam and the subsurface layer to 60 inches is olive gray very fine sandy loam stratified with light gray medium sand.

Table 1 summarizes the soil mapping information for the Study Area. Puyallup silt loam, Puyallup fine sandy loam, and Sultan silt loam are not classified as hydric soils. but all three include minor hydric soil inclusions.

Map Unit	Soil Type Name	Drainage Class	Hydrologic Soil Group ¹	Hydric Soil Rating ²	Hydric Inclusions ³	Approx. % of Study Area
29A	Pilchuck silt loam	Excessively drained	А	No	Yes	45%
31A	Puyallup fine sandy loam	Well drained	А	No	Yes	25%
42A	Sultan silt loam	Moderately well drained	C/D	No	Yes	30%

Table 1Soils Mapped Within the Study Area by the NRCS Web Soil Survey

Notes:

1. Hydrologic soil groups are based on runoff potential according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

- i. Group A soils have low runoff potential and high infiltration rates even when thoroughly wetted. They chiefly consist of deep, well- to excessively drained sands or gravels and have a high rate of water transmission.
- ii. Group B soils have moderately low runoff potential when thoroughly wet, and water transmission through the soil is unimpeded.
- iii. Group C soils have slow infiltration rates when thoroughly wet, caused by either an underlying layer that impedes the downward movement of water or soils of moderately fine or fine texture.
- iv. Group D soils have a very slow infiltration rate (high runoff potential) when thoroughly wet and include soils consisting of clays with high shrink-swell potential, soils that have a high water table, soils that have a clay or claypan layer at or near the surface, and soils that are shallow over nearly impervious material.
- 2. Hydric soil rating indicates the components of soil map units that meet the criteria for hydric soils.
- 3. Non-hydric soils may have inclusions of hydric soil in the lower positions on the landform.

3.2 Hydrology

The Study Area is located within Water Resource Inventory Area 10, the Puyallup-White Watershed, in the Puyallup subbasin (Hydrologic Unit Code [HUC] 17110014); the Lower Puyallup River

Watershed (HUC 1711001405); and the Puyallup River Subwatershed (HUC 171100140502; Ecology 2023). Hydrologic characteristics within the property are influenced primarily by local precipitation, surface water runoff, and a high groundwater table, the areas that drain to the Puyallup River, which originates on Mount Rainier, and Wapato Creek, which is located several thousand feet to the north.

No stream channels or seeps were identified within the Study Area. One wetland, Wetland A was identified to the south of the Main Development Area at parcels 0420201008 and 0420201114. During our March 2022 field investigation, a small, disturbed area containing ponded water approximately 3 inches deep was identified at the east side of parcel 0420174075. This area has since been delineated and categorized as a Category III wetland (Wetland B; Section 4.2.2). WDFW PHS and SalmonScape data do not identify any freshwater surface stream channels to the Puyallup River or Wapato Creek within the Study Area (WDFW 2023a, 2023b).

3.3 Plant Communities

Some undisturbed native vegetation communities are located within the Study Area, but most of the vegetation is composed of open lawn areas, residential homes, grazing pastures, and paved and gravel roads, with small patches of planted native and ornamental trees and shrubs. The majority of the plantings are shrubs and ground cover species, which appear to receive regular maintenance. Areas of native vegetation are present within the southern portion of the Study Area. Photographs of the Study Area are included in Appendix B. Existing plant species within the Study Area are described in Section 3.4.1.

The Pierce County critical area maps (Figure 4; Pierce County 2023a), USFWS National Wetlands Inventory Wetlands Mapper (Figure 5; USFWS 2023a), and City wetland and stream maps (Figure 5; City of Puyallup 2023b) do not identify any freshwater wetland habitat within the Main Development Area (see Figures 5, 6, and 7). Anchor QEA biologists did not identify any freshwater wetlands in the Main Development Area during the field investigation in October 2021. During our March 2022 field investigation, Anchor QEA biologists identified and delineated Wetland B in a disturbed area at the east side of parcel 0420174075. Wetland B has since been rated as a Category III emergent, depressional wetland. Additional wetlands information is provided in Section 4.2. Buffers in association with the off-site wetlands and ditch in the WSDOT right-of-way are depicted in Figure 6.

4 Critical Areas Assessment

This section describes and assesses critical areas within and near the Study Area as defined per PMC Chapter 21 (City of Puyallup 2023a) including wetlands, streams, fish and wildlife habitat conservation areas, and frequently flooded areas.

4.1 Methods

To document and describe wetlands, streams, fish and wildlife habitat conservation areas, and frequently flooded areas within the Study Area, Anchor QEA reviewed existing information (Section 1.1) and performed an aerial photograph assessment. Anchor QEA biologists performed critical areas site visits to the Study Area on April 1 and September 28, 2021, March 11, 2022, and May 19, 2023, as part of the analysis for the Project. The entire Study Area was accessible during the investigation. During the site visits, Anchor QEA biologists documented general information regarding habitats and dominant plant species and communities. Potential wetland features were evaluated according to methods presented in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987); the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (2010 Regional Supplement; USACE 2010); and *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.1, 2017* (USDA and NRCS 2016). Soil colors were classified by their numerical description as identified on a *Munsell Soil Color Chart* (Munsell 2000).

The ordinary high water mark (OHWM) of the agricultural ditches—located outside of the Study Area to the east—was not delineated during the site visits. Additional information about the off-site ditches was provided by WSDOT consultants (Herrera 2022). All wildlife species, tracks, and other signs observed during the site visits were documented. These observations were qualitative; no quantitative wildlife surveys were performed. Photographs taken to document vegetation and habitat conditions are included in Appendix B.

This CAR evaluates terrestrial and aquatic habitats and plant communities based on physical observations. Existing information described in WDFW-documented species and priority habitats and ESA-listed species and critical habitats, within and near the Study Area, are also evaluated.

4.2 Wetlands

4.2.1 Main Development Area

One on-site wetland (Wetland B) was identified by Anchor QEA biologists at the east side of parcel 0420174075 and within the Main Development Area during the September 2021 and March 2022 site visits and categorized following the May 2023 site visit. Wetland data sheets for three data plots (DPs) explored during the September 2021 and March 2022 site visits are provided in Appendix C. At

DP-9, located at the center and at the lowest elevation of Wetland B, hydric soil and wetland hydrology were identified, but the area had no vegetation. However, during Anchor QEA's May 2023 site visit, it was observed that the previously unvegetated area had been recolonized by typical pasture grasses and other locally common emergent species.

Wetland conditions in this area are not documented by the City sensitive areas maps (City of Puyallup 2023b), Pierce County critical area maps (Figure 4; Pierce County 2023a), USFWS National Wetlands Inventory data (Figure 5; USFWS 2023a), or WDFW PHS data (WDFW 2023a), and do not identify wetland areas within at least 1,500 feet of the Study Area, except to the south of 19th Avenue Northwest at parcels 0420201008 and 0420201114.

Wetland B was previously thought to be regulated as an artificial wetland, based on excavation conducted by the previous landowner prior to the sale in November 2021. While the excavation was intentional, the creation of wetland conditions was not intentional. Ecology has determined that Wetland B will not be treated as an artificial wetland and is therefore regulated by state and local protections. A jurisdictional determination request has been made to USACE. The decision is pending, but the wetland is not expected to be jurisdictional under the Clean Water Act because it has no surface water connection to other known waters of the United States, meaning no permit from USACE is required to fill Wetland B.

4.2.2 Transportation and Utility Parcels 0420201008 and 0420201114

Transportation and Utility parcels 0420201008 and 0420201114 located south of 19th Avenue Northwest and east of Freeman Road East contain Wetland A and associated buffers (Figure 7. These buffers do not extend onto the Main Development Area north of 19th Avenue Northwest or west of Freeman Road East, because the buffer area is interrupted by the existing 19th Avenue Northwest and Freeman Road East roadways. Regulatory buffers only occur on the same side of an existing roadway as the wetland and do not extend to the opposite side from the sensitive area. However, sewer and water lines will be installed in an easement just south of 19th Avenue Northwest that extends to the east to Freeman Road East. During the March 2022 and May 2023 site investigations, Anchor QEA conducted additional wetland delineation work at Wetland A located south of 19th Avenue Northwest to confirm the utility easement would not extend into the wetland or buffer area. Anchor QEA findings were recorded in six Wetland Determination Data Forms, and a preliminary rating is provided in Appendix C. The wetland delineation is depicted in Figure 7. Off-site Wetland A buffers will be avoided during construction of sewer and water utilities.

4.2.3 Transportation and Utility Parcel 0420201104

During the May 2023 site investigation, the full extent of Transportation and Utility parcel 040201104 was walked by Anchor QEA biologists, and wetland conditions were not observed. Vegetation at Transportation and Utility parcel 040201104 is dominated by black cottonwood (*Populus*)

balsamifera), common snowberry (*Symphoricarpos albus*), osoberry (*Oemleria cerasiformis*), stinging nettle (*Urtica dioica*), Himalayan blackberry (*Rubus armeniacus*), and Japanese knotweed (*Reynoutria japonica*). Although the City of Fife maps no wetlands on this parcel, the City maps a small low-lying portion near the southwest corner of parcel 040201104 as an unverified wetland (City of Puyallup 2023b). Anchor QEA biologists established a DP at this location and determined that hydrophytic vegetation was present, but that hydric soils and wetland hydrology were absent, and that the area is not a wetland. A Wetland Determination Data Form for this location is included in Appendix C, and Site Photography is provided in Appendix B.

4.2.4 Transportation and Utility Parcel 0420174032

The Third-Party Report also indicates an additional off-site wetland located to the northwest of the Main Development Area on the western edge of Freeman Road East at parcel 0420174032. Because Anchor QEA did not have permission to access the property, no delineation or rating information is provided in this report. A review of historical aerial imagery and observations from Freeman Road East made during the March 2022 and May 2023 site investigations support the likely presence of wetlands at this location. The wetlands may cover much of the central portion of the parcel, and it likely has PM1C and PSS1C Cowardin components. Any wetland buffers associated with this wetland are interrupted by Freeman Road East, which lies between the off-site wetland and the Main Development Area.

4.2.5 WSDOT-Owned Parcels 0420178009, 0420201110, and 0420201111

WSDOT provided documentation that show three off-site wetlands, identified as Wetland 87, Wetland 89 and Wetland 93, located to the east and northeast of the Main Development Area at parcels 0420178009, 0420201110, and 0420201111 and within the WSDOT right-of-way (Herrera 2022; Figure 6). Wetland 87 is located east of Main Development Area parcel 0420205016 on WSDOT-owned parcel 0420201110. Wetland 89 is located on WSDOT-owned parcel 0420201111 and is about 300 feet directly east of Main Development Area parcel 0420201027. Wetland 93 is an emergent wetland within an agricultural field located northeast of Main Development Area parcel 0420174075 and covers much of WSDOT-owned parcel 0420178009. Preliminary rating and buffer information for Wetlands 87, 89, and 93 is provided in Section 5.2.3.

4.3 Streams

No streams, drainage channels, seeps, or associated riparian habitats were observed by Anchor QEA biologists within the Main Development Area during the 2021, 2022, and 2023 site visits. Additionally, WDFW PHS data (WDFW 2023a), SalmonScape data (WDFW 2023b), and City sensitive areas maps (City of Puyallup 2023b) do not identify any stream channels within 2,000 feet of the Study Area. Pierce County critical area maps (Pierce County 2023a) identify Wapato Creek north of the Study Area and the Puyallup River south of the Main Development Area, but they are not located within the Study Area and will not be affected by the Project.

Two streams (Streams 14 and 15) are located adjacent to the Main Development Area. They appear to be artificially created linear features that join off site to the east of parcel 0420174075. Our review of the preliminary WSDOT State Route 167 Completion Project critical area assessment indicates that Streams 14 and 15 will be regulated as Type III streams protected by 50-foot-wide buffers, per PMC Chapter 21 (City of Puyallup 2023a), which will partially project onto parcel 0420174075 and 0420205016. For the purposes of this assessment, a 50-foot-wide stream buffer has been applied to the off-site Streams 14 and 15.

The City indicated in previous comments that a potential stream or ditch was present along the west side of Freeman Road on or adjacent to parcel 0420174032. During the May 2023 site visit, Anchor QEA biologists inspected this area and found no evidence of an OHWM or other indicators that suggested the presence of flowing water along the road. The area includes a narrow swale at lower elevation, but this does not qualify as a stream.

4.4 Fish and Wildlife Habitat Conservation Areas

Per PMC 21.06.210 fish and wildlife habitat conservation areas are areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. These areas may include, but are not limited to, rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors, and areas with high relative population density or species richness. These areas also include locally important habitats and species as determined by the City. These areas do not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district, unless these features are documented as being used by salmonids for habitat.

4.4.1 Streams

Streams 14 and 15 are located outside of the Main Development Area off site to the north, east, and southeast of parcel 0420174075. The preliminary WSDOT State Route 167 Completion Project critical area assessment indicates that Streams 14 and 15 are degraded ditches with poor riparian buffer conditions that convey water through off-site WSDOT-owned parcels 0420201111, 0420201110, and 0420178009 from the southeast to the northwest. Instream conditions in Streams 14 and 15 are poor with a lack of channel complexity and substrate dominated by mud and silt. WDFW fish passage data indicates that a culvert crossing beneath Freeman Road East about 650 feet downstream of Streams 14 and 15 prevents fish passage onto the WSDOT-owned parcels in the vicinity of the Study Area (Herrera 2022, WDFW 2021). The preliminary WSDOT State Route 167 Completion Project critical

area assessment indicates that Streams 14 and 15 are Type III and are protected by a standard 50-foot-wide buffer per PMC 21.06.1050. A 3,447-square-foot portion of Stream 14 and 15 buffers extends onto the Main Development Area parcel 0420174075 and 0420205016.

4.4.2 Vegetation

Some undisturbed native vegetation communities are located within the Study Area. Areas of native vegetation occur east and south of the Main Development Area. Native plant species observed include black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), red osier dogwood (*Cornus sericea*), Oregon ash (*Fraxinus latifolia*), Pacific crabapple (*Malus fusca*), common snowberry (*Symphoricarpos albus*), Nootka rose (*Rosa nutkana*), salal (*Gaultheria shallon*), northern bracken fern (*Pteridium aquilinum*), and field horsetail (*Equisetum arvense*). Many invasive species or noxious weeds were also noted as present, including include English ivy (*Hedera helix*), English holly (*Ilex aquifolium*), Himalayan blackberry (*Rubus armeniacus*), evergreen blackberry (*Rubus laciniatus*), Canada thistle (*Cirsium arvense*), and reed canary grass (*Phalarais arundinacea*).

Areas located west of the fence line in the agricultural pastures included varieties of *Agrostis* and *Fescue* grasses, which appeared to be regularly mowed or were previously grazed by sheep and llamas. Photographs of vegetation in the Study Area are included in Appendix B.

4.4.3 Wildlife and Habitat

The majority of the Study Area includes a managed landscape with mowed grass and ornamental vegetation. Potential habitat is limited to the small patches of native vegetation along the eastern and southern property boundaries. Wildlife use of the terrestrial habitat is likely dominated by disturbance-tolerant species typical of urban areas. Habitat surrounding the Study Area includes fragmented and disturbed areas associated with residential and industrial development. Wildlife species observed during the site visits included bird species common in urban areas of Pierce County, including crows (*Corvus brachyrhynchos*), house sparrows (*Passer domesticus*), and gull species (*Larus* spp.). No amphibian, reptile, or mammal species; tracks or other signs were observed during the site visits.

The Study Area hydrology provides limited habitat for aquatic species. The habitat within Wetland B and Streams 14 and 15 located on the WSDOT-owned parcels east of the Main Development Area are dominated by shallow standing water with little to no noticeable flow and degraded riparian areas and do not provide habitat for salmonid species due to a downstream culvert crossing at Freeman Road East that blocks fish passage further upstream.

Streams 14 and 15 are regulated as Type III streams because they are not used by anadromous fish (no fish species have been documented in the streams; Herrera 2022; WDFW 2021) and it is wider than 2 feet. According to PMC 21.06.1050, Type III, streams require buffers 50 feet.

4.4.4 Priority Species and Habitats

The WDFW PHS data (WDFW 2023a) do not document occurrences of any terrestrial species or priority habitats in the Study Area. No fish species have been documented in off-site Streams 14 and 15 according to the WDFW PHS and SalmonScape (WDFW 2023b) websites.

4.4.4.1 ESA-Listed Species and Critical Habitat

The assessment for ESA-listed species and critical habitats for this Project was performed based on data provided for the Study Area. The following subsections describe ESA-listed species and critical habitats that may occur in the vicinity of the Study Area.

ESA-listed species and critical habitats under NMFS and USFWS jurisdiction in Western Washington are referenced on the agencies' websites. NMFS identifies ESA-listed species that occur or may occur within a broad geographic area, such as an evolutionarily significant unit or a distinct population segment, rather than a project-specific location (NMFS 2023). The USFWS identifies ESA-listed species that occur or may occur within a specific location where a project is proposed (USFWS 2023b).

4.4.4.2 Federally Listed Species That May Occur in the Study Area

The September 2023 status of federally listed species and critical habitats protected under the ESA that occur or may occur within the Study Area is presented in Table 2. As shown in Table 2, three ESA-listed bird species occur or may occur within the Study Area. One ESA candidate insect species is identified as potentially occurring within the Study Area. Four ESA-listed fish species are present in the nearby Puyallup River: steelhead trout (*Oncorhynchus mykiss*), Chinook salmon (*O. tshawytscha*), bull trout (*Salvelinus confluentus*), and Dolly Varden (*S. malma*). All four have designated critical habitat in the Puyallup River. However, these species do not occur or are very unlikely to occur in the Study Area based on the species' life history and habitat requirements. No ESA-listed plant or mammal species are identified as potentially occurring within the Study Area. Fish species listed in Table 2 are located within the Puyallup River but not in off-site Streams 14 and 15. These species would not be susceptible to impacts related to construction, as no in-water work is proposed, but they are relevant considering the Project is located within the Puyallup River floodplain.

Table 2Federally Listed Species That May Occur in Study Area

Species	Status	Agency	Critical Habitat
Birds			
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	Threatened	USFWS	Designated (does not include Study Area)
Streaked horned lark (Eremophila alpestris strigata)	Threatened	USFWS	Designated (does not include Study Area)
Yellow-billed cuckoo (Cocczyus americanus)	Threatened	USFWS Designated (does not include Stud Area)	
Insects			
Monarch butterfly (Danaus plexippus)	Candidate	USFWS	Not designated
Fish			
Steelhead trout (Oncorhynchus mykiss)	Threatened	NMFS	Designated – Puyallup River
Chinook salmon (Oncorhynchus tshawytscha)	Threatened	NMFS	Designated – Puyallup River
Bull trout (Salvelinus malma/S. confluentus)	Threatened	USFWS	Designated – Puyallup River
Dolly Varden (S. malma/S. confluentus)	Threatened	USFWS	Designated – Puyallup River

Marbled murrelets are more commonly associated with marine habitat instead of the freshwater habitat in the Study Area. The urbanized and industrial areas within the Study Area are unfavorable to marbled murrelets, streaked horned larks, and yellow-billed cuckoos.

4.5 Special Flood Hazard Areas

The Puyallup River flows approximately 1,200 feet south of the Main Development Area, south of North Levee Road East. The Study Area is located within the 100-year floodplain of the Puyallup River within FEMA Flood Zone AE (FEMA 1999). The base flood elevation (BFE) for the Puyallup River is 33 feet North American Vertical Datum of 1988 (NAVD88); however, the levee along North Levee Road East is not officially certified, meaning the floodplain is mapped as extending onto the Study Area. Per PMC 21.07, the floodplain within the Study Area is a special flood hazard area and a habitat assessment has been prepared by a qualified professional to evaluate the effects and/or indirect effects of the proposed development (during both construction and operation) on floodplain functions. Section 6.3 of this report includes this assessment and documents that the proposed development will not result in impacts to any species listed as threatened or endangered under the ESA.

5 Wetland Delineation

Anchor QEA wetland scientists performed wetland delineation field work on March 11, 2022, and May 19, 2023. One wetland was delineated off-site: Wetland A, a Category III emergent, scrub-shrub and forested depressional wetland located to the south of 19th Avenue Northwest. One wetland was delineated on site: Wetland B, a Category III emergent depressional wetland located on the eastern portion of parcel 0420174075. Following our review of the Third-Party Report, we also identified four other off-site wetlands, with three delineated on the WSDOT-owned properties to the east and one possible, unstudied wetland located to the west of Freeman Road East. Figure 6 provides a preliminary depiction of the off-site wetlands and how their anticipated buffers may extend onto the eastern side of the Study Area. The possible wetland located to the west of Freeman Road East is not discussed further because it has not been delineated or categorized, and because any associated buffer is interrupted by the existing Freeman Road East roadway.

The following sections describe the methodology and results of the wetland delineation. Critical areas figures are attached to this CAR, including wetland delineation results in Figures 6 and 7. Site photos are included in Appendix B, wetland determination data forms and wetland rating forms are provided in Appendix C.

5.1 Methodology

This section describes the methodology used to perform the wetland delineation, including a review of existing information and field investigation procedures. These methods are consistent with current federal and state agency requirements, as well as local jurisdiction requirements, for performing wetland delineations and identifying protective wetland buffer widths.

Field work was conducted according to methods presented in the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987); 2010 Regional Supplement (USACE 2010); and Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.1, 2017 (USDA and NRCS 2016). Soil colors were classified by their numerical description as identified on a Munsell Soil Color Chart (Munsell 2000).

The U.S. Army Corps of Engineers defines wetlands as follows:

Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (Environmental Laboratory 1987)

The method for delineating wetlands is based on the presence of three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. Hydrophytic vegetation is "the macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). Hydric soils are "formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (Environmental Laboratory 1987). Wetland hydrology "encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season" (Ecology 1997). Data collection methods for each of these parameters are described in the following subsections.

A total of 13 DPs were sampled and recorded. Vegetation, soils, and hydrology information were collected at each of the plots and recorded on field data sheets (Appendix C). Wetland boundaries were determined based upon plot data and visual observations of the wetland. The wetland location, wetland boundary, and DP locations were flagged and recorded by Anchor QEA wetland scientists using a Trimble Geo7x GPS unit.

5.1.1 Vegetation

Plant species occurring in each plot were recorded on field data forms, with one data form per plot. Percent cover for each plant species was estimated in the plot, and dominant plant species were identified. At each plot, trees within a 30-foot radius, shrubs and saplings within a 15-foot radius, and herb and forb species within a 5-foot radius from the center of the plot were identified and recorded. Plant indicator status was determined using the National Wetland Plant List: 2016 Wetland Ratings (Lichvar et al. 2016), and a determination was made as to whether the vegetation in the plot was hydrophytic. To meet the hydrophytic parameter, more than 50% of the dominant species, with 20% or greater cover, must have an indicator of obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC). Table 3 shows the definitions for each wetland indicator status category.

Table 3 Wetland Plant Indicator Status Definitions

Indicator Status	Description			
Obligate Wetland (OBL)	Plant species occur almost always in wetlands (estimated probability greater than 99%) under natural conditions.			
Facultative Wetland (FACW)	Plant species usually occur in wetlands (estimated probability 67% to 99%) but are occasionally found in non-wetlands.			
Facultative (FAC)	Plant species are equally likely to occur in wetlands or non-wetlands (estimated probability 34% to 66%).			
Facultative Upland (FACU)	Plant species usually occur in non-wetlands (estimated probability 67% to 99%) but are occasionally found in wetlands.			

Indicator Status	Description		
Obligate Upland (UPL)	Plant species occur almost always in non-wetlands (estimated probability greater than 99%) under natural conditions.		

Source: Reed 1988

5.1.2 Soils

Soils were sampled in each plot and evaluated for hydric soil indicators. Soil pits were dug to a depth of 18 inches, unless a restrictive layer was present. Hydric soil indicators include low soil matrix chroma, gleying, and redoximorphic (redox) features. Redox features are spots of contrasting color that occur within the soil matrix (the predominant soil color). Gleyed soils are predominantly bluish, greenish, or grayish in color.

5.1.3 Hydrology

Wetland hydrology was evaluated at each plot to determine whether it "encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season" (Ecology 1997). Field observations of saturation, inundation, and other indicators of wetland hydrology, such as water-stained leaves and drainage patterns in wetlands, were recorded.

5.1.4 Wetland Community Types

Wetland community types are discussed according to the USFWS classification developed by Cowardin et al. (1979) for use in the National Wetlands Inventory (Cowardin system). This system, published in 1979 by a team of USFWS scientists led by L.M. Cowardin, bases the classification of wetlands on their physical characteristics, such as the general type of vegetation in the wetland (e.g., trees, shrubs, grass) and how much, and where, water is present in the wetland. The Cowardin system provides a classification for every known wetland type that occurs throughout the United States, and under this system a wetland can be classified as having one or more wetland community types. The community types found during this investigation included the following:

- **Palustrine emergent (PEM):** These wetlands have erect, rooted, herbaceous vegetation present for most of the growing season in most years.
- **Palustrine scrub-shrub (PSS):** These wetlands have 30% cover of woody vegetation that is less than 20 feet high.
- **Palustrine forested (PFO):** These wetlands have at least 30% cover of woody vegetation that is at least 20 feet high.

5.1.5 Wetland Ratings

Wetland ratings were determined using the most current version of the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Washington rating system; Hruby 2014) and according to the City wetland rating criteria, as defined in the PMC. The Washington rating system was updated by Ecology as of January 1, 2015.

The system developed by Ecology is used to differentiate wetlands based on their sensitivity to disturbance, their significance in the watershed, their rarity, our ability to replace them, and the beneficial functions they provide to society. The Washington rating system requires the user to collect specific information about the wetland in a step-by-step process. Three major functions are analyzed: water quality improvement, hydrologic functions, and wildlife habitat. Ratings are based on a point system, where points are given if a wetland meets specific criteria related to the wetland's potential and opportunity to provide certain benefits.

Per the Washington rating system, wetlands are categorized according to the following criteria and associated point system where points are awarded to three functional value categories (water quality improvement, hydrologic functions, and habitat):

- **Category I wetlands** (23 or more points) represent a unique or rare wetland type, are more sensitive to disturbance, or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime.
- **Category II wetlands** (20 to 22 points) are difficult, though not impossible, to replace and provide high levels of some functions.
- **Category III wetlands** (16 to 19 points) have moderate levels of functions. They have been disturbed in some ways and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.
- **Category IV wetlands** (less than 16 points) have the lowest levels of functions and are often heavily disturbed.

PMC classifies wetlands into four categories (categories I, II, III, and IV) based on the Washington rating system.

5.1.6 Wetlands Function Assessment

The functions of wetlands were rated according to the Washington rating system. Using this system, wetlands were rated based on points awarded to three categories of functions: water quality, hydrologic functions, and wildlife habitat. Detailed scoring, based on Washington wetland rating forms, is provided in Appendix C.

5.1.7 State Hydrogeomorphic Classification System

Scientists have come to understand that wetlands can perform functions in different ways. The way a wetland functions depends to a large degree on hydrologic and geomorphic conditions. To recognize these differences among wetlands, a way to group or classify them has been developed. This classification system, called the hydrogeomorphic (HGM) classification, groups wetlands into categories based on the geomorphic and hydrologic characteristics that control many functions.

The Washington rating system incorporates the HGM classification as part of the questionnaire for characterizing a wetland's functions. The Washington rating system uses only the highest grouping in the HGM classification: wetland class. Wetland classes are based on geomorphic settings, such as riverine, slope, lake fringe, or depressional. A classification key is provided within the rating form to help identify which of the following HGM classifications apply to the wetland: riverine, depressional, slope, lake fringe, or flats.

5.2 Results

Anchor QEA wetland scientists delineated one wetland (Wetland A; off site) and one wetland (Wetland B; on site) within the Study Area (Figure 7). These wetlands are summarized in Tables 4 and 5 and described in more detail in the following subsections. Site photographs showing these features are included in Appendix B. Wetland determination data forms and wetland rating forms are provided in Appendix C.

Table 4 Wetlands Delineated Within the Study Area

				Total Wetland Area	
Wetland	Cowardin Class ¹	HGM Class	Category	Square Feet	Acres
А	PEM1C, PSS1C PFO1C	Depressional	111	468,674	10.76
В	PEM1C	Depressional		1,218	0.03

Note

1. PEM1C: palustrine, emergent, persistent, seasonally flooded; PSS1: palustrine, scrub-shrub, persistent, seasonally flooded: PFO1C: palustrine, forested, persistent, seasonally flooded

For the Washington rating system, a low, moderate, or high rating is based on three functions: improving water quality, hydrologic, and habitat. Within each of these three functions are three subfunction categories: site potential, landscape potential, and value. Each of these subfunction categories is rated as low, moderate, or high. Wetland functions and scores for Wetland A and Wetland B using the Washington rating system are shown in Table 5. The Washington wetland rating forms are provided in Appendix C.

Table 5 Summary of Scores for Wetland Functions and Values

Wetland and Function	Improving Water Quality	Hydrologic	Habitat	Total Functions Score ¹	Washington State Rating	Puyallup Rating		
	Off-Site Wetland A							
Site Potential	Moderate	Moderate	Moderate					
Landscape Potential	Moderate	High	Low					
Value	Moderate	Moderate	Low					
Score Based on Rating ¹	6	7	4	17	111	Ш		
	On-Site Wetland B							
Site Potential	Moderate	Moderate	Low					
Landscape Potential	Moderate	Moderate	Low					
Value	High	High	High					
Score Based on Rating ¹	7	7	5	19		111		

Notes

Potential total score per function is 9, for a potential total score of 27.

The following sections describe the wetlands identified during our field investigations and wetland delineation. The wetland is classified and rated according to the Cowardin system and the Washington rating system.

5.2.1 Wetland A

Wetland A is 10.76 acres (468,674 square feet) with PEM, PSS, and PFO vegetation classes and has a depressional HGM classification. The approximate wetland position is mapped on Pierce County's PublicGIS wetland inventory (Figure 4; Pierce County 2023a). In March 2022, Anchor QEA biologists provided an additional delineation along the northern and eastern boundaries of Wetland A (Figure 7). In May 2023, Anchor QEA biologists provided an additional delineation along the current extent was confirmed.

5.2.1.1 Vegetation

Wetland A is dominated by forest vegetation species such as black cottonwood (*Populus trichocarpa*; FAC), red alder (*Alnus rubra*; FAC), Oregon ash (*Fraxinus latifolia*; FACW), and red osier dogwood (*cornus sericea*; FACW), interspersed with a few patches of Himalayan blackberry (*Rubus armeniacus*; FAC). Other species found along the edge of the wetland include Sitka spruce (*Picea sitchensis*; FAC), osoberry (*Oemleria cerasiformis*; FACU), snowberry (*Symphoricarpos albus*; FACU), red current (*Ribes*

sanguineum; FACU), salmonberry (*Rubus spectabilis*; FAC), and common ivy (*Hedera helix*; FACU). Wetland A Cowardin vegetation classes are presented in Appendix C.

Overall, the vegetation in Wetland A meets the dominance test hydrophytic vegetation indicator and satisfies the hydrophytic vegetation criteria of the 2010 Regional Supplement (USACE 2010).

5.2.1.2 Soils

Soils in Wetland A are mapped as Pilchuck fine sand, a soil type that is classified as hydric. The soils observed in Wetland A were generally dark at the surface, with a depleted matrix below and redoximorphic features increasing with depth. Upon inspection, the predominant textures were confirmed to be silt loam and sandy loam.

Overall, soil samples met the Depleted Below Dark Surface (A11) hydric soil indicator, satisfying the hydric soil criteria of the 2010 Regional Supplement.

5.2.1.3 Hydrology

Wetland hydrology was confirmed in Wetland A at two data points by surface water (A1), high water table (A2), saturation (A3), inundation visible on aerial imagery (B7), sparsely vegetated concave surface (B8), and water-stained leaves (B9). The primary water regimes of Wetland A were determined to be permanently flooded, seasonally flooded, and saturated.

5.2.1.4 Boundary Determination

The wetland and upland boundaries of Wetland A were determined by an abrupt change in topography and the presence of hydric soils, wetland hydrology, and hydrophytic vegetation. To confirm the current Wetland A extent, Anchor QEA biologists delineated the northern and eastern wetland boundaries in March 2022 and the southern and western boundaries of Wetland A were delineated in May 2023.

5.2.1.5 Wetland Functions Scores and Rating

Wetland A is rated as a Category III wetland, with a score of six for water quality functions, a score of seven for hydrologic functions, and a score of four for habitat functions. The ratings are discussed in more detail in the following sections, and the wetland rating form for Wetland A is provided in Appendix C.

5.2.1.5.1 Water Quality Functions

Wetland A has moderate functions for improving water quality based on the Washington rating system for all three components: site potential, landscape potential, and value. Contributing factors to this functional rating include that the wetland is in a depression with no surface water leaving it (no outlet), persistent ungrazed plants covering more than 50% of the wetland, the absence of septic systems within 150 feet, and the presence of a 303(d)-listed aquatic resource within the subbasin.

5.2.1.5.2 Hydrologic Functions

Wetland A has moderate, high, and moderate hydrologic functions based on the Washington rating system for site potential, landscape potential, and value, respectively. Factors that contribute to this functional rating include marks of ponding greater than 3 feet deep, intensive land uses within the subbasin, stormwater discharging directly into the wetland, and surface flooding problems in a subbasin further down-gradient from the wetland.

5.2.1.5.3 Habitat Functions

Wetland A has moderate, low, and low habitat functions based on the Washington rating system for site potential, landscape potential, and value, respectively. Factors that contribute to this functional rating include: the presence of three Cowardin plant classes and three hydroperiods; large, downed woody debris; standing snags; stable steep banks of fine material; thin-stemmed persistent plants for amphibian habitat; adjacent high land use intensity; and the lack of nearby undisturbed habitat.

5.2.2 Wetland B

Wetland B is 0.03 acre (1,218 square feet) with PEM vegetation and has a depressional HGM classification (Figure 7). The approximate wetland position is not mapped on Pierce County's PublicGIS wetland inventory (Pierce County 2023a or on the USFWS NWI (Figure 5; USFWS 2023). In May 2023, Anchor QEA biologists provided an additional delineation and confirmed the current wetland extent.

5.2.2.1 Vegetation

Wetland B is dominated by emergent vegetation species including pasture grasses (*Agrostis and Fescue species*; assumed FAC).

Overall, the vegetation in Wetland A meets the dominance test hydrophytic vegetation indicator and satisfies the hydrophytic vegetation criteria of the 2010 Regional Supplement (USACE 2010).

5.2.2.2 Soils

Soils in Wetland B are mapped as Sultan silt loam, a soil type that is not classified as hydric. The soils observed in Wetland B were found to have a depleted matrix below and redoximorphic features increasing with depth. Upon inspection, the predominant textures were confirmed to be silt loam.

Overall, soil samples met the depleted matrix (F3) hydric soil indicator, satisfying the hydric soil criteria of the 2010 Regional Supplement.

5.2.2.3 Hydrology

Wetland hydrology was confirmed in Wetland B at one data point by surface water (A1), and saturation (A3). The primary water regimes of Wetland B were determined to be seasonally flooded,

and saturated. Wetland B shares no permanent or continuous connection to other surface water features.

5.2.2.4 Boundary Determination

The wetland and upland boundaries of Wetland B were determined the presence of hydric soils, wetland hydrology, and hydrophytic vegetation.

5.2.2.5 Wetland Functions Scores and Rating

Wetland B is rated as a Category III wetland, with a score of seven for water quality functions, a score of seven for hydrologic functions, and a score of five for habitat functions. The ratings are discussed in more detail in the following sections, and the wetland rating form for Wetland B is provided in Appendix C.

5.2.2.5.1 Water Quality Functions

Wetland B has moderate, moderate, and high water quality functions based on the Washington rating system for site potential, landscape potential, and value, respectively. Contributing factors to this functional rating the wetland's position within a depression with no surface water leaving it (no outlet), persistent ungrazed plants covering more than 50% of the wetland, the absence of septic systems within 150 feet, and the presence of a 303(d)-listed aquatic resources within the subbasin.

5.2.2.5.2 Hydrologic Functions

Wetland B has moderate, moderate, and high hydrologic functions based on the Washington rating system for site potential, landscape potential, and value, respectively. Factors that contribute to this functional rating include marks of ponding less than 6 inches deep, the relatively small size of the contributing basin, a lack of stormwater discharging directly into the wetland, and surface flooding problems in a subbasin immediately down-gradient from the wetland.

5.2.2.5.3 Habitat Functions

Wetland B has low, low, and high habitat functions based on the Washington rating system for site potential, landscape potential, and value, respectively. Factors that contribute to this functional rating include: the presence of a single Cowardin plant classes and two hydroperiods; the absence of downed woody debris, standing snags, stable steep banks of fine material and thin-stemmed persistent plants for amphibian habitat; low richness of plant species and interspersion of habitat, adjacent high land use intensity; and the lack of nearby undisturbed habitat.

5.2.3 WSDOT-Owned Parcel Wetlands

Three wetlands, identified as Wetland 87, Wetland 89, and Wetland 93 were delineated by WSDOT consultants on the WSDOT-owned parcels (Herrera 2022). Wetland 87 is located southwest of the confluence of Stream 14 and Stream 15 at the northeast portion of parcel 0420201110. WSDOT

consultants provided Wetland 87 with a Category III rating with a habitat score of six points. Wetland 89 is located at parcel 0420201111 directly north of 17th Street Northwest. WSDOT consultants provided Wetland 89 with a Category II rating with a habitat score of five points. Wetland 93 is located north of Stream 14 and east of Stream 15 covers much of parcel 0420178009. WSDOT consultants provided Wetland 93 with a Category III rating with a habitat score of four points. Table 6 provides a summary of the off-site WSDOT wetland information.

Table 6 Off-Site WSDOT Wetlands

				Total Wetland Area	
Wetland	Cowardin Class ¹	HGM Class	Category	Square Feet	Acres
WL87	PSS, PFO	Depressional	111	2,745	0.63
WL89	PSS	Depressional	Ш	5,645	0.13
WL93	PEM	Depressional	111	293,494	6.74

Note:

1. PEM: palustrine, emergent wetland; PSS: palustrine, scrub-shrub wetland; PFO: palustrine, forested wetland.

For the Washington rating system, a low, moderate, or high rating is based on three functions: improving water quality, hydrologic, and habitat. Within each of these three functions are three subfunction categories: site potential, landscape potential, and value. Each of these subfunction categories is rated as low, moderate, or high. Wetland functions and scores for Wetlands 87, 89 and 93 using the Washington rating system are shown in Table 7. The Washington wetland rating forms provided by WSDOT consultants are included in Appendix C.

Table 7Summary of Scores for WSDOT Wetland Functions and Values

Wetland and Function	Improving Water Quality	Hydrologic	Habitat	Total Functions Score ¹	Washington State Rating	Puyallup Rating
		,	Wetland 87			
Site Potential	Moderate	Moderate	Moderate			
Landscape Potential	Moderate	Moderate	Low			
Value	High	Moderate	High			
Score Based on Rating ¹	7	7	6	19	111	III
Wetland 89						
Site Potential	Moderate	Moderate	Low			

Wetland and Function	Improving Water Quality	Hydrologic	Habitat	Total Functions Score ¹	Washington State Rating	Puyallup Rating	
Landscape Potential	High	High	Low				
Value	High	Moderate	High				
Score Based on Rating ¹	8	7	5	20	II	II	
	Wetland 93						
Site Potential	Low	Moderate	Low				
Landscape Potential	High	High	Low				
Value	High	Moderate	Moderate				
Score Based on Rating ¹	7	7	4	18	III	Ш	

Note:

Potential total score per function is 9, for a potential total score of 27.

5.3 Puyallup Wetland Buffer Guidance

Required wetland buffers have been identified according to the current PMC. PMC 21.06.930 identifies minimum protective buffer widths for wetlands based on the Ecology habitat rating score, per the Washington rating system, level of function for habitat and water quality improvement, and land use intensity.

Per PMC 21.06.930 2 (C), the minimum proposed buffer width for a Category II wetland with a high land use intensity on the upland side of the buffer, low level for habitat function (less than six points) and high level of function for water quality improvement (eight to nine points) is 100 feet, measured from the wetland boundary as delineated in the field. Therefore, the proposed buffer width for Wetland 89 is 100 feet. The Wetland 89 buffer does not project onto the Main Development Area (Figure 6).

Per PMC 21.06.930 2 (D), the minimum proposed buffer width for a Category III wetland with a habitat score of less than six points and high land use intensity on the upland side of the buffer is 80 feet, measured from the wetland boundary as delineated in the field. Therefore, the proposed buffer width for Wetland A, Wetland B, and Wetland 93 is 80 feet. However, any Wetland A buffer that may project onto the Main Development Area is interrupted by an existing roadway (19th Avenue Northwest) that lies between Wetland A and the Main Development Area. The Wetland 93 buffer partially projects onto the Main Development Area and is not interrupted by a roadway or other existing development (Figure 6).

Per PMC 21.06.930 2 (D), the minimum proposed buffer width for a Category III wetland with a moderate habitat score of six to seven points, and high land use intensity on the upland side of the buffer is 150 feet. Therefore, the proposed buffer width for Wetland 87 is 80 feet. The Wetland 87 buffer partially projects onto the Main Development Area and is not interrupted by a roadway or other existing development (Figure 6).

Table 8 provides a summary of wetland functional ratings and proposed wetland buffer widths.

Table 8Proposed Wetland Buffer Widths

Wetland	Improving Water Quality	Habitat	Category	Buffer Width (feet)			
On-Site Wetlands	On-Site Wetlands						
Wetland B	7	5	III	80			
Off-Site Wetlands	Off-Site Wetlands						
Wetland A	6	4	III	80			
WL87	7	6	III	150			
WL89	8	5	II	100			
WL93	7	4	III	80			

6 Critical Areas Impact Assessment

This section provides a summary of potential impacts to wetlands and to fish and wildlife habitat conservation areas.

Project construction activities will not occur in stream areas but will occur in regulated wetland and wetland buffer areas. The Project will not have measurable short-term or long-term impacts on wildlife species. Noise associated with construction activities could result in avoidance behavior by some wildlife species if they are present. However, the Main Development Area is an agricultural and residential area that experiences ongoing human disturbance. Noise levels associated with operation of the Project after construction are expected to be consistent with current ambient noise levels.

6.1 On-Site Wetlands and Off-Site Wetland Impacts

6.1.1 On-Site Wetland B Impacts

The Project proposes the total fill (1,218 square feet) of on-site Wetland B, which offers poor water quality, hydrologic, and habitat functions. No practicable alternatives exist that could avoid filling the wetland due to the size, shape, location, and extent of the wetland and the required warehouse and parking capacity, building code requirements, zoning, and other factors supporting the Project purpose and need (Section 2). A detailed description of Project screening criteria and avoidance and minimization measures are provided in Section 7. The Project proposes to provide compensatory mitigation for impacts to Wetland B through on-site stream and wetland buffer enhancement, pending further review by the City and Ecology. The Project may also qualify to purchase wetland mitigation credits from the Port of Tacoma Upper Clear Creek Mitigation Bank, which is in the same subbasin as the Main Development Area and proposed impact, pending Port review.

6.1.2 Off-Site Wetland A

Water, sewer, and natural gas line improvements are proposed to be installed outside of the Wetland A buffer along the existing 19th Avenue Northwest private drive. The design has been modified to avoid any temporary or permanent impacts to the Wetland A buffer. The proposed water line includes a 40-foot-wide public easement. The proposed sewer line includes a 20-foot-wide private easement. The proposed Puget Sound Energy gas line will have a public easement that is yet to be determined (approximately 10 feet in width). The easements will overlap such that the total utility corridor will be 40 feet wide. The easement begins near the southeast property corner on 19th Avenue Northwest, extending to the east on parcels 0420201008 and 0420201114 for about 790 feet and south for about 300 feet until it meets the O'Reilly Auto Parts property. The total Main Development Area utility easement area measures 42,513 square feet. Temporary impacts to forested areas outside of the Wetland A buffer will result from removal of black cottonwood and red alder trees, along with removal of Himalayan blackberry and a few native and red osier dogwood

shrubs. Large trees within the 40-foot easement will be avoided, to the extent feasible. The easement area will be restored with a native grass seed mix.

6.1.3 Off-Site Road-Widening on Parcels 0420201104 and 0420201008

Road-widening is expected at the intersection of Freeman Road East and North Levee Road East. The intersection is planned to be widened on both the east side (parcel 0420201008) and west side of Freeman Road East (parcel 0420201104). The proposed road-widening is all well beyond the 80-foot buffer associated with Wetland A. During the May 2023 site visit, no other wetlands or wetland buffers are present within the road-widening area on parcel 0420201008. Similarly, no wetlands or wetland buffers were identified on parcel 0420201104 to the west of Freeman Road East. Therefore, no critical area impacts will occur as a result of that widening. This road-widening area is within the shoreline zone of the Puyallup River. During Project permitting, two memoranda will be prepared that describe how the proposed work is consistent with shoreline regulations, one for the City and one for the City of Fife.

6.1.4 Off-Site Road-Widening on Parcel 0420174032

Widening and improvement of off-site segments of Freeman Road East are anticipated to be required by the City north of 48th Street East, where road-widening may impact a swale along Tribal trust land. This area was assessed during the May 2023 field investigation. No OHWM was observed within the ditch, and this swale area is not a regulated stream.

6.1.5 Off-Site Wetland 87 and Wetland 93 Impacts

Approximately 1,827 square feet of the buffer for off-site Wetland 87 and 1,170 square feet of the buffer for off-site Wetland 93 extend onto Main Development Area parcel 0420205016. The two buffers partially overlap on the eastern edge of the Main Development Area. In addition, most of the on-site buffer for Wetland 93 and a portion of the on-site buffer for Wetland 87 overlap with buffers that also extend onto Main Development parcel 0420205016 from Streams 14 and 15 (Figure 6).

The on-site 1,827-square-foot portion of the buffer for Wetland 87 located at parcel 0420205016 is proposed to be averaged and relocated to the on-site area within buffers for Wetland 93 and Streams 14 and 15 located at parcel 0420174075. The entire portion of the on-site buffer for Wetland 93 and Streams 14 and 15 will also be enhanced to offset fill for Wetland B and the buffer averaging for Wetland 87. This stream and wetland buffer enhancement will consist of invasive species removal and installation of native species to improve the buffer function for off-site streams and wetlands. The proposed development has been reduced to avoid impacts to the Wetland 93 buffer, as shown in the Preliminary Site Plan Set included in Appendix A.

6.1.6 Off-Site Wetlands 89 Impact

No impacts to Wetland 89 or associated wetland buffers are proposed.

6.1.7 Puyallup Oxbow Wetland and Downstream Conveyance Impacts

The Project stormwater management design, including routing and conveyance, has not yet been selected. If stormwater is conveyed to the Puyallup Oxbow wetland, located about 1 mile west of the Main Development Area, a revised CAR will be provided. The revised CAR will incorporate additional information and an assessment of potential impacts to wetland hydroperiods, habitat, and vegetation as a result of routing stormwater from the proposed development to the Puyallup Oxbow wetland and any impacts anticipated by the final design of the stormwater conveyance channels.

6.2 On-Site Stream Buffer

Off-site Streams 14 and 15 are regulated as Type III streams and protected by 50-foot buffers, per PMC Chapter 21 (City of Puyallup 2023a), which will partially project onto parcels 0420174075 and 0420205016. A 50-foot buffer projected onto the Main Development Area results in an approximately 3,447-square-foot buffer area, with 2,5414 square feet on parcel 0420174075 and 933 square feet on parcel 0420205016. The stream buffers overlap with wetland buffers that extend onto the Main Development Area from Wetland 93 and partially from Wetland 87. Enhancement of the on-site portion of buffers from Streams 14 and 15, as well as the Wetland 93 buffer and the averaged portion of the Wetland 87 buffer, will consist of invasive species removal and installation of native species. The proposed development has been reduced to avoid impacts to this stream buffer, as shown in the Preliminary Plan Set included in Appendix A.

6.3 Special Flood Hazard Areas Habitat Assessment

The Main Development Area is located within the 100-year floodplain of the Puyallup River and within a Pierce County designated special flood hazard area. As discussed in Section 3.5, the Puyallup River flows approximately 1,200 feet south of the Main Development Area, south of North Levee Road East. The proposed Project includes construction activities within the 100-year floodplain (Appendix A). The Project will be constructed within the footprint of current low-density residential lots and agricultural fields that experience ongoing human use and disturbance from automobiles, livestock, and agricultural activities.

The BFE varies across the Main Development Area between 32 and 33.7 feet NAVD88, and the two warehouse buildings will be elevated so that the finished floor is elevated approximately 1 foot above the BFE. This will place all electrical and other equipment at least 1 foot above the BFE as well. These design features will avoid or minimize potential impacts to the floodplain, reduce the potential for inundation during flood events, and meet City requirements. The orientation of the proposed warehouses will be situated in line with one another (the northern warehouse will be within the

hydraulic shadow of the southern building to align with anticipated flood flows through the property when they occur). This design is intended to minimize potential impacts on floodwater velocity.

To construct the proposed structures, a net cut of material will be achieved within the floodplain through proposed final grades and by the use of compensatory storage west of the northern building (Building A). The proposed grading will result in an increase of local floodwater storage volume. Material removed from the floodplain will be located within the same floodplain cross section and perpendicular to the flow. These mitigation measures are anticipated to result in zero net fill and will not cause any rise to the BFE within the floodplain, consistent with PMC 21.07.

The federal habitat assessment guidelines require an analysis of other potential impacts to the floodplain environment. The following includes an analysis of habitat assessment elements per the minimum habitat assessment standards:

- **Project and action area description, maps, and site plans have been provided.** See Preliminary Plan Set in Appendix A.
- Methods of work are described. See Preliminary Plan Set in Appendix A.
- **Projects in the Protected Area are designed to inherently avoid detrimental impacts without mitigation.** The Project is located within the footprint of residential and agricultural fields that experience ongoing human use and disturbance. The Project is designed to avoid or minimize potential detrimental impacts through the orientation of the buildings relative to flood flows, stormwater facilities, and removal of soils from other properties within the floodplain.
- **Direct and indirect impacts.** Direct impacts include minor impacts to the floodplain from construction as described in this CAR. Long-term impacts include the presence of structures within the floodplain in an area previously used for residences and agriculture. The long-term environmental benefits from the Project, including improved water quality from runoff, are anticipated to offset any potential short-term impacts from construction and operation of the facility. Indirect impacts from the Project may include improved downstream water quality in the Puyallup River and reductions in nutrient loads to the Puyallup River from runoff and during flood events.
- Interrelated and interdependent activities. All development impacts associated with this Project are described in this CAR. No other projects are known that would result in interrelated and interdependent activities.
- **Cumulative impacts.** Cumulative impacts are those that could result in the combination of effects from individual Project actions occurring over time. If left unmitigated, the cumulative or incremental effects of these actions have the potential to result in significant environmental impacts. The Project is located within an area characterized by residences, agricultural fields and associated structures, and industrial buildings, such as warehouses. At the time of

publication, there are no nearby projects that are anticipated to contribute to cumulative impacts. However, it is anticipated that future projects in the area would be required to conduct a separate, Project-specific environmental review, as appropriate. It is anticipated that mitigation measures implemented for each project would decrease the potential for cumulative adverse effects on the environment.

- Other habitat assessment elements include the following:
 - Water quantity and quality. As described previously, the Project is anticipated to result in a net improvement to water quality from runoff and during flood events due to the construction of stormwater facilities. During construction, stormwater control measures will be implemented to avoid or minimize potential short-term construction impacts on water quality to be shown in a Stormwater Pollution Prevention Plan and Temporary Erosion and Soil Control Plan. A Stormwater Site Plan will also be prepared, describing the stormwater control best management practices (BMPs) incorporated into the Project to meet the requirements of the City stormwater regulations. The Project will have no impact on water quantity.
 - Flood velocities and volumes. As described previously, the Project has been designed to accommodate flood velocities through orientation of the structures (with the north warehouse designed to be within the hydraulic shadow of south warehouse) and to align them with floodwaters. The Project will not create any rapid water runoff conditions and therefore will not impact flood flows downstream. The Project will have a negligible impact on flood volumes.
 - Flood storage capacity. Earthwork cuts and fills will be balanced at the site to the extent possible. The construction of improvements at the proposed stormwater facilities will provide no net loss to flood storage capacity.
 - Riparian vegetation. The Project is located over 1,200 feet from the Puyallup River and associated riparian buffers. No riparian vegetation will be impacted by the Project.
 - Measures to preserve habitat forming processes. No in-water work is proposed, and no impacts to habitat forming processes will occur from the Project; therefore, no measures to preserve habitat forming processes are proposed.
 - Refuge from higher velocity floodwaters is provided. The presence of the structures within the floodplain may provide limited refuge from higher velocity floodwaters. No additional measures are proposed.
 - Spawning substrate is provided or protected. No in-water work or work in the vicinity of salmonid spawning habitat is proposed, and no impacts to spawning substrate will occur from the Project; therefore, no spawning substrate needs to be provided by the Project.

 No adverse effects from habitat isolation, bank armoring, channel straightening, construction effects (transport of sediment from the work area, noise, etc.), or direct effects. No habitat isolation, bank armoring, or channel straightening is proposed as part of the Project. To avoid or minimize potential construction effects from the Project, stormwater control measures will be implemented to avoid or minimize potential construction impacts on water quality and will be shown in the Stormwater Pollution Prevention Plan and Temporary Erosion and Soil Control Plan. As described above, a Stormwater Site Plan will also be prepared describing the stormwater control BMPs incorporated into the Project to meet the requirements of the City stormwater regulations. Overall, the long-term environmental benefits from the Project, including improved water quality from runoff, are anticipated to offset any potential short-term impacts from construction and operation of the facility.

For the reasons stated above, the proposed Project may affect, but is not likely to adversely affect, listed fish NMFS species, as evaluated per the NMFS Biological Opinion for the National Flood Insurance Program (NMFS 2008), or listed USFWS species.

7 Site Selection Screening and Alternatives Analysis

7.1 Site Selection Screening Criteria

To meet the Project purpose and need described in Section 2), site selection criteria were developed to evaluate potential alternatives. The primary criterion is a site large enough to accommodate the stated purpose and need for development of a 490,000-square-foot commercial warehouse with employee parking, truck loading bays, truck parking and area for truck maneuvering within proximity to the Port and transportation infrastructure linkages. This area was selected in accordance with market demand for this product (i.e., very large commercial warehouse vacancy is low) and Pierce County's Comprehensive Plan.

In order to accommodate such a development, the property must be between 20 and 30 acres to accommodate the 490,000-square-foot warehouse building capacity and car and trailer parking to meet local codes for setbacks, off-street parking, landscaping and screening, truck movements, fire access, and trailer parking, and it must be zoned LM/W. Other site requirements include the presence of well-developed infrastructure (e.g., road network, utility systems) and a highly qualified regional labor pool to support the land use. The site must also be within 5 miles of the Port and I-5 to support efficient movement of goods with easy access via State Route 167 Completion Project or the Canyon Road Regional Connection Project. This parameter is important due to the nature of the Project. Logistics centers are intended to efficiently receive and distribute goods, and the Project location will support the applicant's intention to minimize or avoid issues with traffic concurrency and impacts to local road conditions from the added truck traffic. In addition, the site should make efficient use of lands designated for LM/W development within the City Freeman Road Comprehensive Plan Map Amendment and FRO, maximize the use of existing infrastructure, and provide jobs in the growing City and greater Pierce County area.

The Project's need to impact wetlands is related to the location of wetlands on the Main Development Area, as well as requirements for warehouse capacity, existing roads, access roads, and other infrastructure improvements required to support the proposed Project. Placement of material into wetlands is needed to facilitate the expansion and improvement of existing roadways and sidewalks; installation of stormwater, sewer and water utilities; and construction of the warehouses and associated parking and vehicle movement areas, including emergency vehicle ingress and egress.

Three sets of screening criteria were selected to evaluate potential alternatives to the proposed Project:

- 1. Whether or not the alternative would meet the stated Project purpose and need
- 2. The extent to which the alternative would avoid and minimize impacts to regulated wetlands and other waters

3. The extent to which the alternative is practicable for use for typical warehouse and/or distribution users

Each criterion is further described in the following sections.

7.2 Achievement of Project Purpose and Need

Alternatives were analyzed based on their ability to achieve the stated purpose and need for development of 490,000-square-foot warehouse capacity with employee parking, truck loading bays, and truck parking within 5 miles of the Port and I-5.

In order to achieve this purpose and need, alternative sites must meet the following screening criteria:

- Be zoned for LM/W use, or Employment Center (EC), which is the equivalent zoning designation in use by Pierce County.
- Be within 5 miles of the Port and I-5 with easy access via State Route 167 Completion Project or the Canyon Road Regional Connection Project.
- Be located in an area with a well-developed utility infrastructure, or where necessary improvements could be reasonably afforded.
- Be located in an area that can provide a highly qualified regional labor pool.
- Be able to maximize the use of lands zoned as LM/W of EC.
- Address the regional shortage of 490,000-square-foot warehouse capacity.
- Support traded-sector investments that create high-wage jobs and tax base in the City or another portion of Pierce County.

7.3 Avoidance and Minimization of Impacts

Alternatives were also analyzed based on the capacity for a viable site design to avoid and minimize impacts to any wetlands that specifically provide high ecological and societal functions. Wetlands with any of the following characteristics were considered priorities for avoidance and impact minimization:

- Wetland areas with a "high" potential and associated "high" value scores, as determined from the Washington State Wetlands Rating System – Western Washington: 2014 Update (Hruby 2014)
- Palustrine forested or scrub-shrub wetlands; mitigation for these wetlands entails a higher temporal loss of functions and values than occurs for emergent wetlands
- Riverine or slope wetlands, which are more difficult to replace in-kind than depressional wetlands
- Wetlands connected to streams or other waterways that provide habitat to native fish, ESA-listed fish, or other ESA species

- Wetlands containing special characteristics (Hruby 2014)
- Wetlands characterized by predominately native vegetation species
- Wetlands designated as locally "significant" in Pierce County code or plans
- Wetlands that provide connectivity between, or provide buffer functions to, other valuable upland or wetland habitats, either on or off site
- Any wetlands of high conservation value (WDNR 2023)
- Any designated Priority Habitat Area (WDFW 2023a)

Agriculturally degraded or artificially created wetlands were considered more easily replaced through mitigation with no issues associated with temporal loss. In situations where the quality or origin of a wetland or other water was unknown, avoidance and minimization were kept as the higher priority.

7.4 Practicability

Alternatives were analyzed based on their practicability for use by typical warehouse and logistical users. Factors considered in assessing practicability to the end user included the following general and site-specific criteria.

7.4.1 General Practicability Criteria:

- Short timeline to facility construction, with sites available for construction within 12 months being most practicable
- Readily available for warehouse development (e.g., not earmarked or restricted by designated use/zoning)
- Geometry of building shapes (i.e., rectangular, irregular, square): rectangular building shapes generally preferred for efficient interior layout
- Topography of the site (e.g., flat, rolling, sloped) and presence of natural resource constraints (e.g., wetlands or streams): flat sites without wetlands or stream constraints are generally preferred due to a limited ability to incorporate changes in finished floor elevations in warehouse facilities

7.4.2 Site-Specific Practicability Criteria

- Percent building coverage of site: building coverage of between 30% and 50% is targeted for warehouse/distribution facilities depending on the size of the lot
- Ratio of parking spaces to site size and resultant number of parking spaces: minimum "market" parking requirements of 1.0 employee parking space per 3,000 square feet of building and an equal number of truck parking stalls as truck bays are desired by warehouse/distribution facilities

• Capacity of site to support loading, service, and storage requirements of typical warehouse/distribution facility users: warehouse/distribution typically requires access by large trucks

7.5 Alternatives Analysis

Four potential alternatives were identified for the proposed warehouse and logistics development including a "no action" option. Each of these alternatives is discussed in the following sections.

7.5.1 Alternative 1: No Action

Under this alternative, the proposed Main Development Area would not be developed for warehouse and logistical uses and would continue to exist as vacant and disused grassy lots. The Project purpose and need would not be achieved with this alternative.

7.5.2 Alternative 2: Off-Site Alternatives

Under this alternative, a different site or sites would be used for the proposed Project. Potential alternative sites were evaluated through an informal parcel analysis completed by Vector Development Company using the purpose and need criteria provided in Section 2 of this CAR. Parcels were also reviewed to select potential sites that were not encumbered or characterized by any of the following:

- Ownership by a city or county division unless known to be surplus and for sale
- Ownership by a land trust or private club/organization with a mission to protect or preserve the land as open space or for public or private recreation
- Special tax status granted by enrollment in a state authorized program for open space, agriculture, or timber land

No qualifying parcels that were for sale or may potentially be for sale were identified that met the listed criteria and the purpose and need criteria.

7.5.3 Alternative 3: North-South Building Layout No 1

Alternative 3 is an on-site design that involves developing the proposed Freeman Road Logistics Main Development Area using a north-south building layout. Under this alternative, the build-out design would be adjusted so that the footprint of the northern building and associated paved parking areas would be decreased to avoid all impacts to on-site Wetland B and Wetland B buffers. The footprint would also be reduced to avoid impacts to buffers from off-site Streams 14 and 15 and Wetland 93.

Reducing the footprint to avoid impacts to buffers from off-site Streams 14 and 15 and Wetland 93 is feasible. However, total elimination of impacts to Wetland B and its buffer would require reducing

the size of the north building footprint by approximately 119,955 square feet in order to retain required Freeman Road East improvements and buffer setbacks under the FRO, achieve necessary truck parking and maneuvering space, and provide required emergency vehicle ingress and egress. Alternative 3 consists of a north building footprint of approximately 119,955 square feet and a south building footprint of approximately 256,102 square feet, resulting in a total Project warehouse capacity of an approximate 376,057-square-foot warehouse capacity, which is well below the minimum 490,000-square-foot warehouse capacity threshold required to meet the applicant's purpose and need.

7.5.4 Alternative 4: North-South Building Layout No 2

Alternative 4 is an on-site design that involves developing the proposed Freeman Road Logistics Main Development Area using a north-south building layout and total fill of Wetland B. Under this alternative, the build-out design of the northern building would use the Main Development Area while retaining required Freeman Road East improvements and buffer setbacks under the FRO, achieving necessary truck parking and maneuvering space, and providing required emergency ingress and egress.

Alternative 4 would involve fill to on-site Wetland B due to the construction of the north warehouse and associated paved parking areas. This alternative would consist of a north building footprint of approximately 234,901 square feet and a south building footprint of approximately 256,102 square feet, resulting in a total Project warehouse capacity of 493,003 square feet, which is above the minimum 490,000-square-foot warehouse capacity threshold required to meet the applicant's purpose and need. Additionally, the Alternative 4 layout would meet the Project purpose by making efficient use of lands designated for LM/W uses, maximizing the use of existing infrastructure, providing additional transportation and other infrastructure improvements, and providing high-wage jobs in the growing City and Pierce County areas within 5 miles of the Port and I-5. The north-south building layout is expected to address important market demand for very large commercial warehouses and would provide one parking space for every 3,000 square feet of building, providing the parking space ratio needed for warehouse/distribution facilities of this kind.

Alternative 4 would directly impact 1,218 square feet of Wetland B, a Category III depressional wetland that contains highly degraded PEM habitat. This alternative would achieve no net loss of wetland function and would achieve a net benefit in habitat quality through the enhancement of on-site buffers for Streams 14 and 15 and Wetland 93, along with the averaged portion of the Wetland 87 buffer. Mitigation may also involve purchase of wetland mitigation credits from the nearby Port of Tacoma Upper Clear Creek Mitigation Bank, pending further discussion with regulatory agencies. The current condition of Wetland B is poor, with low native species diversity and low to moderate functions and values. These functions would be mitigated through enhancement of higher-value wetland and stream buffers on site.

7.6 Site Selection Screening and Alternatives Analysis Conclusions

Based on the alternatives analysis, Alternative 4, the north-south building layout with on-site compensatory mitigation, potentially supplemented by purchase of wetland credits from the Port of Tacoma Upper Clear Creek Mitigation Bank, would best meet the Project purpose and need. It would meet the minimum of 490,000 square feet of warehouse capacity within 5 miles of the Port and I-5 via State Route 167. Alternative 3 would not achieve a minimum 490,0000-square-foot warehouse capacity, would not maximize the appropriately zoned use of the property, and would not include any enhancements to improve habitat function on the property in place of the degraded functions associated with Wetland B. Alternative 4 would achieve a net improvement in habitat quality through the enhancement of 0.12 acre of buffer that extends onto the Main Development Area.

8 Avoidance, Minimization, and Mitigation Measures

The results of the critical area assessment identified on-site Wetland B (Category III), four off-site wetlands, (Wetland A [Category III], Wetland 87 [Category III], Wetland 89 [Category II], and Wetland 93 [Category III]), and two off-site streams (Streams 14 and 15) within the Study Area. The Project proposes the total fill (1,218 square feet) of on-site Wetland B, which offers poor water quality, hydrologic and habitat functions. The Project also proposes to complete buffer averaging for 1,827 square feet of off-site Wetland 87 buffer that extends onto the Main Development Area parcels (Section 6.1.5). The Project proposes to offset the wetland fill and the buffer averaging by providing buffer enhancement to improve wetland and stream buffer functions in 5,426 square feet of off-site Wetland 87, Wetland 93, Stream 14, and Stream 15 buffers. Mitigation may also involve the purchase of wetland mitigation credits from the nearby Port of Tacoma Upper Clear Creek Mitigation Bank, pending further discussion with regulatory agencies. Lost Wetland B functions would be mitigated through enhancement of higher-value wetland and stream buffers on site.

8.1 Mitigation Sequencing

The proposed Project requires the necessary and unavoidable fill of on-site Wetland B, located centrally on parcel 420174075. Per PMC 21.06.610, projects should first attempt to avoid impacts all together by not taking certain actions. If actions cannot be eliminated, impacts should be minimized by restraining the magnitude of an action, using different technology, or taking steps to reduce impacts. For impacts that cannot be avoided or minimized, compensation or rectification for the impact should be provided by replacing, enhancing, or providing substitute resources or environments, followed by monitoring and reduction of the impact over time. Mitigation sequencing, outlined under PMC 21.06.210(84), for impacts to critical areas, is as follows:

- 1. Avoiding an impact altogether by not taking a certain action or parts of actions
- 2. Minimizing impacts by limiting the degree or magnitude of an action and its implementation
- 3. Rectifying impacts by repairing, rehabilitating, or restoring the affected environment
- 4. Reducing or eliminating an impact over time by preservation and maintenance operations during the life of the action
- 5. Compensating for an impact by replacing or providing substitute resources or environments
- 6. Monitoring the mitigation and taking remedial action when necessary

As discussed in Section 7, no practicable alternatives could avoid the Wetland B impacts and still meet the Project purpose and need due to the size, shape, location, and extent of the wetland and the required warehouse and parking capacity, building code requirements, zoning, and other factors. Project avoidance, minimization, and mitigation measures included site selection screening criteria (Section 7.1), alternatives analysis (Section 7.5), and avoidance and design and construction measures (Sections 8.2 and 8.3, respectively). The Project proposes to provide compensatory mitigation for all

impacts to Wetland B by enhancing on-site buffers for Streams 14 and 15 and Wetland 93, along with the averaged portion of the Wetland 87 buffer. Wetland B functions would be mitigated through enhancement of higher-value wetland and stream buffers on site. About 0.08 acre of buffer enhancement will be provided to compensate for 0.0275 acre of Wetland B impacts, corresponding to an approximate 3:1 mitigation ratio (Figure 8). Additional mitigation for Wetland B impacts may also involve purchase of wetland mitigation credits from the nearby Port of Tacoma Upper Clear Creek Mitigation Bank, pending further discussion with regulatory agencies.

8.2 Avoidance and Minimization Design Measures

The Project includes unavoidable permanent adverse impacts to all of Wetland B located on the northeast portion of parcel 0420174075 within the Main Development Area. The Project has been designed to avoid impacts to off-site Stream 14 and 15 buffers, avoid impacts to off-site Wetland 93 and associated buffers, and minimize impacts to the on-site portion of Wetland 87 buffers through buffer averaging to the extent practicable while meeting City building and zoning code requirements and meeting the criteria of the Project's stated purpose and need. Further discussion of avoidance and minimization is included in Section 7.

8.3 Avoidance and Minimization Construction Measures

Other measures to avoid and minimize impacts include the implementation of the following BMPs during construction:

- All work will be performed according to the requirements and conditions of the Project permits.
- Impacts to off-site wetlands, off-site streams, and on-site stream and wetland buffers will be minimized during construction through the use of temporary erosion and sediment control BMPs. The contractor will prepare and implement a Temporary Erosion and Sediment Control Plan and a Spill Prevention, Control, and Countermeasures Plan.
- All wash water and concrete-laden water associated with construction will be treated to meet State of Washington surface water quality standards (Chapter 173-201A Washington Administrative Code) prior to discharge into surface waterbodies. Concrete-laden water may also be removed from the site.
- All concrete will be poured in dry conditions, or within confined areas not connected to surface waters, and shall be sufficiently cured prior to contact with surface waters.
- Excess or waste materials will not be disposed of or abandoned within the wetland boundary or waterward of the OHWM or allowed to enter waters of the State.
- No petroleum products, chemicals, or other toxic or deleterious materials will be allowed to enter the wetland or surface waters.

- The contractor will be required to properly maintain construction equipment and vehicles to prevent them from leaking fuel or lubricants; if there is evidence of leakage, the further use of such equipment will be suspended until the deficiency has been corrected.
- The Project will be constructed consistent with the stormwater management design criteria outlined in the Ecology *Stormwater Management Manual for Western Washington* (2019) and the Pierce County *Stormwater Management and Site Development Manual* (2021) to reduce and control surface runoff.

8.4 Wetland 87 Buffer Averaging

PMC 21.06.970 requires that all impacts to wetland buffers be mitigated at a minimum 1:1 ratio. Additionally, PMC 21.06.930 stipulates that the standard wetland buffer widths may be averaged so long as the following criteria are met:

- The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer.
- The buffer averaging does not reduce the functions or values of the wetland.
- The portion of the buffer subject to buffer averaging is less than 20% of the total buffer length.
- The wetland contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation.
- The buffer width for Category I and II wetlands is not reduced by more than 25% of the standard width, and the buffer width of a Category III or IV wetland with moderate habitat functions (six to seven points for habitat) may be reduced by no more than 33% of the standard buffer width.
- In any case where a reduced buffer width is applied consistent with the previous subsections, the buffer shall be composed of a dense native plant community; if the buffer area contains over 20% coverage by invasive plant species, the applicant shall provide a vegetation management plan to remove those invasive plants, supplement the buffer area with native trees and shrubs, and monitor the buffer area for a period of no less than 3 years to ensure eradication of invasive plants and establishment of new native plants from the buffer area.

In order to fully utilize the Main Development Area and provide improved functions to the on-site portions of the Wetland 87, Wetland 93, and Streams 14 and 15 buffer, the Project proposes to reduce the current Wetland 87 buffer boundary to the property line that divides parcels 0420205016 and 0420201110. The reduced 1,827-square-foot Wetland 87 buffer will be averaged onto the area where the Wetland 93 and Streams 14 and 15 buffers project onto parcel 0420174075 and 0420205016 within the Main Development Area (Figure 8). This area, henceforth referred to as the On-Site Mitigation Area, will be enhanced with native plantings and removal of invasive species.

The On-Site Mitigation Area will meet the criteria of PMC 21.06.930 because of the following factors:

- The total area contained within the averaged Wetland 87 buffer will remain 102,437 square feet and be no less than that which would be contained within the standard buffer.
- The buffer averaging will increase the functions and values of the Wetlands 87 and 93 by improving native species diversity and habitat complexity and by reducing invasive species like reed canary grass and Himalayan blackberry.
- The portion of the Wetland 87 buffer perimeter subject to buffer averaging is approximately 251 linear feet, which is less than 20% of the Wetland 87 total buffer perimeter length of 1,370 linear feet.
- Wetland 87 contains variations in sensitivity due to existing physical characteristics of the buffer vegetation. The existing Wetland 87 buffer to be averaged into the On-Site Mitigation Area consists of a poor quality and degraded vegetation community dominated by field grasses. Wetland 87 sensitivities will be improved by enhancement in the On-Site Mitigation Area.
- Wetland 87 is a Category III wetland with moderate habitat functions (scoring six points for habitat) and is afforded a 150-foot-wide buffer. The portion of the buffer to be reduced measures approximately 20 feet, which is less than 50 feet and no more than 33% of the standard buffer width.
- The buffer area within the On-Site Mitigation Area will be composed of a dense native plant community. If the On-Site Mitigation Area is found to contain over 20% coverage by invasive plant species, the Project will provide a vegetation management plan to remove those invasive plants, in addition to providing supplemental plantings of native trees and shrubs. The On-Site Mitigation Area will be monitored for a period of no less than 3 years to ensure eradication of invasive plants and establishment of new native plants within the buffer area.

8.5 Compensatory Mitigation Measures

The proposed compensatory mitigation for unavoidable adverse impacts to on-site Wetland B is planned to consist of enhancement of on-site buffers for Streams 14 and 15 and Wetlands 87 and 93 at the On-Site Mitigation Area described in Section 8.4. Buffer enhancement will consist of invasive species removal and installation of native species. Approximately 0.08 acre of buffer enhancement will be provided to compensate for 0.0275 acre of Wetland B impacts, corresponding to an approximate 3:1 mitigation ratio (Figure 8). Mitigation may also involve purchase of wetland mitigation credits from the nearby Port of Tacoma Upper Clear Creek Mitigation Bank, pending further discussion with regulatory agencies. Wetland B functions lost because of site development would be mitigated through enhancement of higher-value wetland and stream buffers on site.

8.6 Conceptual Mitigation Plan

Goals describe the overall intent of mitigation efforts, and objectives describe individual components of the mitigation site in detail. Performance measures and success standards describe specific on-site characteristics that indicate a function is being provided. Performance measures are used to guide management of the mitigation site. Success standards are thresholds to be measured during the final year of the monitoring period that demonstrate that the site has complied with regulatory requirements and is providing intended functions. The wetland mitigation site will be monitored to demonstrate that intended wetland functions have been achieved. Monitoring will take place for 5 years. Contingency plans describe what actions can be taken to correct site deficiencies.

8.6.1 General Mitigation Goals

The goals for the On-Site Mitigation Area include the following:

- Enhance wetland buffer areas.
- Establish native tree, shrub, and/or groundcover vegetation communities in the wetland buffer areas.

8.6.2 Objectives and Standards of Success for Wetland Buffer Mitigation

- **Objective 1:** Plant communities will be restored by installing native trees, shrubs, and emergent species.
 - Performance Standard 1: Average survival of planted trees will be at least 100% at the end of Year 1, 90% by Year 2, 80% by Year 3, and 70% by Year 5.
 - Performance Standard 2: Within planted areas, native riparian vegetation species cover will be at least 20% by Year 1, 30% by Year 2, 40% by Year 3, and at least 50% by Year 5.
 - Performance Standard 3: Invasive, non-native vegetation is maintained at levels below
 20% total cover within planted buffer areas for all years during the monitoring period.

Survival of planted trees and shrubs is shown in Table 9 and will be monitored and reported throughout the 5-year monitoring program.

Table 9Performance Standards for Installed Native Plants

Rated Item	Year 1	Year 2	Year 3	Year 5
Installed plant survival (%)	100	90	80	70
Tree and shrub canopy (% areal) cover	20	30	40	50

8.6.3 Monitoring Plan

To ensure success of the mitigation plan, monitoring will be completed to determine the success of the wetland buffer mitigation. Monitoring will occur for a minimum of 5 years following completion of construction. An as-built report will be completed after plant installation and submitted to the City for use as a reference document during the monitoring period. Monitoring reports will be submitted to the City during Years 1, 2, 3, and 5. Data on the number and species of plants (as a measure of diversity), survival rates, canopy (aerial percentage) cover, stem density, and plant heights will be measured and recorded during each monitoring period. Permanent sample plots and photography stations will also be established at control points to document existing conditions during each monitoring period.

Monitoring of the planted buffer areas will occur near the end of the peak growing season in summer or early fall in each of the monitoring years after installation. If the percentage of non-native invasive shrub species exceeds 20% within the setback in any monitoring period, appropriate control procedures will be implemented according to a custom-designed maintenance plan for the Project. Plant community success within the planting area will be evaluated during the monitoring periods. In an effort to assess plant diversity, the assessment will include installed plant survival and vegetation percent cover. If installed plant survival or tree and shrub canopy cover performance standards are not met, additional supplemental planting will be provided.

8.6.4 Mitigation Site Management

The On-Site Mitigation Area will be actively managed for a minimum of 5 years following completion of construction. This will include at least one management or maintenance visit per year for a minimum of 5 years following implementation of the plan. Site management visits will occur during the growing season in May through July. Non-native weedy and invasive shrub species growing in the On-Site Mitigation Area will be physically removed (hand-pulling or cutting). Volunteer species of native woody plants, such as Oregon ash and black cottonwood, are to be encouraged. The following tasks will be completed during these visits:

- During Years 1 and 2, the planting area will be weeded by hand to remove any new shoots of non-native and/or invasive vegetation within a 2-foot radius of each installed plant.
- During Year 1, installed plantings in the wetland buffer area must receive a minimum of 1 inch of water each week from June to September from the temporary irrigation system or natural rainfall.
- During the Year 2 management visit, tree stakes will be removed.
- Additional management visits may also be required to respond to other monitoring recommendations.

Following completion of the prescribed monitoring and site management periods, the mitigation sites will be protected from development or other alteration in perpetuity.

8.6.5 Contingency Plan

All contingencies cannot be anticipated. The contingency plan is flexible so that modifications can be made to subsequent years' construction if portions of the previous year's construction do not produce the desired results. Problems or potential problems will be evaluated by a qualified biologist and coordinated with the City. Specific contingency actions will be developed, agreed to by consensus, and implemented based on all scientifically and economically feasible recommendations. Contingencies may include the following:

- Evaluating invasive shrub species removal/maintenance techniques
- Considering species suitability for site conditions, providing replanting recommendations with same or alternate plants, and potentially adjusting planting locations
- Additional monitoring or unscheduled monitoring

If, during the monitoring program, other maintenance needs are identified as necessary to ensure the success of the mitigation project, they will be implemented, unless impacts are generated by third parties or acts of nature.

9 References

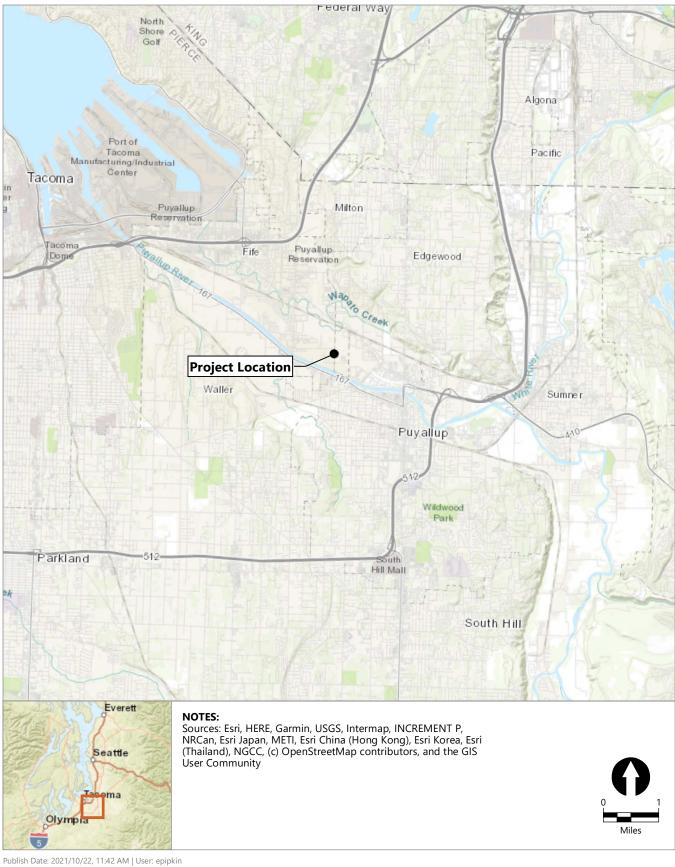
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Figures



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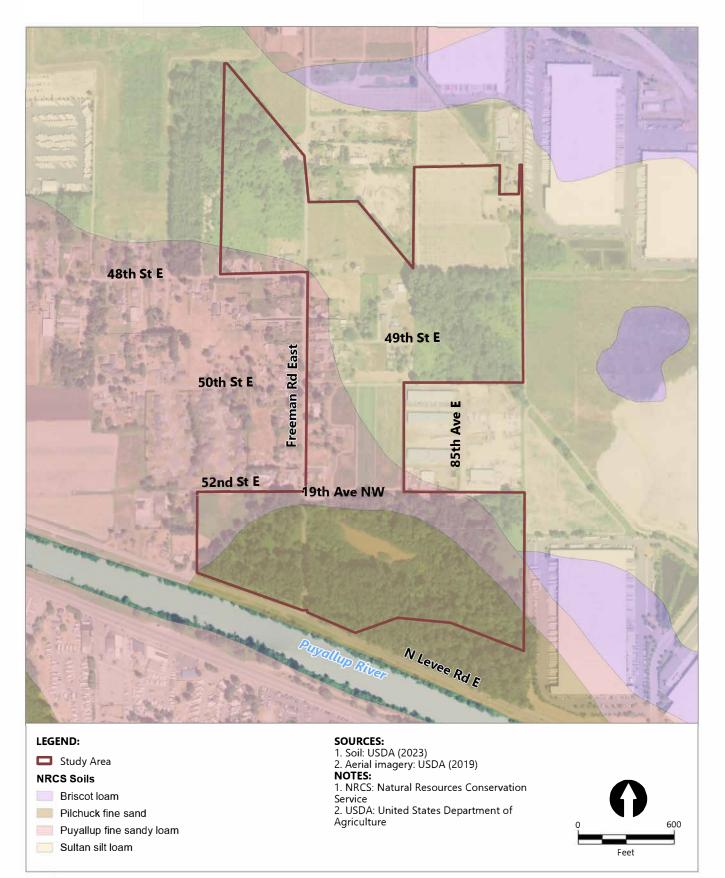
Figure 1 Vicinity Map Critical Areas Report Freeman Road Logistics



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Figure 2 Study Area and Existing Conditions



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Figure 3 NRCS Soils Map

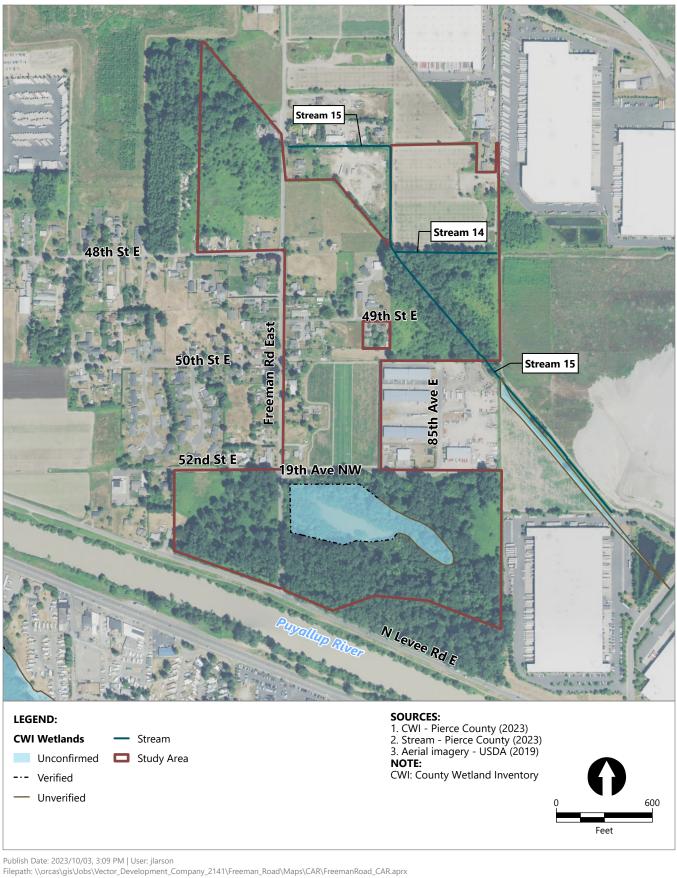




Figure 4 **Pierce County Wetlands Inventory Map**





Figure 5 **National Wetlands Inventory Map**



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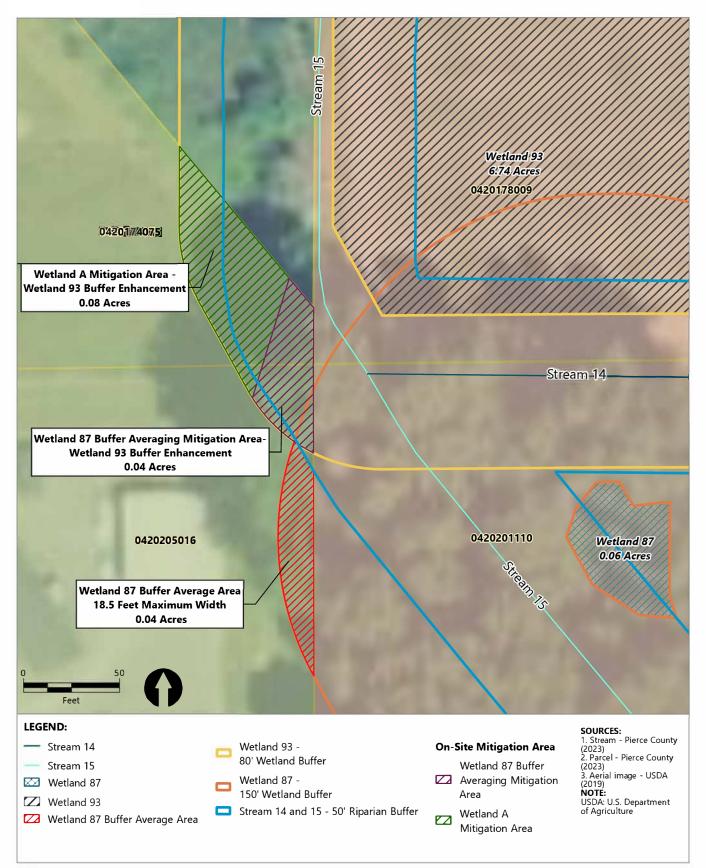


Figure 6 Off-Site WSDOT Parcels Critical Areas and Buffers





Figure 7 **Wetland Delineation Results**



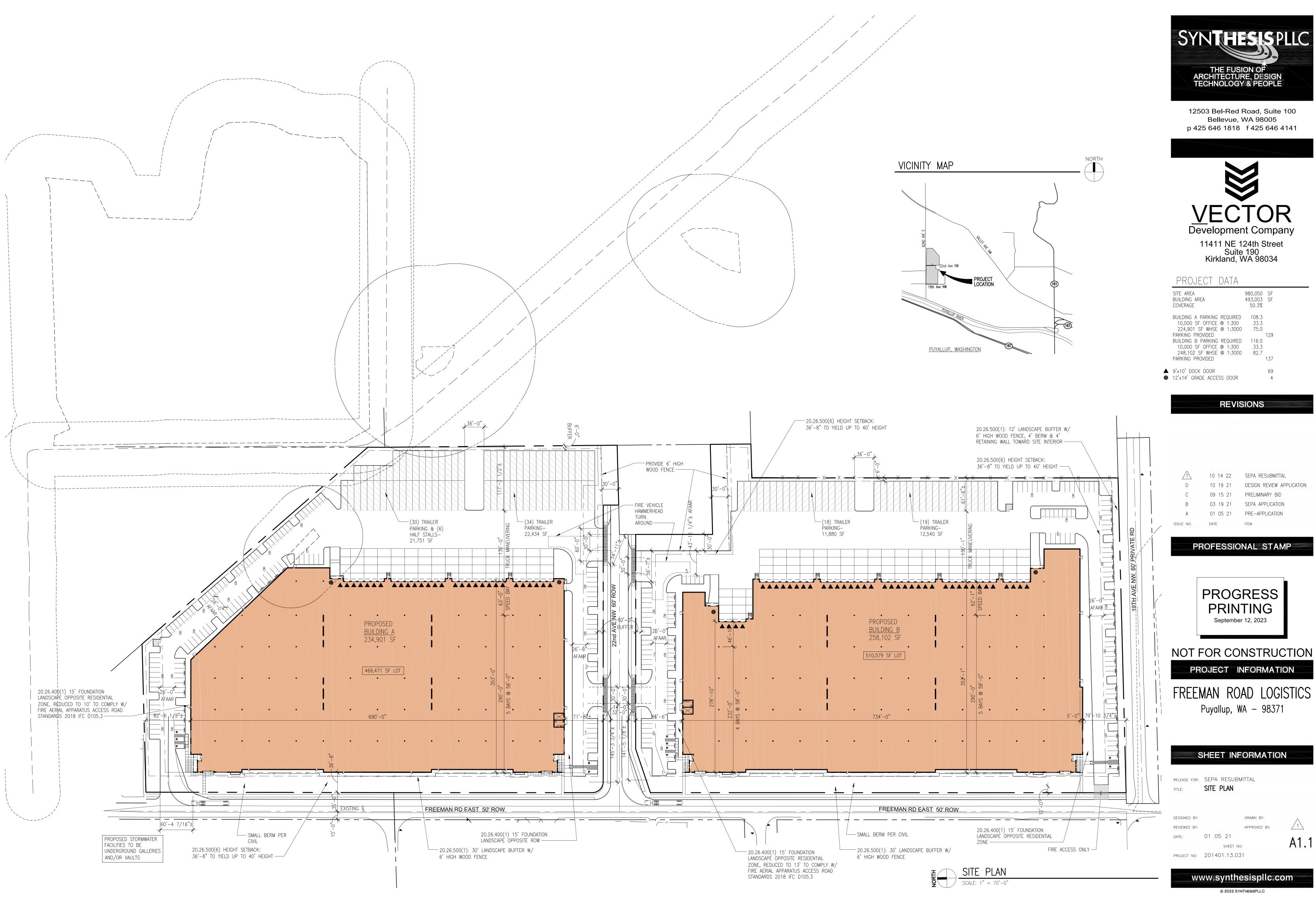
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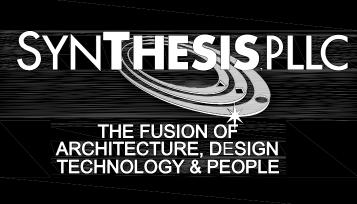
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Figure 8 Conceptual Mitigation Plan

Appendix A Preliminary Plan Set





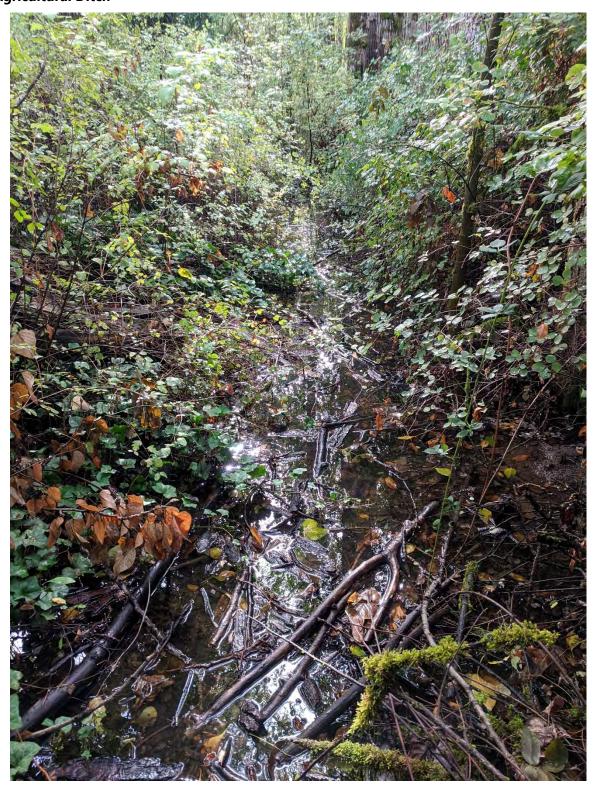
Appendix B Study Area Photographs

Appendix B Study Area Photographs

Photograph 1 Parcels 0420174075 and 0420205016



Photograph 2 Agricultural Ditch

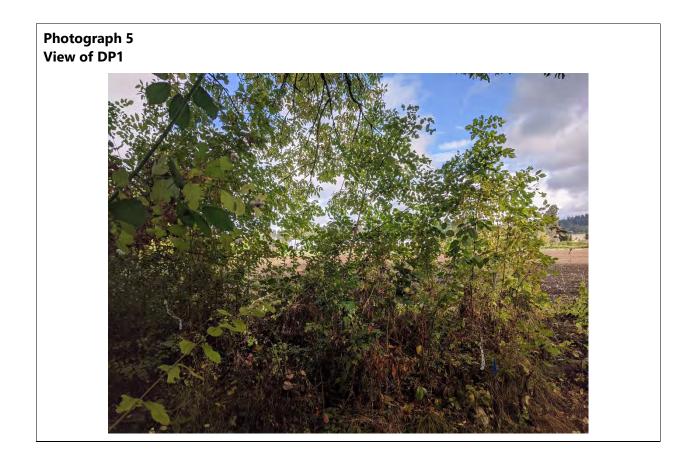


Photograph 3 Agricultural Ditch and Adjacent Agricultural Field

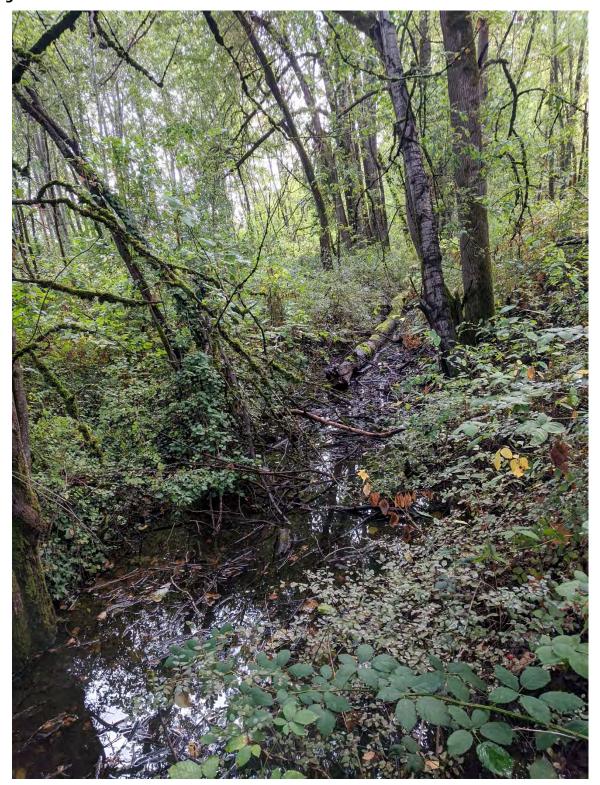


Photograph 4 Adjacent Agricultural Fields

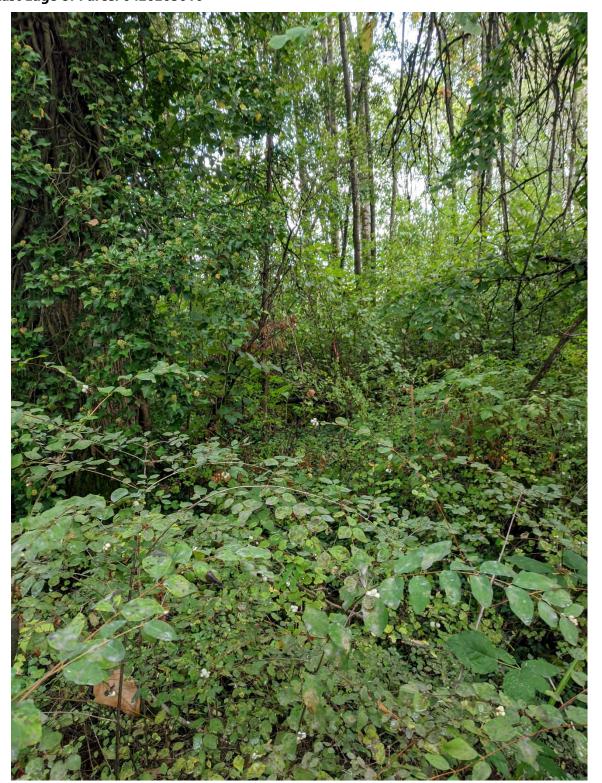


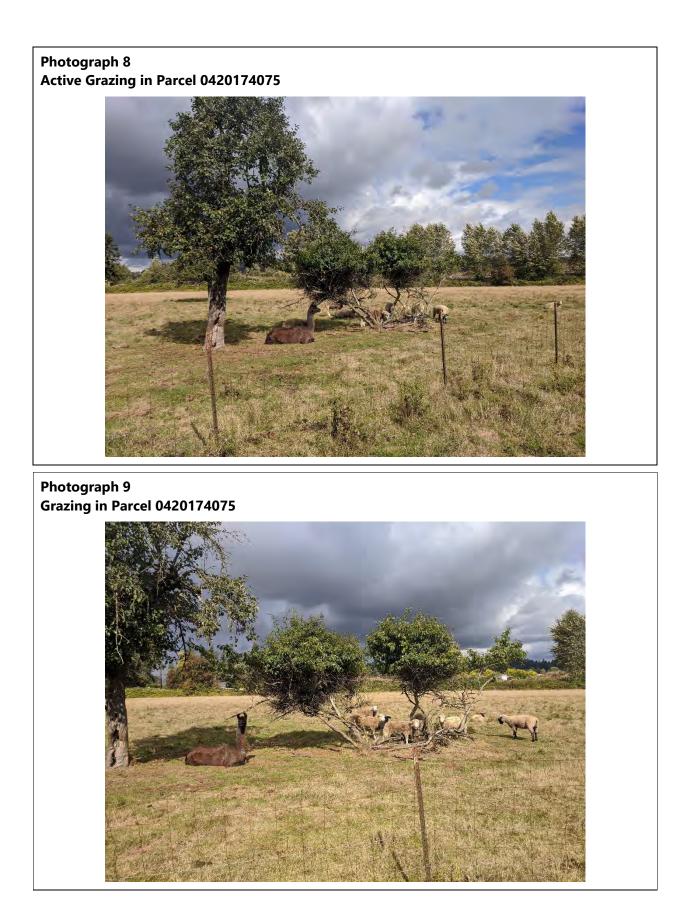


Photograph 6 Agricultural Ditch South



Photograph 7 East Edge of Parcel 0420205016





Photograph 10 Ditch



Photograph 11 Field Adjacent to DP2



Photograph 12 Landscape View of DP3





Photograph 15 Area Near DP3



Photograph 16 Wetlands Mapped South of 52nd Street East



Photograph 17 Wetlands Mapped South of 52nd Street East



Photograph 18 Vegetation in Wetlands Mapped South of 52nd Street East



Photograph 19 Wetland B on Parcel 0420174075 (March 11, 2022)



Photograph 20 Wetland B on Parcel 0420174075 (March 11, 2022)



Photograph 21 Wetland B on Parcel 0420174075 (March 11, 2022)



Appendix C Wetland Forms and Figures

Project/Site:	Freeman Road Logis	City/County: Puyallup/Pierce County					Sam	npling Date:	3/1	1/2022		
Applicant/Owner:	Vector Development	Company					State:	WA	Sam	npling Point:	Wet	A DP1 W
Investigator(s):	C. Douglas, M. Curra	an		Section	n, Township,	, Range:	S17 &	20 R4E T2	20N			
Landform (hillslope	e, terrace, etc.):	Forested		Local re	lief (concave	e, convex	, none):	concave			Slope:	1-5
Subregion (LRR):	Northwest Forests a	nd Coast (LRR A)	Lat:	47.12'33			Long:	122.19'03		[Datum:	NAD83
Soil Map Unit Nam	ne: Pilchuck fine	sand					NWI Cla	assification	: <u>PFO, F</u>	PSS, POW		
Are climatic / hydro	ologic conditions on th	ne site typical for th	nis time of y	ear?	Yes	х	No		(If no,	explain in Re	marks)	
Are Vegetation	, Soil	, or Hydrology		significantly	disturbed?	Are "N	lormal C	Circumstan	ces" Pres	sent? Yes	Х	No
Are Vegetation	, Soil	, or Hydrology		naturally pro	oblematic?	(If nee	ded, ex	plain any a	nswers i	n Remarks.)		
SUMMARY OF	FINDINGS – Att	ach site map s	howing s	ampling p	point loca	tions, tr	ansec	ts, impo	rtant fe	eatures, et	: C.	
Hydrophytic Veget		Yes X No			ampled Area	a	Vaa	v	Na			
Hydric Soil Presen				within a	a Wetland?		Yes	X	No		-	
Wetland Hydrolog	y Present?	Yes X No										
VEGETATION												
						Domina	nce Tes	st workshe	et:			
			Absolute % Cover	Dominant Species?	Indicator Status?							
Tree Stratum	(Plot size:)		Species				inant Spec FACW, or F				
	mifera ssp. Trichocarp	ba	70	Yes	FAC					2		(A)
2		<u> </u>						f Dominant				
3						Species	ACIOSS	All Strata:		2		(B)
4								inant Spec				(. (-)
5						That Are	e OBL, F	FACW, or F	AC:	100%		(A/B)
	<u>35</u> 20%= <u>14</u>	-	70									
Sapling/Shrub Stra)	05	N/s s	FACW			ex Worksl	neet:	Maraldan Iarah		
 <u>Cornus sericea</u> Rubus armenia 			<u>85</u> 20	Yes No	FAC	OBL spe	al % Co	over of: 0	x1 =	Multiply b 0	y:	
3. Symphoricarpo			20	No	FACU	FACW s				170		
4.	is albus		20			FAC spe	•	90	x2 = x3 =	270		
 5.						FACU sp		20				
-	62.5 20%= 25	Total Cover:	125			UPL spe		0		0		
Herb Stratum	(Plot size:	-				Column		195	(A)	520		(B)
1.	,	,						dex = B/A	_ ` `			()
2.												
3.						Hydropl	nytic Ve	egetation I	ndicator	s:		
4.							1 - Rap	oid Test for	Hydroph	nytic Vegetat	ion	
5						Х	2 - Dor	minance Te	est is >50)%		
6						Х	3 - Pre	valence In	dex is ≤	3.0 ¹		
7							4 - Mo	rphological	Adaptat	ion ¹ (Provide	suppor	rting
8							data	a in Remar	ks or on	a separate s	heet)	-
9								tland Non-				
50%=	020%=0	Total Cover:	0				Proble	matic Hydr	ophytic \	/egetation ¹ (Explain)	1
Woody Vine Stratu	um (Plot size:)						dric soil ar ess disturbe		d hydrology blematic.	must	
2						Hydropl	nytic					
		Total Cover:				Vegetat						
	re Ground in Herb Str	atum <u>100</u> % C	over of Bio	tic Crust		Present	?		Yes_	X No		
Remarks: 100% F	AC vegetation											

SOIL

Profile Desc Depth	Matrix		Re	edox Feat	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 3/1	100					SiL	
4-9	10YR 3/1	90	10YR 5/4	10	D	М	SL	
9-18	10YR 2/1	95	10YR 4/1	5	D	М	LS	w/gravel
·								
¹ Type: C=Co	oncentration, D=Dep	letion, RM		 CS=Cov	ered or Co	ated Sanc	Grains. ² Loca	tion: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Applic	able to all	LRRs, unless of	herwise	noted.)		Indicators for	Problematic Hydric Soils ³ :
Histoso	ol (A1)			Redox (S				2 cm Muck (A10) (LRR B)
Histic E	Epipedon (A2)		Strippe	d Matrix (S6)			Red Parent Material (TF2)
Black H	Histic (A3)		Loamy	Mucky M	ineral (F1)	(except M	/ILRA 1)	Very Shallow Dark Surface (TF12)
	en Sulfide (A4)				latrix (F2)			Other (Explain in Remarks)
	ed Below Dark Surfa	ce (A11)		ed Matrix			3	
	Dark Surface (A12)			Dark Surf				s of hydrophytic vegetation and
Sandy	Muck Mineral (S1)		Deplete	ed Dark S	urface (F7)	wetlan	d hydrology must be present,
Sandy	gleyed Matrix (S4)		Redox	Depressio	ons (F8)		unles	s disturbed or problematic.
	Layer (if present):							
Туре:								
Depth (inche						1 1 1	dric Soil Preser	it? Yes X No
	na with redox					нус		
arks: 1 chror	ma with redox							
arks: 1 chror DROLOGY Wetland Hyd	ma with redox	e required;	check all that app	bly)				
arks: 1 chror DROLOGY Wetland Hyd Primary Indic	ma with redox	equired;	check all that app x Water-		eaves (B9)			Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,
Arks: 1 chror DROLOGY Wetland Hyd Primary Indic X Surface	ma with redox drology Indicators: cators (minimum one	equired;	x Water-					Secondary Indicators (2 or more required)
Arks: 1 chror DROLOGY Wetland Hyd Primary Indic X Surface X High W	ma with redox drology Indicators: cators (minimum one e Water (A1)	equired;	<u>x</u> Water- 1, 2	Stained L				Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,
DROLOGY Wetland Hyd Primary Indic X Surface X High W X Saturat	ma with redox ma with redox drology Indicators: cators (minimum one e Water (A1) /ater Table (A2)	e required;	<u>x</u> Water- 1, 2 Salt Cr	Stained L , 4A and ust (B11)) (except		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
DROLOGY Wetland Hyu Primary India X Surface X High W X Saturat Water I	ma with redox ma with redox drology Indicators: cators (minimum one e Water (A1) /ater Table (A2) tion (A3)	e required;	x Water- 1, 2 Salt Cr Aquatio	Stained L , 4A and ust (B11) c Inverteb	4B)) (except		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
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arks: 1 chror DROLOGY Wetland Hyp Primary Indic X Surface X High W X Saturat Water I Sedime Drift De Algal M Iron De Surface X Sparse Field Obser Surface Wat Water table Saturation P	ma with redox drology Indicators: cators (minimum one e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) fat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aerial ly Vegetated Concav vations: er Present? Yes resent? Yes	Imagery (ve Surface	x Water- 1, 2 Salt Cr Aquatio Hydrog Oxidize Presen Recent Stunter (B8) No Dept No Dept	Stained L , 4A and ust (B11) c Inverteb gen Sulfide ed Rhizos ice of Rec c of Rec c Iron Red d or Stres Explain ir h (inches)	4B) rates (B13 e Odor (C1 oheres alo luced Iron uction in P sed Plants Remarks) :1 inc) (except) ng Living (C4) !lowed Soi (D1) (LRI) <u>h</u> ace	MLRA <u>x</u> Roots (C3) Is (C6) R A)	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)
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DROLOGY Wetland Hyu Primary India X Surface X High W X Saturat Water I Sedime Drift De Algal M Iron De X Inundat X Sparse Field Obser Surface Wat Water table Saturation P (includes cap cribe Recorded	ma with redox drology Indicators: cators (minimum one e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) fat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aerial ly Vegetated Concav vations: ter Present? Yes present? Yes pillary fringe)	Imagery (ve Surface	x Water- 1, 2 Salt Cr Aquatio Graditic Presen Recent Stunted B7) Other ((B8) No Dept No Dept auge, monitoring v	Stained L , 4A and ust (B11) c Inverteb gen Sulfide ed Rhizos ice of Rec t Iron Red d or Stres Explain ir h (inches) h (inches)	4B) rates (B13 e Odor (C1 oheres aloo luced Iron uction in P sed Plants Remarks) : <u>1 inc</u> : <u>at surfa</u> : <u>at surfa</u>) (except) ng Living I (C4) lowed Soi (D1) (LRI) <u>h</u> ace	MLRA _x 	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)
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Project/Site:	Freeman Road L	ogistics		City/County: Puyallup/Pierce County			unty		Sampling	Date:	3/11/2022		
Applicant/Owner:	Vector Developm	nent Compa	ny					State:	WA	Sampling	Point:	Wet A	DP2 Up
Investigator(s):	C. Douglas, M. C	Curran			Section	, Township,	Range:	S17 & 2	20 R4E T20	N	-		
Landform (hillslope	e, terrace, etc.):	Foreste	ed		Local reli	ief (concave	, conve	x, none):	concave			Slope:	1-5
Subregion (LRR):	Northwest Fores	ts and Coas	t (LRR A)	Lat:	Lat: <u>47.12'33</u> Long: <u>122.19'0</u>					B Datum: NAD8			NAD83
Soil Map Unit Nam	ne: Pilchuck					NWI Clas	ssification:	PFO, PSS, P	WO				
Are climatic / hydro	ologic conditions of	s time of	year?	Yes	х	No		(If no, explair	n in Re	marks)			
Are Vegetation	, Soil		significantly of	disturbed?	Are "N	Normal Ci	rcumstance	es" Present?	Yes	x	No		
	, Soil				naturally prol	blematic?	(If nee	eded, exp	lain any an	swers in Rem	arks.)		
SUMMARY OF	FINDINGS -	Attach sit	te map sh	owing	sampling p	oint locat	ions, t	ransect	s, impor	tant feature	es, et	с.	
Hydrophytic Veget	ation Present?	Yes	No	х									
Hydric Soil Presen		Yes	No	Х		mpled Area Wetland?		Yes		No X			
Wetland Hydrology	y Present?	Yes	X No		- within a	wettanu?		-					
Remarks: Delinea	ted northern and	eastern bou	ndary of larg	ge wetlan	d system to ide	entify potent	ial buffe	er impacts	for utility li	ne constructio	'n		

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species
1. Populus balsamifera ssp. Trichocarpa	80	Yes	FAC	That Are OBL, FACW, or FAC:(A)
2. Picea sitchensis	10	No	FAC	Total Number of Dominant
3.				Species Across All Strata: 2 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 50% (A/B)
50%= <u>45</u> 20%= <u>18</u> Total Cover:	90			
Sapling/Shrub Stratum (Plot size:)				Prevalence Index Worksheet:
1. <u>Cornus sericea</u>	30	No	FACW	Total % Cover of: Multiply by:
2. Rubus armeniacus	20	No	FAC	OBL species 0 x1 = 0
3. Symphoricarpos albus	90	Yes	FACU	FACW species 30 x2 = 60
4. Ribes sanguineum	20	No	FACU	FAC species 110 x3 = 330
5.				FACU species 110 x4 = 440
50%= 80 20%= 32 Total Cover:	160			UPL species 0 x5 = 0
Herb Stratum (Plot size:)				Column Totals: 250 (A) 830 (B)
1.				Prevalence Index = B/A = 3.3
2.				
3.				Hydrophytic Vegetation Indicators:
4.				1 - Rapid Test for Hydrophytic Vegetation
5.				2 - Dominance Test is >50%
6.				$3 - Prevalence Index is \leq 3.0^{1}$
7.				4 - Morphological Adaptation ¹ (Provide supporting
0				data in Remarks or on a separate sheet)
9.				5 - Wetland Non-Vascular Plants ¹
50%= 0 20%= 0 Total Cover:	0			Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrology must
1. Hedera helix	20		FACU	be present, unless disturbed or problematic.
2				Hudensterd's
	20			Hydrophytic Vegetation
% Bare Ground in Herb Stratum 100 % C		tic Crust		Present? Yes No X
Remarks: 50% FAC vegetation				

Depth	Matrix	Re	dox Feat	ures					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-8	10YR 3/2	100					SiL	w/gravel	
8-18	10YR 4/2	100					SL	w/gravel	
						ated San		cation: PL=Pore Lining, M=Matrix.	
Hydric Soil I Histoso	ndicators: (Applic	cable to all	-	nerwise Redox (S			Indicators 1	for Problematic Hydric Soils ³ : 2 cm Muck (A10) (LRR B)	
	pipedon (A2)			d Matrix			-	Red Parent Material (TF2)	
	listic (A3)				lineral (F1)	(except	MLRA 1)	Very Shallow Dark Surface (TF12)	
	en Sulfide (A4)				Aatrix (F2)	•	· <u> </u>	Other (Explain in Remarks)	
Deplete	d Below Dark Surfa	ice (A11)	Deplete	d Matrix	(F3)		_		
Thick D	ark Surface (A12)		Redox	Dark Sur	face (F6)		³ Indica	tors of hydrophytic vegetation and	
Sandy M	Muck Mineral (S1)		Deplete	d Dark S	Surface (F7)	wetl	and hydrology must be present,	
Sandy g	gleyed Matrix (S4)		Redox	Depressi	ons (F8)		un	less disturbed or problematic.	
Restrictive L	ayer (if present):								
Гуре:									
Danth (inchas							duia Cail Duas		
	s):					Hy	dric Soil Pres	sent? Yes <u>No X</u>	
arks: 2 chron						Hy		sent / Yes No <u>X</u>	
arks: 2 chron DROLOGY Wetland Hyc	na with no redox		check all that app	ly)		Hy		Secondary Indicators (2 or more required)	
arks: 2 chron DROLOGY Wetland Hyc Primary Indic	na with no redox			• •	eaves (B9)				
arks: 2 chron DROLOGY Wetland Hyc Primary Indic Surface	na with no redox		Water-S	• •	. ,			Secondary Indicators (2 or more required)	
arks: 2 chron DROLOGY Wetland Hyc Primary Indic Surface	a with no redox a with no redox		Water-S	Stained L	4B)			Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,	
Arks: 2 chron DROLOGY Wetland Hyc Primary Indic Surface High Wi x Saturati	a with no redox a with no redox		Water-S 1, 2, Salt Cru	Stained L 4A and ust (B11)	4B)	(except		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)	
Arks: 2 chron DROLOGY Wetland Hyc Primary Indic Surface High Wa X Saturati Water M	Arology Indicators ators (minimum on Water (A1) ater Table (A2) ion (A3)		Water-S 1, 2, Salt Cru Aquatic	Stained L 4A and ust (B11)	4B)) (except		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10)	
DROLOGY Wetland Hyc Primary Indic Surface High Wi X Saturati Water M Sedime	Arology Indicators Arology Indicators Eators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1)		Water-S	Stained L 4A and ust (B11) Inverteb en Sulfid	4B) prates (B13) e Odor (C1)		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)	
DROLOGY Wetland Hyc Primary Indic Surface High Wa X Saturati Water M Sedime Drift De	Arology Indicators Arology Indicators Eators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2)		Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize	Stained L 4A and ust (B11) Inverteb en Sulfid d Rhizos	4B) prates (B13) e Odor (C1	(except))ng Living	MLRA	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)	
Arks: 2 chron DROLOGY Wetland Hyc Primary Indic Surface High Wa X Saturati Water M Sedime Drift De Algal M	Arology Indicators ators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3)		Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Presen	Stained L 4A and ust (B11) Inverteb en Sulfid d Rhizos ce of Rec	4B) prates (B13) e Odor (C1) pheres alo))ng Living (C4)	MLRA	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)	
Arks: 2 chron DROLOGY Wetland Hyc Primary Indic Surface High Wi X Saturati Water M Sedime Drift De Algal M Iron De	Ana with no redox Arology Indicators rators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)		Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Recent	Stained L 4A and ust (B11) Inverteb en Sulfid d Rhizos ce of Rec Iron Red	4B) rates (B13 e Odor (C1 pheres alou duced Iron)) ng Living (C4) lowed So	MLRA	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)	
DROLOGY Wetland Hyc Primary Indic Surface High W: X Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat	ha with no redox Arology Indicators rators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	<u>e required;</u> I Imagery (Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Presend Recent Stuntec B7) Other (I	Stained L 4A and ust (B11) Inverteb en Sulfid d Rhizos ce of Rec Iron Rec I or Stres	4B) rates (B13) e Odor (C1 pheres alor duced Iron luction in P)) ng Living (C4) lowed So (D1) (LR	MLRA	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)	
Arks: 2 chron DROLOGY Wetland Hyc Primary Indic Surface High Wi X Saturati Water M Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Observ	Arology Indicators Arology Indicators Eators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca vations:	e required; I Imagery (ve Surface	Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Presenu Recent Stuntec B7) Other (I (B8)	Stained L 4A and Just (B11) Inverteb en Sulfid d Rhizos ce of Rec Iron Red I or Stres Explain ir	4B) rates (B13 e Odor (C1 pheres alou duced Iron luction in P sed Plants n Remarks)))ng Living (C4) lowed So (D1) (LR	MLRA	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)	
DROLOGY Wetland Hyc Primary Indic Surface High Wi X Saturati Water M Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Observ Surface Water	Arology Indicators ators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca vations: er Present? Ye	e required; I Imagery (ve Surface	Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Presend Recent Stunted B7) Other (I (B8)	Stained L 4A and ust (B11) Inverteb en Sulfid d Rhizos ce of Rec Iron Rec I or Stres Explain ir	4B) rrates (B13 e Odor (C1 pheres alou duced Iron luction in P sed Plants n Remarks)	(except)) ng Living (C4) lowed So (D1) (LR	MLRA	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)	
Arks: 2 chron DROLOGY Wetland Hyc Primary Indic Surface High Wi X Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Observ Surface Water	Arology Indicators ators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca Vations: er Present? Ye	e required; I Imagery (ve Surface s	Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Presend Recent Stunted B7) Other (I (B8) No Depth No Depth	Stained L 4A and ust (B11) Inverteb en Sulfid d Rhizos ce of Rec Iron Red I or Stres Explain ir	4B) rrates (B13 e Odor (C1 pheres alor duced Iron luction in P sed Plants n Remarks)):):	(except))ng Living (C4) lowed So (D1) (LR	MLRA	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)	
DROLOGY Wetland Hyc Primary Indic Surface High Wi X Saturati Water M Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Observ Surface Wate Water table F Saturation Pr	Arology Indicators ators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca vations: er Present? Ye resent? Ye	e required; I Imagery (ve Surface	Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Presend Recent Stunted B7) Other (I (B8) No Depth No Depth	Stained L 4A and ust (B11) Inverteb en Sulfid d Rhizos ce of Rec Iron Red I or Stres Explain ir	4B) rrates (B13 e Odor (C1 pheres alou duced Iron luction in P sed Plants n Remarks)	(except))ng Living (C4) lowed So (D1) (LR	MLRA	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)	
DROLOGY Wetland Hyo Primary Indic Surface High Wi X Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Observ Surface Wate Water table F Saturation Pr (includes cap	Arology Indicators ators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca vations: er Present? Ye resent? Ye	I Imagery (ve Surface	Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Presend Recent Stuntec B7) Other (I (B8) No No Deptf No Deptf	Stained L 4A and Jat (B11) Inverteb en Sulfid d Rhizos ce of Rec Iron Rec I or Stres Explain ir n (inches n (inches n (inches	4B) arates (B13) e Odor (C1 pheres aloo duced Iron luction in P ised Plants n Remarks)):):):	(except)) (C4) lowed So (D1) (LR	MLRA Roots (C3) ils (C6) R A) Wetland Hyd	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)	
DROLOGY Wetland Hyc Primary Indic Surface High Wa X Saturati Water M Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Observ Surface Wate Water table F Saturation Pr (includes cap cribe Recorded	Arology Indicators ators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca Vations: er Present? Ye Present? Ye resent? Ye resent? Ye	I Imagery (ve Surface s s Tributary ga	Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Presenu Recent Stuntec B7) Other (I (B8) No Depth No Depth auge, monitoring v	Stained L 4A and Jat (B11) Inverteb en Sulfid d Rhizos ce of Rec Iron Rec I or Stres Explain ir n (inches n (inches n (inches	4B) arates (B13) e Odor (C1 pheres aloo duced Iron luction in P ised Plants n Remarks)):):):	(except)) (C4) lowed So (D1) (LR	MLRA Roots (C3) ils (C6) R A) Wetland Hyd	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)	
DROLOGY Wetland Hyc Primary Indic Surface High Wa X Saturati Water M Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Observ Surface Wate Water table F Saturation Pr (includes cap cribe Recorded	Arology Indicators ators (minimum on Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) ion Visible on Aeria y Vegetated Conca vations: er Present? Ye Present? Ye eresent? Ye willary fringe) ed Data (Unnamed	I Imagery (ve Surface s s Tributary ga	Water-S 1, 2, Salt Cru Aquatic Hydrog Oxidize Presenu Recent Stuntec B7) Other (I (B8) No Depth No Depth auge, monitoring v	Stained L 4A and Jat (B11) Inverteb en Sulfid d Rhizos ce of Rec Iron Rec I or Stres Explain ir n (inches n (inches n (inches	4B) arates (B13) e Odor (C1 pheres aloo duced Iron luction in P ised Plants n Remarks)):):):	(except)) (C4) lowed So (D1) (LR	MLRA Roots (C3) ils (C6) R A) Wetland Hyd	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)	

Project/Site:	Freeman Road Logistics	City/County: Puyallup/Pierce County					Sam	pling Date:	3/1	1/2022		
Applicant/Owner:	Vector Development Co	mpany					State:	WA	Sam	pling Point:	Wet	A DP3 W
Investigator(s):	C. Douglas, M. Curran			Section	n, Township	, Range:	S17 &	20 R4E T	20N			
Landform (hillslope	e, terrace, etc.): For	rested		Local re	lief (concav	e, convex	, none):	concave			Slope:	1-5
Subregion (LRR):	Northwest Forests and C	Coast (LRR A)	Lat:	47.12'33			Long:	122.19'03	3	[Datum:	NAD83
Soil Map Unit Nam	ne: Pilchuck fine san	d					NWI Cla	assificatior	n: <u>PFO, F</u>	PSS, POW		
Are climatic / hydro	ologic conditions on the s	ite typical for th	is time of y	ear?	Yes	х	No		(If no,	explain in Re	marks)	
Are Vegetation	, Soil, oi	Hydrology		significantly	disturbed?	Are "N	lormal C	Circumstar	nces" Pres	sent? Yes	Х	No
Are Vegetation	, Soil, or	Hydrology		naturally pro	oblematic?	(If nee	ded, ex	plain any a	answers i	n Remarks.)		
SUMMARY OF	FINDINGS – Attack	n site map s	howing s	sampling p	point loca	tions, ti	ansec	cts, impo	ortant fe	eatures, et	: c.	
Hydrophytic Veget		s <u>X</u> No			ampled Area	a	Vaa	v	Na			
Hydric Soil Presen				within a	a Wetland?		Yes	X	No		-	
Wetland Hydrolog	y Present? Ye	s <u>X</u> No										
VEGETATION	ted northern and eastern											
						Domina	nce Tes	st worksh	eet:			
			Absolute	Dominant	Indicator							
Tree Stratum	(Plot size:)	% Cover	Species?	Status?			inant Spe				
1. <u>Populus balsar</u>	mifera ssp. Trichocarpa		60	Yes	FAC	That Are	OBL, F	FACW, or	FAC:	3		(A)
2								f Dominan				
3						Species	Across	All Strata:		3		(B)
4								inant Spec				
5						That Are	e OBL, F	FACW, or	FAC:	100%		(A/B)
	30 20%= 12	Total Cover:	60									
Sapling/Shrub Stra)			FA014			ex Works	heet:			
1. <u>Cornus sericea</u>			80	Yes	FACW		al % Co			Multiply b	y:	
2. Rubus armenia			20	No	FAC FAC	OBL spe		0	x1 =	0		
 <u>Rubus spectab</u> 4. 	mis		30	Yes	170	FACW s	•	<u>80</u> 110	x2 = x3 =	<u>160</u> 330		
4 5.						FAC Spe		0				
	65 20%= 26	Total Cover:	130			UPL spe		0		0		
Herb Stratum	(Plot size:					Column		190	(A)	490		(B)
1.	(1.1010.201	/						dex = B/A		2.6		(=)
2												
3.						Hydrop	nytic Ve	getation	Indicator	s:		
4.							- 1 - Rap	pid Test fo	r Hydroph	nytic Vegetat	ion	
5.						Х	2 - Dor	minance T	est is >50)%		
6.						х	3 - Pre	valence Ir	ndex is ≤	3.0 ¹		
7							4 - Mo	rphologica	I Adaptat	ion ¹ (Provide	e suppor	rtina
										a separate s		
9							5 - We	tland Non	-Vascular	Plants ¹		
50%=	<u> 0 </u> 20%= <u> 0 </u>	Total Cover:	0				Proble	matic Hyd	rophytic \	/egetation1 (Explain))
Woody Vine Stratu	um (Plot size:							/dric soil a ess disturb		d hydrology plematic.	must	
2.						Hydrop	nvtic					
		Total Cover:	0			Vegetat	•					
% Ba	re Ground in Herb Stratur	n <u>100</u> % C	over of Bio	tic Crust		Present	?		Yes	X No		
Remarks: 100% F	AC vegetation											

	o file Desc pth	cription: (Describe Matrix		dox Feat			firm the abs	ence of	indicators.)	
	•		0/			Type ¹	Loc ²	Toytur		Pomorko
line	ches)	Color (moist)	<u>%</u>	Color (moist)	%	Туре	LOC	Texture	<u>;</u>	Remarks
	0-5	10YR 3/1	100			·		SiL		
	5-18	10YR 4/1	85	10YR 5/4	15	D	M	SiL		
			<u> </u>							
						·				
¹ Ty	/pe: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix,	CS=Cov	ered or Co	ated San	d Grains. ² L	ocation	PL=Pore Lining, M=Matrix.
Hv	dric Soil	Indicators: (Applic	able to all	LRRs. unless ot	herwise	noted.)		Indicators	for Pro	blematic Hydric Soils ³ :
,	Histoso				Redox (S					cm Muck (A10) (LRR B)
	-	Epipedon (A2)			d Matrix (,				ed Parent Material (TF2)
	-	listic (A3)				lineral (F1)	(excent			ery Shallow Dark Surface (TF12)
	_	en Sulfide (A4)				/latrix (F2)				ther (Explain in Remarks)
x		ed Below Dark Surfa	ce (A11)		ed Matrix				0	
		Dark Surface (A12)	00 (7111)			face (F6)		³ Indic	ators of	hydrophytic vegetation and
	-	Muck Mineral (S1)					`			drology must be present,
	- '	. ,				Surface (F7)			6 , 1
	Sandy	gleyed Matrix (S4)		Redox	Depressio	ons (F8)		L	inless d	sturbed or problematic.
Re	strictive I	Layer (if present):								
Тур	pe:									
De	pth (inche	es):					Hy	dric Soil Pre	esent?	Yes <u>X</u> No
We	mary Indic	drology Indicators: cators (minimum one		check all that app	ly)				Se	condary Indicators (2 or more required)
We	etland Hy mary Indic	drology Indicators:		check all that app _x_ Water-	• ·	eaves (B9)) (except	MLRA	_	condary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2,
We	etland Hyd mary Indio Surface	drology Indicators: cators (minimum one		x Water-	• ·) (except	MLRA	_	
W∉ Pri	etland Hyd mary India Surface High W	drology Indicators: cators (minimum one e Water (A1)		<u>x</u> Water-3	Stained L	4B)) (except	MLRA	x W	ater-Stained Leaves (B9) (MLRA 1, 2,
We Pri	etland Hy mary Indio Surface High W Saturat	drology Indicators: cators (minimum one Water (A1) later Table (A2)		x Water-5 1, 2 Salt Cru	Stained L , 4A and ust (B11)	4B)		MLRA	x W	ater-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
We Pri	etland Hyd mary India Surface High W Saturat Water I	drology Indicators: cators (minimum one e Water (A1) dater Table (A2) ion (A3)		x Water-5 1, 2 Salt Cru	Stained L , 4A and ust (B11) : Inverteb	4B) prates (B13)	MLRA	x W	ater-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) rainage Patterns (B10)
We Pri	etland Hyd mary Indio Surface High W Saturat Water I Sedime	drology Indicators: cators (minimum one e Water (A1) dater Table (A2) ion (A3) Marks (B1)		x Water-3 1, 2, Salt Cru Aquatic x Hydrog	Stained L , 4A and Just (B11) Inverteb en Sulfide	4B) orates (B13 e Odor (C1)	MLRA Roots (C3)	x W	ater-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) rainage Patterns (B10) ry-Season Water Table (C2)
We Pri	etland Hyd mary India Surface High W Saturat Water I Sedime Drift De	drology Indicators: cators (minimum one water (A1) 'ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3)		x Water-S 1, 2, Salt Cru Aquatic x Hydrog Oxidize	Stained L , 4A and ust (B11) Inverteb en Sulfide d Rhizos	4B) prates (B13 e Odor (C1 pheres alo)) ng Living		x W D D Si G	ater-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9)
We Pri 	etland Hyd mary Indic Surface High W Saturat Water I Sedime Drift De Algal M	drology Indicators: cators (minimum one e Water (A1) 'ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4)		x Water-S 1, 2, Salt Cru Aquatic x Hydrog Oxidize Presen	Stained L , 4A and ust (B11) Inverteb en Sulfide d Rhizos ce of Rec	4B) orates (B13 e Odor (C1 pheres alo duced Iron))) ng Living (C4)	Roots (C3)	x W D D S G S	ater-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3)
We Pri	etland Hyd mary Indic Surface High W Saturat Water I Sedime Drift De Algal M Iron De	drology Indicators: cators (minimum one e Water (A1) 'ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5)		x Water-S 1, 2, Salt Cru Aquatic x Hydrog Oxidize Present Recent	Stained L , 4A and ust (B11) Inverteb en Sulfide d Rhizos ce of Rec Iron Red	4B) rates (B13 e Odor (C1 pheres alo duced Iron luction in P) ng Living (C4) Plowed So	Roots (C3) ils (C6)	× W D D S G S S F	ater-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5)
We Pri 	etland Hyd mary Indic Surface High W Saturat Water I Sedime Drift De Algal M Iron De Surface	drology Indicators: cators (minimum one e Water (A1) dater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6)	equired;	x Water-S 1, 2, Salt Cru Aquatic x Hydrog Oxidize Presen Recent Stunted	Stained L , 4A and ust (B11) Inverteb en Sulfide d Rhizos ce of Rec Iron Red I or Stres	4B) e Odor (C1 pheres alo duced Iron luction in P sed Plants) ng Living (C4) Plowed So s (D1) (LR	Roots (C3) ils (C6)	x W D D Si G Si F, R	ater-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
We Pri x x 	etland Hyd mary Indic Surface High W Saturat Water I Sedime Drift De Algal M Iron De Surface	drology Indicators: cators (minimum one e Water (A1) dater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aerial	e required;	x Water-S 1, 2, Salt Cru Aquatic x Hydrog Oxidize Present Recent Stuntec B7) Other (l	Stained L , 4A and ust (B11) Inverteb en Sulfide d Rhizos ce of Rec Iron Red I or Stres	4B) rates (B13 e Odor (C1 pheres alo duced Iron luction in P) ng Living (C4) Plowed So s (D1) (LR	Roots (C3) ils (C6)	x W D D Si G Si F, R	ater-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5)
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Project/Site:	Freeman Road Log	gistics	C	City/County: P	uyallup/Pier	ce Cou	inty	Sampling Date:	3/1	1/2022
Applicant/Owner:	Vector Developme	nt Company					State: WA	Sampling Point	: Wet A	A DP4 Up
Investigator(s):	C. Douglas, M. Cu	rran		Section, Township, Range:			S17 & 20 R4E T20	N		
Landform (hillslope	, terrace, etc.):	Forested		Local relie	f (concave,	conve	k, none): <u>concave</u>		Slope:	1-5
Subregion (LRR):	Northwest Forests	and Coast (LRR A)	Lat: 4	7.12'33			Long: <u>122.19'03</u>		Datum:	NAD83
Soil Map Unit Nam	e: Pilchuck fin	e sand					NWI Classification:	PFO, PSS, POW		
Are climatic / hydro	logic conditions on	the site typical for this	time of ye	ar?	Yes	х	No	(If no, explain in F	(emarks	
Are Vegetation	, Soil	, or Hydrology		significantly dis	sturbed?	Are "I	Normal Circumstanc	es" Present? Yes	s <u>x</u>	No
Are Vegetation	, Soil	, or Hydrology	I	naturally proble	ematic?	(If nee	eded, explain any ar	swers in Remarks.)	

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes _ Yes _ Yes _	X	No No No	X X	 Is the Sampled Area within a Wetland? 	Yes	No	x	
Remarks: Delineated northern and e	eastern bo	undar	y of larg	je wetlar	d system to identify potential but	fer impacts for ut	tility line cons	truction	

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species
1. Populus balsamifera ssp. Trichocarpa	80	Yes	FAC	That Are OBL, FACW, or FAC: 1 (A)
2. Picea sitchensis	10	No	FAC	Total Number of Dominant
3.				Species Across All Strata: 2 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
50% = 45 20% = 18 Total Covers	90			Prevalence Index Worksheet:
Sapling/Shrub Stratum (Plot size:)	20	Nie	FACW	
1. <u>Cornus sericea</u> 2. Rubus armeniacus	<u> </u>	<u>No</u>	FACT	Total % Cover of: Multiply by: OBL species 0 x1 = 0
			FAC	
3. Symphoricarpos albus	90	Yes No	FACU	FACW species $30 \times 2 = 60$
4. <u>Ribes sanguineum</u> 5.	20	INO	1 400	FAC species $110 \times 3 = 330$
5	160			FACU species 110 x4 = 440 UPL species 0 x5 = 0
	100			
Herb Stratum (Plot size:) 1.				Column Totals: 250 (A) 830 (B) Prevalence Index = B/A = 3.3
2 3 4 5 6.				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹
7.				
8 9				4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹
8 9	0			data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain)
8 9	0		FACU	data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹
8 950%= <u>0</u> 20%= <u>0</u> Total Cover: <u>Woody Vine Stratum</u> (Plot size:)	20 	tic Crust	FACU	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

Depth	Matrix									
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-8	10YR 3/2	100					SiL	w/gravel		
8-18	10YR 4/2	100					SL	w/gravel		
		·		·	- <u> </u>					
¹ Type: C=Conc	entration, D=De	pletion, RI	M=Reduced Matri	x, CS=Co	overed or 0	Coated Sa	and Grains. ² Lo	cation: PL=Pore Lining, M=Matrix.		
Hydric Soil Ind	icators: (Appli	cable to a	II LRRs, unless	otherwis	e noted.)		Indicators for	Problematic Hydric Soils ³ :		
Histosol (A	,			Redox (S				2 cm Muck (A10) (LRR B)		
Histic Epip				ed Matrix				Red Parent Material (TF2)		
Black Histi	. ,				/lineral (F1		MLRA 1)	Very Shallow Dark Surface (TF12)		
	Sulfide (A4)	(Matrix (F2))		Other (Explain in Remarks)		
	Below Dark Surfa	ace (A11)		ed Matrix			3			
	Surface (A12)				rface (F6)	-		s of hydrophytic vegetation and		
	ck Mineral (S1)		<u> </u>		Surface (F7	()		d hydrology must be present,		
Sandy gley	/ed Matrix (S4)		Redox	Depress	ions (F8)		unles	s disturbed or problematic.		
Restrictive Lay										
							dric Soil Prese	nt? Yes No X		
Depth (inches):										
arks: 2 chroma v	with no redox							nt? Yes No <u>_X</u>		
arks: 2 chroma v DROLOGY Wetland Hydro	with no redox		I: check all that a							
DROLOGY Wetland Hydro Primary Indicato	with no redox		l; check all that aj Water	/				Secondary Indicators (2 or more required)		
DROLOGY Wetland Hydro Primary Indicato Surface W	with no redox		Water-	Stained I	Leaves (BS			Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,		
Arks: 2 chroma v DROLOGY Wetland Hydro Primary Indicato Surface W High Wate	with no redox logy Indicators ors (minimum on ater (A1) r Table (A2)		Water- 1, 2	Stained I 2, 4A and	4 B)			Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)		
DROLOGY Wetland Hydro Primary Indicato Surface W High Wate x Saturation	with no redox logy Indicators ors (minimum on ater (A1) r Table (A2) (A3)		Water- 1, 2 Salt Ci	Stained I 2, 4A and rust (B11)	4B)) (except		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10)		
DROLOGY Wetland Hydro Primary Indicato Surface W High Wate x Saturation Water Mar	with no redox logy Indicators ors (minimum on ater (A1) r Table (A2) (A3) ks (B1)		Water- 1, 2 Salt Ci Aquati	Stained I 2, 4A and ust (B11) c Invertel	l 4B)) brates (B13) (except		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)		
DROLOGY Wetland Hydro Primary Indicato Surface W. High Wate x Saturation Water Mar Sediment I	with no redox logy Indicators ors (minimum on ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2)		Water- 1, 2 Salt Cu Aquati Hydrog	Stained I 2, 4A and rust (B11) c Invertel gen Sulfic	l 4B)) brates (B13 de Odor (C) (except 3) 1)	t MLRA	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)		
DROLOGY Wetland Hydro Primary Indicato Surface W. High Wate X Saturation Water Mar Sediment I Drift Depos	with no redox logy Indicators ors (minimum on ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3)		Water- 1, 2 Salt Cl Aquati Hydrog Oxidize	Stained I 2, 4A and rust (B11) c Invertel gen Sulfic	l 4B)) brates (B13 de Odor (C spheres alc) (except 3) 1) 1) 1)		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)		
DROLOGY Wetland Hydro Primary Indicato Surface W. High Wate X Saturation Water Mar Sediment I Drift Depos Algal Mat o	with no redox logy Indicators ors (minimum on ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)		Water- 1, 2 Salt Cl Aquati Hydrog Oxidize Preser	Stained I 2, 4A and rust (B11) c Invertel gen Sulfic ed Rhizos nce of Re	l 4B) brates (B13 de Odor (C spheres alc duced Iron) (except 3) 1) ong Living (C4)	t MLRA	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)		
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Project/Site:	Freeman Road L	ogistics	City/County:	Puyallup/Pie	erce Cou	nty	Sampling Date:	3/1	1/2022	
Applicant/Owner:	Vector Developm	ent Company				State: WA	Sampling Point:	Wet	A DP5 W	
Investigator(s):	C. Douglas, M. C	urran	Section	n, Township,	Range:	S17 & 20 R4E T20	N			
Landform (hillslope,	, terrace, etc.):	Forested	Local re	lief (concave	, convex	, none): <u>concave</u>		Slope:	1-5	
Subregion (LRR):	Northwest Forest	s and Coast (LRR A)	Lat: <u>47.12'33</u>			Long: <u>122.19'03</u>		Datum:	NAD83	
Soil Map Unit Name	e: Pilchuck f	ine sand				NWI Classification:	PFO, PSS, POW			
Are climatic / hydrol	logic conditions o	n the site typical for this	time of year?	Yes	х	No	(If no, explain in R	emarks)	1	
Are Vegetation	, Soil	, or Hydrology	significantly	disturbed?	Are "N	Iormal Circumstanc	es" Present? Yes	х	No	
Are Vegetation	, Soil	, or Hydrology	naturally pro	blematic?	(If nee	ded, explain any ar	nswers in Remarks.)			

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

lydrophytic Vegetation Present? lydric Soil Present?	Yes _ Yes _	X X	No No	Is the Sampled Area within a Wetland?	Yes	х	No	
Wetland Hydrology Present?	Yes	Х	No					

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species
1. Populus balsamifera ssp. Trichocarpa	70	Yes	FAC	That Are OBL, FACW, or FAC:(A)
2				Total Number of Dominant Species Across All Strata: 2 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
50%= <u>35</u> 20%= <u>14</u> Total Cover:	70			
Sapling/Shrub Stratum (Plot size:)	05	N/s s	FACW	Prevalence Index Worksheet:
Cornus sericea Rubus armeniacus	<u>85</u> 20	Yes No	FAC	Total % Cover of: Multiply by: OBL species 0 x1 = 0
3. Symphoricarpos albus	20	No	FACU	FACW species $85 \times 2 = 170$
4.	20		1400	FACW species 65 x2 = 170 FAC species 90 x3 = 270
5.				FACU species 20 x4 = 80
50%= 62.5 20%= 25 Total Cover:	125			$\frac{1}{10000000000000000000000000000000000$
Herb Stratum (Plot size:)				Column Totals: 195 (A) 520 (B)
1. (************************************				Prevalence Index = $B/A = 2.7$
2.				
3.				Hydrophytic Vegetation Indicators:
4.				1 - Rapid Test for Hydrophytic Vegetation
5				X 2 - Dominance Test is >50%
6.				X 3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptation ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
50%= <u>0</u> 20%= <u>0</u> Total Cover:	0			Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size:) 1			_	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2Total Cover:	0			Hydrophytic Vegetation
% Bare Ground in Herb Stratum <u>100</u> % C	over of Bio	tic Crust		Present? Yes X No
Remarks: 100% FAC vegetation				

(inches) Color (moist)		I/e	dox Featı	ules			
	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4 10YR 3/1	100	· ·				SiL	
4-9 10YR 3/1	90	10YR 5/4	10	D	М	SL	
9-18 10YR 2/1	95	10YR 4/1	5	D	М	LS	w/gravel
					Coated S		cation: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: (Appli	cable to al					Indicators for	Problematic Hydric Soils ³ :
Histosol (A1)			Redox (S				2 cm Muck (A10) (LRR B)
Histic Epipedon (A2)			d Matrix (,	<u> </u>	Red Parent Material (TF2)
Black Histic (A3)			,	· · ·	· •	MLRA 1)	Very Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)	()		-	Aatrix (F2)			Other (Explain in Remarks)
x Depleted Below Dark Surfa	ace (A11)	·	ed Matrix	. ,		3	
Thick Dark Surface (A12)			Dark Surf				s of hydrophytic vegetation and
Sandy Muck Mineral (S1)		Deplete	ed Dark S	Surface (F7	")	wetland	d hydrology must be present,
Sandy gleyed Matrix (S4)		Redox	Depressio	ons (F8)		unles	s disturbed or problematic.
Restrictive Layer (if present):							
Туре:							
Jonth (inchas):					H _V	dric Soil Preser	nt? Yes X No
Depth (inches): arks: 1 chroma with redox DROLOGY							
arks: 1 chroma with redox DROLOGY Wetland Hydrology Indicators		check all that an					
arks: 1 chroma with redox DROLOGY Wetland Hydrology Indicators Primary Indicators (minimum on		•					Secondary Indicators (2 or more required)
Arks: 1 chroma with redox DROLOGY Wetland Hydrology Indicators Primary Indicators (minimum on x Surface Water (A1)		x Water-S	Stained L	•			Secondary Indicators (2 or more required Water-Stained Leaves (B9) (MLRA 1, 2,
arks: 1 chroma with redox DROLOGY Wetland Hydrology Indicators Primary Indicators (minimum on x Surface Water (A1) x High Water Table (A2)		<u>x</u> Water-S 1, 2,	Stained L , 4A and	4B)			Secondary Indicators (2 or more required Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
arks: 1 chroma with redox DROLOGY Wetland Hydrology Indicators Primary Indicators (minimum on x Surface Water (A1) x High Water Table (A2) x Saturation (A3)		x Water-5 1, 2, Salt Cru	Stained L , 4A and ust (B11)	4B)) (excep		Secondary Indicators (2 or more required Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10)
arks: 1 chroma with redox DROLOGY Wetland Hydrology Indicators Primary Indicators (minimum on x Surface Water (A1) x High Water Table (A2) x Saturation (A3) Water Marks (B1)		x Water-S 1, 2, Salt Cru Aquatic	Stained L , 4A and ust (B11) : Inverteb	4B) rates (B13) (excep		Secondary Indicators (2 or more required Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
arks: 1 chroma with redox DROLOGY Wetland Hydrology Indicators Primary Indicators (minimum on x Surface Water (A1) x High Water Table (A2) x Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		x Water-S 1, 2, Salt Cru Aquatic Hydrog	Stained L , 4A and ust (B11) Inverteb en Sulfide	4B) rates (B13 e Odor (C) (excep))	t MLRA	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
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Project/Site:	Freeman Road Log	gistics	City/County: Pu	yallup/Pierce C	ounty		Sampling Date	: 3/1	1/2022
Applicant/Owner:	Vector Developme	nt Company			State:	WA	Sampling Point	: Wet A	A DP6 Up
Investigator(s):	C. Douglas, M. Cu	rran	Section, T	ownship, Rang	e: <u>S17 &</u>	20 R4E T20	N		
Landform (hillslope	, terrace, etc.):	Forested	Local relief	(concave, conv	ex, none)	concave		Slope:	1-5
Subregion (LRR):	Northwest Forests	and Coast (LRR A)	Lat: <u>47.12'33</u>		Long	: 122.19'03		Datum:	NAD83
Soil Map Unit Nam	e: Pilchuck fin	e sand			NWI CI	assification:	PFO, PSS, POW		
Are climatic / hydro	logic conditions on	the site typical for this	time of year?	Yes <u>x</u>	No)	(If no, explain in F	Remarks)	
Are Vegetation	, Soil	, or Hydrology	significantly dis	turbed? Are	"Normal	Circumstanc	es" Present? Ye	s <u>x</u>	No
Are Vegetation	, Soil	, or Hydrology	naturally proble	matic? (If r	eeded, ex	plain any ar	swers in Remarks	.)	

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

Hydrophytic Vegetation Present? Hydric Soil Present?	Yes Yes	<u>x</u> N	-	x	Is the Sampled Area	Yes	No	x	
Wetland Hydrology Present?	Yes	N		X	within a Wetland?				-
Remarks: Delineated northern and e	eastern bou	ndary of	large	wetland	system to identify potential buff	fer impacts for u	Itility line cons	truction	

Alnus rubra 2. Populus balsamifera ssp. Trichocarpa 3	10 60 	No Yes	FAC FAC	That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 2 (B)
3		Yes	FAC	Crasica Astron All Chrotes
4	ır: 70	·	·	Species Across All Strate:
5	нг: 70			Species Across Air Strata:3(B)
Sapling/Shrub Stratum (Plot size:)	er: 70			Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
		•		
1 ()amlaria carasitormis			FACU	Prevalence Index Worksheet:
	30	Yes	FACU	Total % Cover of: Multiply by:
2. Rubus armeniacus	70	Yes	FAC	OBL species 0 x1 = 0
3			· <u> </u>	FACW species x2 =
4			·	FAC species 140 x3 = 420
5				FACU species <u>30</u> x4 = <u>120</u>
50%= <u>50</u> 20%= <u>20</u> Total Cove	er: 100			UPL species 0 x5 = 0
Herb Stratum (Plot size:)				Column Totals: <u>170</u> (A) <u>540</u> (B)
l				Prevalence Index = B/A =3.2
3	<u> </u>			Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (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

Depth Mat	.11A		Redo	x Feat	ures					
(inches) Color (mois	st) %	Color (mo	oist)	%	Type ¹	Loc ²	Texture		Remarks	i
0-18 10YR 3/3	100						SiL	w/gravel		
¹ Type: C=Concentration, I	D=Depletion, F	RM=Reduced	Matrix, (CS=Co	vered or C	coated S	and Grains. ²	Location: PL=Pc	ore Lining, M=N	Aatrix.
Hydric Soil Indicators: (/	Applicable to	all LRRs. un	less oth	erwise	e noted.)		Indicators f	or Problematic	Hydric Soils ³ :	
Histosol (A1)			andy Re						A10) (LRR B)	
Histic Epipedon (A2)			tripped I				_		Material (TF2)	
Black Histic (A3)		L	oamy M	ucky M	lineral (F1)	(except	MLRA 1)	Very Shallow	Dark Surface	(TF12)
Hydrogen Sulfide (A4)	L	oamy Gl	leyed N	Aatrix (F2)			Other (Expla	in in Remarks)	
Depleted Below Dark	Surface (A11)) D	epleted	Matrix	(F3)					
Thick Dark Surface (A	\12)	R	edox Da	ark Sur	face (F6)		³ Indicat	ors of hydrophyt	ic vegetation a	nd
Sandy Muck Mineral	(S1)	D	epleted	Dark S	Surface (F7	')	wetla	and hydrology mu	ust be present,	
Sandy gleyed Matrix	(S4)	R	edox De	epressi	ons (F8)		unl	ess disturbed or	problematic.	
Restrictive Layer (if pres	ent):									
	- ,									
Туре:									Yes	No X
Depth (inches):	ox					Hy	dric Soil Pres	ent?		
Depth (inches):	ox					Ну	aric Soil Pres	ent?		
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic	ators:					Hy	aric Soil Pres			
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu	ators:							Secondary Inc.	dicators (2 or m	nore required
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1)	ators: Im one require		Vater-Sta	ained L	eaves (B9			Secondary Inc.		nore required
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2	ators: Im one require	V	/ater-Sta 1, 2, 4	ained L A and	4B)			Secondary Inc Water-Staine 4A and 4	dicators (2 or m ed Leaves (B9) B)	nore required
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3)	ators: Im one require	v	Vater-Sta 1, 2, 4 alt Crus	ained L A and t (B11)	4B)) (excep		Secondary Inc Water-Staine 4A and 4 Drainage Pa	dicators (2 or m ed Leaves (B9) B) tterns (B10)	nore required (MLRA 1, 2,
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1)	ators: Im one require ?)	W S A	Vater-Sta 1, 2, 4 alt Crusi quatic Ir	ained L A and t (B11) nverteb	4B) prates (B13) (excep		Secondary Inc Water-Staine 4A and 4 Drainage Pa	dicators (2 or m ed Leaves (B9) B)	nore required (MLRA 1, 2,
Depth (inches):	ators: Im one require ?)	W S A	Vater-Sta 1, 2, 4 alt Crusi quatic Ir	ained L A and t (B11) nverteb	4B)) (excep		Secondary Inc Water-Staine 4A and 4 Drainage Pa Dry-Season Saturation V	dicators (2 or m ed Leaves (B9) B) Water Table (C isible on Aerial	nore required (MLRA 1, 2, C2)
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1)	ators: Im one require ?)	V S A H	Vater-Sta 1, 2, 4 alt Crusi quatic Ir lydrogen	ained L A and t (B11) nverteb n Sulfide	4B) prates (B13 e Odor (C ²) (excep))		Secondary Inc Water-Staine 4A and 4 Drainage Pa Dry-Season Saturation V	dicators (2 or m ed Leaves (B9) B) Water Table (C	nore required (MLRA 1, 2, C2)
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3)	ators: Im one require ?) 32)	W S A H C	Vater-Sta 1, 2, 4 Falt Cruss quatic Ir lydrogen Dxidized	ained L A and t (B11) nverteb n Sulfide Rhizos	4B) prates (B13 e Odor (C ²) (excep)))))) ng Living	t MLRA	Secondary Inc Water-Staine 4A and 4 Drainage Pa Dry-Season Saturation V	dicators (2 or m ed Leaves (B9) B) tterns (B10) Water Table (C isible on Aerial Position (D2)	nore required (MLRA 1, 2, C2)
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B	ators: Im one require ?) 32)	% 8 A H 0 P	Vater-Sta 1, 2, 4 alt Crusi quatic Ir lydrogen)xidized resence	ained L A and t (B11) nverteb n Sulfide Rhizos	4B) prates (B13 e Odor (C ² pheres alc) (excep)) 1) ng Living (C4)	t MLRA	Secondary Inc Water-Staine 4A and 4 Drainage Pa Dry-Season Saturation V Geomorphic	dicators (2 or m ed Leaves (B9) B) tterns (B10) Water Table (C isible on Aerial Position (D2) itard (D3)	nore required (MLRA 1, 2, C2)
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B	ators: im one require ?) 32) 4)	S A H C P R	Vater-Sta 1, 2, 4 alt Cruss quatic Ir lydrogen Dxidized Presence Recent Ire	ained L A and t (B11) nverteb n Sulfide Rhizos of Rec	4B) prates (B13 e Odor (C pheres alc duced Iron) (excep)))))))))) (C4) Plowed S	t MLRA g Roots (C3) oils (C6)	Secondary Inc Water-Staine 4A and 4 Drainage Pa Dry-Season Saturation V Geomorphic Shallow Aqu FAC-Neutral	dicators (2 or m ed Leaves (B9) B) tterns (B10) Water Table (C isible on Aerial Position (D2) itard (D3)	nore required (MLRA 1, 2, C2) Imagery (C9
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Drift Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks (Inundation Visible on	ators: Im one require 2) 32) 4) B6) Aerial Imager	N S H P R S y (B7) C	Vater-Sta 1, 2, 4 alt Crusi quatic Ir lydrogen Dxidized Presence ecent Ir stunted o	ained L A and t (B11) nverteb n Sulfid Rhizos of Rec on Red or Stres	4B) prates (B13 e Odor (C pheres alc duced Iron luction in F) (excep)))))))))))))) (C4) Plowed S § (D1) (LI	t MLRA g Roots (C3) oils (C6)	Secondary Ind Water-Staine 4A and 4 Drainage Pa Dry-Season Saturation V Geomorphic Shallow Aqu FAC-Neutral Raised Ant N	dicators (2 or m ed Leaves (B9) B) tterns (B10) Water Table (C isible on Aerial Position (D2) itard (D3) Test (D5)	nore required (MLRA 1, 2, C2) Imagery (C9 RR A)
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks (ators: Im one require 2) 32) 4) B6) Aerial Imager	N S H P R S y (B7) C	Vater-Sta 1, 2, 4 alt Cruss quatic Ir lydrogen Dxidized Presence ecent Ir stunted o	ained L A and t (B11) nverteb n Sulfid Rhizos of Rec on Red or Stres	4B) prates (B13 e Odor (C ² pheres alc duced Iron luction in F esed Plants) (excep)))))))))))))) (C4) Plowed S § (D1) (LI	t MLRA g Roots (C3) oils (C6)	Secondary Ind Water-Staine 4A and 4 Drainage Pa Dry-Season Saturation V Geomorphic Shallow Aqu FAC-Neutral Raised Ant N	dicators (2 or m ed Leaves (B9) B) tterns (B10) Water Table (C isible on Aerial Position (D2) itard (D3) Test (D5) <i>I</i> ounds (D6) (L	nore required (MLRA 1, 2, C2) Imagery (C9 RR A)
Depth (inches): arks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks (Inundation Visible on Sparsely Vegetated C	ators: Im one require 2) 32) 4) B6) Aerial Imager	W S H C P R S y (B7) C ice (B8)	Vater-Sta 1, 2, 4 ialt Cruss quatic Ir lydrogen Dxidized resence Recent Ir itunted o Other (Ex	A and A and t (B11) nverteb a Sulfid Rhizos of Rec on Red or Stres	4B) arates (B13 e Odor (C pheres alc duced Iron luction in F ased Plants n Remarks) (excep))))))))))))))))	t MLRA g Roots (C3) oils (C6)	Secondary Ind Water-Staine 4A and 4 Drainage Pa Dry-Season Saturation V Geomorphic Shallow Aqu FAC-Neutral Raised Ant N	dicators (2 or m ed Leaves (B9) B) tterns (B10) Water Table (C isible on Aerial Position (D2) itard (D3) Test (D5) <i>I</i> ounds (D6) (L	nore required (MLRA 1, 2, C2) Imagery (C9 RR A)
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Project/Site:	Freeman Road Log	istics		City/County:	Puyallup/Pie	rce Cou	nty		Sampling Date:	3/1	1/2022
Applicant/Owner:	Vector Developmen	nt Company					State: V	NA	Sampling Point	Wet	A DP7 W
Investigator(s):	C. Douglas, M. Cur	ran		Section	n, Township, I	Range:	S17 & 20	0 R4E T20	N		
Landform (hillslope	e, terrace, etc.):	Forested		Local rel	ief (concave,	convex	(, none): <u>c</u>	concave		Slope:	1-5
Subregion (LRR):	Northwest Forests a	and Coast (LRR A)	Lat: 4	47.12'33			Long: <u>1</u>	22.19'03		Datum:	NAD83
Soil Map Unit Nam	ne: Pilchuck fine	e sand					NWI Class	sification:	PFO, PSS, POW		
Are climatic / hydro	ologic conditions on t	the site typical for this	time of ye	ear?	Yes	х	No		(If no, explain in R	.emarks)	
Are Vegetation	, Soil	, or Hydrology		significantly of	disturbed?	Are "N	ormal Cir	rcumstance	es" Present? Yes	5 X	No
Are Vegetation	, Soil	, or Hydrology		naturally prob	olematic?	(If nee	ded, expla	ain any an	swers in Remarks.)	
SUMMARY OF	FINDINGS – At	tach site map sho	owing s	ampling p	oint locati	ons, tr	ansects	s, import	ant features, e	tc.	
Hydrophytic Veget	ation Present?	Yes X No									

Hydrophytic Vegetation Present?	Yes	Х	No	Is the Sampled Area				
Hydric Soil Present?	Yes	Х	No	within a Wetland?	Yes	Х	No	
Wetland Hydrology Present?	Yes	Х	_No					
Remarks: Delineated northern and e	astern bo	oundar	y of laı	etland system to identify potential	buffer impacts	s for utility l	line construction	

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species
1. Populus balsamifera ssp. Trichocarpa	60	Yes	FAC	That Are OBL, FACW, or FAC:3 (A)
2				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
50%= <u>30</u> 20%= <u>12</u> Total Cover:	60			
Sapling/Shrub Stratum (Plot size:)				Prevalence Index Worksheet:
1. <u>Cornus sericea</u>	80	Yes	FACW	Total % Cover of: Multiply by:
2. Rubus armeniacus	20	No	FAC	OBL species 0 x1 = 0
3. Rubus spectabilis	30	Yes	FAC	FACW species 80 x2 = 160
4				FAC species <u>110</u> x3 = <u>330</u>
5	400		. <u> </u>	FACU species $0 x4 = 0$
50%= <u>65</u> 20%= <u>26</u> Total Cover:	130			UPL species 0 x5 = 0 Column Totals: 190 (A) 490 (B)
Herb Stratum (Plot size:)				Column Totals: 190 (A) 490 (B) Prevalence Index = B/A = 2.6
۱				
2				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (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
Total Cover: % Bare Ground in Herb Stratum <u>100</u> % (otic Crust		Vegetation Present? Yes X No
Remarks: 100% FAC vegetation				

(inches) Color (moist) % Color (moist) % Type' Loc? Texture Remark 0-5 10YR 3/1 100	odocument the indicator or confirm the absence of indicators.) Redox Features		-	e to thê dê	Matrix	Depth
0-5 10YR 3/1 100				0/		•
5:18 10YR 4/1 85 10YR 5/4 15 D M SiL "Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M= "Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M= Histosic (A1) Sandy Redox (S5) 2 cm Muck (A10) (LRR 8) Histosic (A2) Stripped Matrix (S6) 2 cm Muck (A10) (LRR 8) Black Histic (A3) Loamy Mucky Mineral (F1) (Piccept MLRA 1) Very Shallow Dark Surface Thick Dark Surface (A11) Depleted Matrix (F2) Other (Explain in Remarks X Depleted Matrix (S4) Redox Dark Surface (F7) welland hydrology must be present Type:		70				<u> </u>
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) (LRR B) Histosol (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Pepleted Below Dark Surface (A11) Depleted Matrix (F2) Other (Explain in Remarks) Sandy Muck Mineral (S1) Depleted Dark Surface (F6) ³ Indicators of hydrophytic vegetation a Sandy Muck Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Primary Indicators (minimum one required; check all that apply) Secondary Indicators (2 or r Surface Water (A1) X Water-Stained Leaves (B9) (except MLRA X Y Sutration (A3) Satt Crus (B11) Drainage Patterns (B10) Drainage Patterns (B10) Y Sutration (A3) Satt Crus (B11) DrySeason Water Table (A2) X Hydroge Sulfide Odor (C1) Saturation Visible on Adria Y Sutration (A3) Saturation (A3) Saturation Visible on Adria Saturation Visible on Adria Saturation Visible on Adria		15	10YR 5/4			
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Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface Hydrogen Suffide (A4) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) X Depleted Below Dark Surface (A12) Redox Dark Surface (F6) ³ Indicators of hydrophytic vegetation a Sandy Muck Mineral (S1) Depleted Matrix (F3) wetland hydrology must be present Restrictive Layer (if present): Type: mediators (minimum one required; check all that apply) YesX Primary Indicators (minimum one required; check all that apply) Secondary Indicators (2 or r Secondary Indicators (2 or r Sufface Water (A1) X Water-Stained Leaves (B9) (except MLRA X Water-Stained Leaves (B9) X High Water Table (A2) 1, 2, 4A and 4B) Dry-Season Water Table (A2) Dry-Season Water Table (A2) X High Water Table (A2) X Hydrogen Sulfide Odor (C1) Saturation Visible on Aeria Yes High Water Table (A2) X Hydrogen Sulfide Odor (C1) Saturation Visible on Aeria Yes Hydrogen Sulfide Odor (C1) Saturation Visible on Aeria Geomorphic Position (D2) Adagi Mator Crust (B4) Presence or Reduced Iron (C4) Shallow Aquiutar (D3) Geomorphic Position (D2)					()	
Image: Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Image: Depleted Below Dark Surface (A11) Depleted Matrix (F3) Image: Depleted Matrix (F3) Image: Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Image: Depleted Dark Surface (F7) Sandy gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Restrictive Layer (if present): Type:					•••	
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Sandy gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Restrictive Layer (if present): Type:						
Restrictive Layer (if present): Type: Depth (inches):						
Type:	JX Depressions (Fo) unless disturbed of problematic.	Depression	Redux		gleyed Matrix (34)	Sanuy
Depth (inches): Hydric Soil Present? Yes _ X marks: 1 chroma with redox Mediand Hydrology Indicators: Primary Indicators (minimum one required; check all that apply) Secondary Indicators (2 or r					Layer (if present):	
DROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum one required; check all that apply) Secondary Indicators (2 or r						
DROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum one required; check all that apply) Secondary Indicators (2 or r Surface Water (A1) x Water-Stained Leaves (B9) (except MLRA x Water-Stained Leaves (B9) x High Water Table (A2) 1, 2, 4A and 4B) 4A and 4B 4A and 4B x Saturation (A3)	Hydric Soil Present? Yes X No				es):	Depth (inch
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Water table Present? Yes x No Depth (inches): at surface Saturation Present? Yes x No Depth (inches): at surface (includes capillary fringe) Ves x No Depth (inches): at surface cribe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available: Ves					rvations:	Field Obse
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scribe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:	pth (inches): at surface Wetland Hydrology Present? Yes X No	h (inches):	No Depth	s x	Present? Ye	Saturation I
					apillary fringe)	(includes ca
narks: Standing water >1 ft deep 3 ft from DP	ng well, aerial photos, previous inspections), if available:	y well, aerial				
)P	3 ft from E	ing water >1 ft deep	narks: Stand

Project/Site:	Freeman Road Log	istics	Ci	ty/County: Pu	uyallup/Pier	ce Cou	unty		Sampling Date	e: <u>3/1</u>	1/2022
Applicant/Owner:	Vector Development Company S							VA	Sampling Poin	it: Wet A	A DP8 Up
Investigator(s):	C. Douglas, M. Cur	ran		Section, 1	Fownship, F	Range:	S17 & 2	0 R4E T20	N		
Landform (hillslope	, terrace, etc.):	Forested		Local relief	(concave,	conve	x, none): <u>c</u>	concave		Slope:	1-5
Subregion (LRR):	Northwest Forests a	and Coast (LRR A)	Lat: 47	'.12'33			Long: 1	22.19'03		Datum:	NAD83
Soil Map Unit Nam	e: Pilchuck fine	e sand					NWI Clas	sification:	PFO, PSS, POW	1	
Are climatic / hydro	logic conditions on t	he site typical for this t	time of yea	ır?	Yes	х	No		(If no, explain in	Remarks)	
Are Vegetation	, Soil	, or Hydrology	si	gnificantly dis	sturbed?	Are "I	Normal Cir	cumstance	es" Present? Ye	es x	No
Are Vegetation	, Soil	, or Hydrology	na	aturally proble	ematic?	(If nee	eded, expl	ain any an	swers in Remarks	s.)	

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

Hydrophytic Vegetation Present? Hydric Soil Present?	Yes Yes	No No	<u>х</u>	Is the Sampled Area	Yes	No	x	
Wetland Hydrology Present?	Yes	No	X	within a Wetland?			<u></u>	
Remarks: Delineated northern and e	eastern bound	dary of larg	e wetland	system to identify potential bu	ffer impacts for ut	tility line const	ruction	

Yes Yes No Yes Yes	FAC FAC FACU FAC FAC FACU FACU	That Are OBL, FACW, or FAC:2Total Number of DominantSpecies Across All Strata:Species Across All Strata:5Percent of Dominant SpeciesThat Are OBL, FACW, or FAC:40%Prevalence Index Worksheet:Total % Cover of:Multiply by:OBL species0FACW species0FACW species0FAC species170X3 =510FACU species0VPL species0X5 =0Column Totals:310(A)1070(B)
Yes No No Yes	FACU FAC FAC FACU	Species Across All Strata:5Percent of Dominant Species 40% (A/B)Prevalence Index Worksheet:(A/B)Total % Cover of:Multiply by:OBL species0FACW species0FACW species0FAC species170X3 =510FACU species140X4 =560UPL species0X5 =0Column Totals:310(A)1070(B)
No No Yes	FAC FAC FACU	That Are OBL, FACW, or FAC:40% (A/B)Prevalence Index Worksheet:Total % Cover of:Multiply by:OBL species0 $x1 = 0$ FACW species0 $x2 = 0$ FAC species170 $x3 = 510$ FACU species140 $x4 = 560$ UPL species0 $x5 = 0$ Column Totals:310(A)1070(B)
No No Yes	FAC FAC FACU	Total % Cover of:Multiply by:OBL species 0 $x1 = 0$ FACW species 0 $x2 = 0$ FAC species 170 $x3 = 510$ FACU species 140 $x4 = 560$ UPL species 0 $x5 = 0$ Column Totals: 310 (A)1070(B)
No No Yes	FAC FAC FACU	Total % Cover of:Multiply by:OBL species 0 $x1 = 0$ FACW species 0 $x2 = 0$ FAC species 170 $x3 = 510$ FACU species 140 $x4 = 560$ UPL species 0 $x5 = 0$ Column Totals: 310 (A)1070(B)
No No Yes	FAC FAC FACU	OBL species 0 x1 0 FACW species 0 x2 0 FAC species 170 x3 510 FACU species 140 x4 560 UPL species 0 x5 0 Column Totals: 310 (A) 1070 (B)
No Yes	FAC FACU	FACW species 0 $x2 =$ 0 FAC species 170 $x3 =$ 510 FACU species 140 $x4 =$ 560 UPL species 0 $x5 =$ 0 Column Totals: 310 (A) 1070 (B)
Yes	FACU	FAC species 170 $x3 =$ 510 FACU species 140 $x4 =$ 560 UPL species 0 $x5 =$ 0 Column Totals: 310 (A) 1070 (B)
		FACU species 140 $x4 = 560$ UPL species 0 $x5 = 0$ Column Totals: 310 (A) 1070 (B)
Yes	FACU	UPL species 0 x5 = 0 Column Totals: 310 (A) 1070 (B)
Yes	FACU	Column Totals: 310 (A) 1070 (B)
Yes	FACU	· · · · · ·
Yes	FACU	
		Prevalence Index = B/A = 3.5
	FACU	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (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
rust		Vegetation Present? Yes No X

Depth Mat	trix	Re	dox Featu	ires					
(inches) Color (mois	st) %	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-18 10YR 3/3	3 100					L	_		
<u> </u>									
<u> </u>									
1				<u> </u>		2			
¹ Type: C=Concentration, I	D=Depletion, RI	M=Reduced Matrix	(, CS=Cov	/ered or (coated Sa	ind Grains. Lo	ocation: PL=Pore	Lining, M=Matr	IX.
Hydric Soil Indicators: (A	Applicable to a	III LRRs, unless c	therwise	noted.)		Indicators fo	r Problematic Hy	dric Soils ³ :	
Histosol (A1)			Redox (S5				2 cm Muck (A1		
Histic Epipedon (A2)			d Matrix (S				Red Parent Ma		
Black Histic (A3)			Mucky Mi			MLRA 1)		ark Surface (TF	12)
Hydrogen Sulfide (A4	,		Gleyed M	• •			Other (Explain	in Remarks)	
Depleted Below Dark			ed Matrix (31 11 1	() () ()		
Thick Dark Surface (/	,		Dark Surfa		•		rs of hydrophytic	•	
Sandy Muck Mineral			ed Dark Su		()		d hydrology must	-	
Sandy gleyed Matrix	(S4)	Redox	Depressio	ons (F8)		unle	ss disturbed or pr	oblematic.	
Restrictive Layer (if pres	ent):								
Туре:								,	NI V
Depth (inches):	lox				Нуо	dric Soil Prese	nt? Y	/es	No <u>X</u>
Depth (inches):	lox				Hyo	fric Soil Prese	nt? Y	/es	NO <u>X</u>
Depth (inches):	ators:				Hyo	fric Soil Prese			
Depth (inches):	ators:	· · ·	/				Secondary Indic	ators (2 or more	required)
Depth (inches):	ators: um one required	Water-	Stained Le				Secondary Indic Water-Stained	ators (2 or more Leaves (B9) (M	required)
Depth (inches): narks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2	ators: um one required	Water-	Stained Le				Secondary Indic Water-Stained 4A and 4B)	ators (2 or more Leaves (B9) (M	required)
Depth (inches): harks: 3 chroma with no red DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3)	ators: um one required	Water-5 1, 2 Salt Cru	Stained Le 4A and 4 ust (B11)	4B)) (except		Secondary Indic Water-Stained 4A and 4B) Drainage Patte	ators (2 or more Leaves (B9) (M rns (B10)	required)
Depth (inches):	ators: Im one required 2)	Water-3 1, 2 Salt Cro Aquatic	Stained Le 4 A and 4 ust (B11) Invertebr	4B) rates (B13) (except		Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2)	required) LRA 1, 2,
Depth (inches):	ators: Im one required 2)	Water-3	Stained Le 4A and 4 ust (B11) Invertebr en Sulfide	4B) rates (B13 e Odor (C) (except 3) 1)	MLRA	Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ole on Aerial Ima	required) LRA 1, 2,
Depth (inches):	ators: um one required 2) 32)	Water-3 1, 2 Salt Cru Aquatic Hydrog Oxidize	Stained Le 4 A and 4 ust (B11) Invertebr en Sulfide d Rhizosp	4B) rates (B13 e Odor (C oheres alc) (except 3) 1) ng Living		Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit Geomorphic Po	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ole on Aerial Ima osition (D2)	required) LRA 1, 2,
Depth (inches):	ators: um one required 2) 32)	Water-3 1, 2 Salt Cru Aquatic Hydrog Oxidize Presen	Stained Le 4A and 4 ust (B11) Invertebr en Sulfide d Rhizosp ce of Red	4B) rates (B13 e Odor (C oheres alc uced Iron) (except 3) 1) mg Living (C4)	MLRA	Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit Geomorphic Po Shallow Aquita	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ble on Aerial Ima bsition (D2) rd (D3)	required) LRA 1, 2,
Depth (inches):	ators: um one required 2) 32) 4)	Water-3 1, 2 Salt Cru Aquatic Hydrog Oxidize Presen Recent	Stained Le 4 A and 4 ust (B11) Invertebr en Sulfide d Rhizosp ce of Redu Iron Redu	4B) rates (B13 e Odor (C oheres alc uced Iron uction in F) (except)) (except)))))))))))))))))))	MLRA	Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit Geomorphic Po Shallow Aquita FAC-Neutral Te	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ble on Aerial Ima bsition (D2) rd (D3) est (D5)	LRA 1, 2, agery (C9)
Depth (inches):	ators: um one required 2) 32) 4) B6)	Water-3 1, 2, Salt Cri Aquatic Hydrog Oxidize Presen Recent Stunted	Stained Le 4A and 4 ust (B11) Invertebr en Sulfide d Rhizosp ce of Redu Iron Redu I or Stress	4B) rates (B13 odor (C oheres ald uced Iron uction in F sed Plants) (except)) (except)))))))))))))))))))	MLRA	Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit Geomorphic Po Shallow Aquita FAC-Neutral Te Raised Ant Mo	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ble on Aerial Ima bsition (D2) rd (D3) est (D5) unds (D6) (LRR	LRA 1, 2, agery (C9)
Depth (inches):	ators: um one required 2) 32) 4) B6) Aerial Imagery	Water-3 1, 2, Salt Cri Aquatic Hydrog Oxidize Presen Recent Stuntec (B7) Other (Stained Le 4 A and 4 ust (B11) Invertebr en Sulfide d Rhizosp ce of Redu Iron Redu	4B) rates (B13 odor (C oheres ald uced Iron uction in F sed Plants) (except)) (except)))))))))))))))))))	MLRA	Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit Geomorphic Po Shallow Aquita FAC-Neutral Te	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ble on Aerial Ima bsition (D2) rd (D3) est (D5) unds (D6) (LRR	LRA 1, 2, agery (C9)
Depth (inches):	ators: um one required 2) 32) 4) B6) Aerial Imagery	Water-3 1, 2, Salt Cri Aquatic Hydrog Oxidize Presen Recent Stuntec (B7) Other (Stained Le 4A and 4 ust (B11) Invertebr en Sulfide d Rhizosp ce of Redu Iron Redu I or Stress	4B) rates (B13 odor (C oheres ald uced Iron uction in F sed Plants) (except)) (except)))))))))))))))))))	MLRA	Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit Geomorphic Po Shallow Aquita FAC-Neutral Te Raised Ant Mo	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ble on Aerial Ima bsition (D2) rd (D3) est (D5) unds (D6) (LRR	LRA 1, 2, agery (C9)
Depth (inches):	ators: um one required 2) 32) 4) B6) Aerial Imagery Concave Surfac	Water-3 1, 2 1, 2 Salt Cru Aquatic Hydrog Oxidize Presen Recent Stuntec (B7) Other (feet (B8)	Stained Leg 4A and 4 ust (B11) Invertebr en Sulfide d Rhizosp ce of Redu Iron Redu I or Stress Explain in	4B) e Odor (C oheres ald uced Iron uction in F sed Plants Remarks) (except 3) 1) (C4) 2lowed Sc 5 (D1) (LF)	MLRA	Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit Geomorphic Po Shallow Aquita FAC-Neutral Te Raised Ant Mo	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ble on Aerial Ima bsition (D2) rd (D3) est (D5) unds (D6) (LRR	LRA 1, 2, agery (C9)
Depth (inches):	ators: um one required 2) 32) 4) B6) Aerial Imagery Concave Surfac	Water-3 1, 2,	Stained Leg 4A and 4 ust (B11) Invertebr en Sulfide d Rhizosp ce of Redu Iron Redu I or Stress Explain in (inches):	4B) e Odor (C oheres ald uced Iron uction in F sed Plants Remarks) (except 3) 1) 1) 2) 2) 2) 3) 2) 2) 3) 3) 2) 2) 3) 3) 3) 3) 3) 3) 3) 3) 3) 3) 3) 3) 3)	MLRA	Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit Geomorphic Po Shallow Aquita FAC-Neutral Te Raised Ant Mo	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ble on Aerial Ima bsition (D2) rd (D3) est (D5) unds (D6) (LRR	LRA 1, 2, agery (C9)
Depth (inches):	ators: um one required 2) 32) 4) B6) Aerial Imagery Concave Surfac	Water-3 1, 2, Salt Cri Aquatic Hydrog Oxidize Presen Recent Stuntec (B7) Other (f e (B8)	Stained Le Stained Le 4A and 4 ust (B11) Invertebr en Sulfide d Rhizosp ce of Redu Iron Redu I or Stress Explain in (inches): (inches):	4B) eates (B12 e Odor (C oheres ald uced Iron uction in F sed Plants Remarks) (except 3) 1) ng Living (C4) Plowed Sc 5 (D1) (LF)	MLRA	Secondary Indic Water-Stained 4A and 4B) Drainage Patte Dry-Season Wa Saturation Visit Geomorphic Po Shallow Aquita FAC-Neutral Te Raised Ant Mo	ators (2 or more Leaves (B9) (M rns (B10) ater Table (C2) ble on Aerial Ima bsition (D2) rd (D3) est (D5) unds (D6) (LRR	LRA 1, 2, agery (C9)
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Project/Site:	Freeman Road Log	istics	City/Co	unty: Puyallup/Pie	erce Cou	unty	Sampling Date:	3/1	1/2022
Applicant/Owner:	Vector Developmer	nt Company				State: WA	Sampling Point:	Wet A	A DP9 W
Investigator(s):	C. Douglas, M. Cur	ran	S	ection, Township,	Range:	S17 & 20 R4E T20	N		
Landform (hillslope	, terrace, etc.):	Forested	Lo	cal relief (concave	, conve	x, none): <u>concave</u>		Slope:	1-5
Subregion (LRR):	Northwest Forests a	and Coast (LRR A)	Lat: <u>47.12'3</u>	3		Long: <u>122.19'03</u>		Datum:	NAD83
Soil Map Unit Name	e: Pilchuck fine	e sand				NWI Classification:	PFO, PSS, POW		
Are climatic / hydro	logic conditions on t	he site typical for this t	ime of year?	Yes	х	No	(If no, explain in R	emarks)	
Are Vegetation	, Soil	, or Hydrology	signific	antly disturbed?	Are "	Normal Circumstance	es" Present? Yes	<u>x</u>	No
Are Vegetation	, Soil	, or Hydrology	natural	lly problematic?	(If ne	eded, explain any an	swers in Remarks.))	

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	X X X	No No No	Is the Sampled Area within a Wetland?	Yes _	x	No		
Remarks: Delineated northern and e	eastern bou	Indary	v of large wetla	and system to identify potential buffe	er impacts	for utility	line construct	ion	

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species
1. <u>Alnus rubra</u>	70	Yes	FAC	That Are OBL, FACW, or FAC:3 (A)
2. <u>Populus balsamifera ssp. Trichocarpa</u> 3	20	Yes	FAC	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:100% (A/B)
50%= <u>45</u> 20%= <u>18</u> Total Cover:	90			Dravalance Index Werkeheet:
Sapling/Shrub Stratum (Plot size:)	70	Vaa	FACW	Prevalence Index Worksheet:
1. <u>Cornus sericea</u> 2. Rubus armeniacus	<u>70</u> 20	Yes No	FAC	Total % Cover of: Multiply by: OBL species 0 x1 =
			FAC	
<u>3. Rubus spectabilis</u> <u>4. Ribes sanquineum</u>	<u>20</u> 5	<u>No</u> No	FACU	FACW species 70 x2 = 140 FAC species 130 x3 = 390
5. Symphoricarpos albus	5	No	FACU	
50%= 60 20%= 24 Total Cover:		110	-17100	FACU species 10 x4 = 40 UPL species 0 x5 = 0
Bit Mere Bit Mere	120			Column Totals: 210 (A) 570 (B)
1. (FIOL SIZE)				Prevalence Index = $B/A = 2.7$
2.				
3.				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹
50%= 0 20%= 0 Total Cover:	0			Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size:) 1.				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2		tic Crust		Hydrophytic Vegetation Present? Yes X No

x Surface Water (A1) x Water-Stained Leaves (B9) (except MLRA x Water-Stained Leaves (B9) (MLRA 1 x High Water Table (A2) 1, 2, 4A and 4B) 4A and 4B) Drainage Patterns (B10) x Salt Crust (B11) Aquatic Invertebrates (B13) Dry-Season Water Table (C2)	Depth	Matrix		Re	dox Feat				
4-18 10YR 4/1 80 10YR 5/4 20 D M SiL	nches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
ROLOGY Kest 1 chroma with redox ROLOGY Kest 1 chroma with redox ROLOGY Kest Mater Xall Kest Mater Xall Xest Mater Xall	0-4	10YR 3/1	100					SiL	
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ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ² : Histosci (A1) Sandy Redox (S5) 2 cm Muck (A10) (LRR B) Histosci (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Lopelletad Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Sandy Muck Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, Sandy Muck Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, Sandy Muck Mineral (S1) Redox Dapressions (F8) unless disturbed or problematic. estrictive Layer (If present):	<u> </u>								
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			ace (ATT)					³ Indicato	rs of hydrophytic vegetation and
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Project/Site:	Freeman Road Log	gistics	City	/County: Pu	yallup/Pier	ce Cou	unty	Sampling Date:	3/1	1/2022
Applicant/Owner:	Vector Developme	ent Company					State: WA	Sampling Point:	Wet B	DP10 Up
Investigator(s):	C. Douglas, M. Cu	rran		Section, T	ownship, F	Range:	S17 R4E T20N			
Landform (hillslope	, terrace, etc.):	Forested		Local relief	(concave,	conve	x, none): <u>concave</u>		Slope:	1-5
Subregion (LRR):	Northwest Forests	and Coast (LRR A)	Lat: 47.2	12'33			Long: <u>122.19'03</u>		Datum:	NAD83
Soil Map Unit Nam	e: Sultan silt le	oam					NWI Classification:	None		
Are climatic / hydro	logic conditions on	the site typical for this	time of year?	?	Yes	х	No	(If no, explain in R	emarks)	
Are Vegetation	, Soil	, or Hydrology	sig	nificantly dist	turbed?	Are "	Normal Circumstance	es" Present? Yes	x	No
Are Vegetation	, Soil	, or Hydrology	nat	urally proble	matic?	(If ne	eded, explain any an	swers in Remarks.))	

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	NoNoNoNo	X X	Is the Sampled Area within a Wetland?	Yes	No	
Remarks: Confirming upland conditi	ons in suspec	t area ide	ntified as S	SP 13 in Confluence Report			

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species
1. Populus balsamifera ssp. Trichocarpa	70	Yes	FAC	That Are OBL, FACW, or FAC:(A)
2				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
50%= <u>35</u> 20%= <u>14</u> Total Cover:	70			
Sapling/Shrub Stratum (Plot size:)	00	N/s s	FACU	Prevalence Index Worksheet:
Oemleria cerasiformis Symphoricarpos albus	<u>20</u> 80	Yes Yes	FACU	$\begin{tabular}{ c c c c c } \hline Total % Cover of: & Multiply by: \\ \hline OBL species & 0 & x1 = & 0 \\ \hline \end{tabular}$
-	00	165	1400	FACW species $0 x^2 = 0$
3 4.				FAC species $70 \times 3 = 210$
4 5.				FACU species 100 x4 = 400
50%= 50 20%= 20 Total Cover:	100			$\frac{1}{100} x = \frac{1}{100} x = $
Herb Stratum (Plot size:)				Column Totals: 170 (A) 610 (B)
1				Prevalence Index = $B/A = 3.6$
2.				
3				Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptation ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
50% = 0 20% = 0 Total Cover:	0			Problematic Hydrophytic Vegetation ¹ (Explain)
<u>Woody Vine Stratum</u> (Plot size:) 1				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2		tic Crust		Hydrophytic Vegetation Present? Yes NoX
Remarks: 33% FAC vegetation				·

Depth	Matrix		Rec	dox Feat	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-18	10YR 3/3	100					SL	gravel below 8 inches
· ·							-	
			·					
					·			
·					·			
¹ Type: C=C	concentration, D=De	pletion, RI	M=Reduced Matrix	, CS=Co	overed or C	Coated Sa	nd Grains. ² L	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appl	icable to a	ll LRRs, unless o	therwis	e noted.)		Indicators for	or Problematic Hydric Soils ³ :
Histoso	ol (A1)		Sandy F	Redox (S	S5)			2 cm Muck (A10) (LRR B)
Histic E	Epipedon (A2)		Stripped	d Matrix	(S6)			Red Parent Material (TF2)
Black H	Histic (A3)		Loamy	Mucky N	lineral (F1)	(except	MLRA 1)	Very Shallow Dark Surface (TF12)
· ·	gen Sulfide (A4)				Matrix (F2)			Other (Explain in Remarks)
	ed Below Dark Surf	ace (A11)		d Matrix			0	
	Dark Surface (A12)				face (F6)			ors of hydrophytic vegetation and
	Muck Mineral (S1)				Surface (F7)	wetla	nd hydrology must be present,
Sandy	gleyed Matrix (S4)		Redox I	Depressi	ons (F8)		unle	ess disturbed or problematic.
	Layer (if present):							
Туре:								
Depth (inche	oc).					I Hva	Iric Soil Pres	ent? YesNo <u>_X</u>
arks: 3 chro	ma with no redox							
DROLOGY	ma with no redox							NO
DROLOGY Wetland Hy	ma with no redox		- check all that an					
DROLOG Wetland Hy Primary Indi	ma with no redox			• ·	eaves (89			Secondary Indicators (2 or more required)
DROLOGY Wetland Hy Primary Indi x Surfac	ma with no redox f rdrology Indicators cators (minimum of e Water (A1)		Water-S	Stained L	_eaves (B9			Secondary Indicators (2 or more required Water-Stained Leaves (B9) (MLRA 1, 2,
DROLOGY Wetland Hy Primary Indi <u>x</u> Surfac <u>x</u> High W	ma with no redox f rdrology Indicators cators (minimum of e Water (A1) /ater Table (A2)		Water-S 1, 2,	Stained L 4A and	4B)			Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
DROLOGY Wetland Hy Primary Indi x Surfac x High W x Satura	ma with no redox ma with no redox f rdrology Indicators cators (minimum of cators (A1) /ater Table (A2) tion (A3)		Water-S 1, 2, Salt Cru	Stained L 4A and Ist (B11)	4B)) (except		Secondary Indicators (2 or more required Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10)
DROLOG Wetland Hy Primary Indi X Surfac X High W X Satura Water	ma with no redox ma with no redox f rdrology Indicators cators (minimum of cators (A1) /ater Table (A2) tion (A3) Marks (B1)		Water-S 1, 2, Salt Cru Aquatic	Stained L 4A and Ist (B11) Inverteb	4B) prates (B13) (except		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
DROLOG Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedimo	ma with no redox ma with no redox f rdrology Indicators cators (minimum of cators (Manimum of e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2)		Water-S	Stained L 4A and Ist (B11) Inverteb en Sulfid	4B) brates (B13 le Odor (C ²) (except	MLRA	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
DROLOGY Wetland Hy Primary Indi X Surfac X High W X Satura Water Sedime Drift De	ma with no redox ma with no redox f rdrology Indicators cators (minimum or e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)		Water-S , 2, Salt Cru Aquatic Units Unit	Stained L 4A and Ist (B11) Invertek en Sulfid d Rhizos	4B) prates (B13 le Odor (C ² spheres alc) (except)) (except)))))) ng Living		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)
DROLOGY Wetland Hy Primary Indi x Surfac x High W x Satura Water Sedima Drift Da Algal M	ma with no redox ma with no redox f rdrology Indicators cators (minimum of e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) /at or Crust (B4)		Water-S 1, 2, Salt Cru Aquatic Hydroge Oxidizee Presene	Stained L 4A and Ist (B11) Inverteb en Sulfid d Rhizos ce of Ree	4B) prates (B13 le Odor (C ² spheres alc duced Iron) (except)))))) ng Living (C4)	MLRA	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)
DROLOGY Wetland Hy Primary Indi x Surfac x High W x Satura Water Sedime Drift De Algal M Iron De	ma with no redox ma with no redox f rdrology Indicators cators (minimum of e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5)		Water-S 1, 2, Salt Cru Aquatic Hydroge Oxidize Recent	Stained L 4A and Ist (B11) Invertek en Sulfid d Rhizos ce of Ree Iron Rec	4B) prates (B13 e Odor (C pheres alc duced Iron duction in F) (except)))))))))))) (C4) Plowed Sc	MLRA	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)
DROLOGY Wetland Hy Primary Indi x Surfac X High W x Satura Water Sedime Drift De Algal M Iron De Surfac	ma with no redox ma with no redox f drology Indicators cators (minimum of e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) /at or Crust (B4) eposits (B5) e Soil Cracks (B6)	ne required	Water-S 1, 2, Salt Cru Aquatic Hydroge Oxidize Presend Recent Stunted	Stained L 4A and Ist (B11) Inverteb en Sulfid d Rhizos ce of Rea Iron Rea or Stres	4B) prates (B13 e Odor (C pheres alc duced Iron duction in F ssed Plants) (except) (recept)))))))))))))	MLRA	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)
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DROLOGY Wetland Hy Primary Indi X Surface X High W X Satura Water Sedima Drift Da Algal M Iron Da Surface Inunda Sparse Field Obser Surface Wa Water table Saturation F (includes ca cribe Record	ma with no redox ma with no redox redrology Indicators cators (minimum or e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) /at or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ely Vegetated Conca rvations: ter Present? Ye Present? Ye pillary fringe) ed Data (Unnamed	al Imagery ave Surfac s <u>x</u> s <u>x</u> Tributary g	Water-S 1, 2, Salt Cru Aquatic Hydroge Oxidizee Presend Recent Stunted (B7) Other (B e (B8) No Depth No Depth No Depth gauge, monitoring	Stained L 4A and Ist (B11) Invertek en Sulfid d Rhizos ce of Rei Iron Rec or Stres Explain in (inches) (inches) (inches) well, aer	4B) prates (B13 e Odor (C' pheres alc duced Iron duction in F ssed Plants n Remarks : <u>6 inche</u> : <u>at surfa</u> : <u>at surfa</u> ial photos,) (except) (except)))))))))))))	MLRA Roots (C3) iils (C6) RA) Wetland Hyd	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)
DROLOGY Wetland Hy Primary Indi X Surface X High W X Satura Water Sedima Drift Da Algal M Iron Da Surface Inunda Sparse Field Obser Surface Wa Water table Saturation F (includes ca cribe Record	ma with no redox ma with no redox drology Indicators cators (minimum or e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ely Vegetated Conca rvations: ter Present? Ye Present? Ye pillary fringe)	al Imagery ave Surfac s <u>x</u> s <u>x</u> Tributary g	Water-S 1, 2, Salt Cru Aquatic Hydroge Oxidizee Presend Recent Stunted (B7) Other (B e (B8) No Depth No Depth No Depth gauge, monitoring	Stained L 4A and Ist (B11) Invertek en Sulfid d Rhizos ce of Rei Iron Rec or Stres Explain in (inches) (inches) (inches) well, aer	4B) prates (B13 e Odor (C' pheres alc duced Iron duction in F ssed Plants n Remarks : <u>6 inche</u> : <u>at surfa</u> : <u>at surfa</u> ial photos,) (except) (except)))))))))))))	MLRA Roots (C3) iils (C6) RA) Wetland Hyd	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)
DROLOGY Wetland Hy Primary Indi X Surface X High W X Satura Water Sedima Drift Da Algal M Iron Da Surface Inunda Sparse Field Obser Surface Wa Water table Saturation F (includes ca cribe Record	ma with no redox ma with no redox redrology Indicators cators (minimum or e Water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) /at or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ely Vegetated Conca rvations: ter Present? Ye Present? Ye pillary fringe) ed Data (Unnamed	al Imagery ave Surfac s <u>x</u> s <u>x</u> Tributary g	Water-S 1, 2, Salt Cru Aquatic Hydroge Oxidizee Presend Recent Stunted (B7) Other (B e (B8) No Depth No Depth No Depth gauge, monitoring	Stained L 4A and Ist (B11) Invertek en Sulfid d Rhizos ce of Rei Iron Rec or Stres Explain in (inches) (inches) (inches) well, aer	4B) prates (B13 e Odor (C' pheres alc duced Iron duction in F ssed Plants n Remarks : <u>6 inche</u> : <u>at surfa</u> : <u>at surfa</u> ial photos,) (except) (except)))))))))))))	MLRA Roots (C3) iils (C6) RA) Wetland Hyd	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)

Project/Site:	Freeman Road Logist	tics	City/County: Pu	uyallup/Pierc	e Cou	inty	Sampling Date:	3/1	1/2022
Applicant/Owner:	Vector Development	Company				State: WA	Sampling Point:	Wet B	DP11 W
Investigator(s):	C. Douglas, M. Curra	in	Section, 7	Township, Ra	ange:	S17 R4E T20N			
Landform (hillslope	, terrace, etc.):	Forested	Local relief	f (concave, c	onvex	, none): <u>concave</u>		Slope:	1-5
Subregion (LRR):	Northwest Forests an	nd Coast (LRR A)	Lat: <u>47.12'33</u>			Long: <u>122.19'03</u>		Datum:	NAD83
Soil Map Unit Nam	e: Pilchuck fine s	sand				NWI Classification:	PFO, PSS, POW		
Are climatic / hydro	logic conditions on the	e site typical for this tim	e of year?	Yes	х	No	(If no, explain in R	emarks)	
Are Vegetation	<u>x</u> , Soil <u>x</u> ,	, or Hydrology	significantly dis	sturbed?	Are "N	Normal Circumstance	es" Present? Yes	<u>x</u>	No
Are Vegetation	, Soil,	, or Hydrology	naturally proble	ematic?	(If nee	eded, explain any an	swers in Remarks.)		

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes _ Yes _ Yes _	X X X	No No _No	Is the Sampled Area within a Wetland?	Yes _	x	No	
Remarks: Suspect area identified as surrounds standing water.	s SP 12 in	Conflu	uence Report	t. Depression area within grass past	ure, ground i	s clearec	d of vegetation, grass vegetation	

Free Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 0	(A)
2 3				Total Number of Dominant Species Across All Strata: 0	<u>(</u> B)
1				Percent of Dominant Species That Are OBL, FACW, or FAC:0%	(A/B)
50%= <u>0</u> 20%= <u>0</u> Total Cover	. 0			Dravalanaa Inday Warkahaati	
apling/Shrub Stratum (Plot size:)				Prevalence Index Worksheet: Total % Cover of: Multiply by:	
·				$\begin{tabular}{c c c c c c c c c c c c c c c c c c c $	
				FACW species 0 x1 = 0 x2 = 0	
				FAC species $0 \times 3 = 0$	
				FACU species 0 x4 = 0	
50%= 0 20%= 0 Total Cover	0			$\frac{1}{1} \frac{1}{1} \frac{1}$	
erb Stratum (Plot size:)					(B)
(Fieroize)				Prevalence Index = B/A = 0.0	
50%= <u>0</u> 20%= <u>0</u> Total Cover /oody Vine Stratum (Plot size:)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (Provide su data in Remarks or on a separate she 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explicitly for the subscription of the subscriptin of the subscriptin of the subscription of the subscription of	ipporting et) blain)
Total Cover % Bare Ground in Herb Stratum <u>100</u> % (emarks: No vegetation in standing water depression with	Cover of Bio			Hydrophytic Vegetation Present? Yes <u>X</u> No	

(includes capillary fringe)

L								Sampling Point:	Wet B DP11
Profile Des	cription: (Describe	e to the de	pth needed to do	ocument	the indic	ator or c	onfirm the a	absence of indicators.)	
Depth	Matrix			dox Featu		2			
(inches)	Color (moist)	<u>%</u>	Color (moist)		Type ¹	Loc ²	Textur	eR	lemarks
0-8	10YR 5/2	90	10YR 5/4	10		M	SiL		
8-18	10YR 5/1	70	7.5YR 4/4	30	D	M	SiL		
				·	. <u></u>				
Type: C=C	oncentration, D=De	pletion, RM	I=Reduced Matrix	k, CS=Cov	vered or (Coated S	and Grains.	² Location: PL=Pore Linir	ng, M=Matrix.
lydric Soil	Indicators: (Appli	cable to al	l LRRs, unless c	otherwise	noted.)		Indicator	s for Problematic Hydric	Soils':
Histos	· · /		Sandy	Redox (St	5)			2 cm Muck (A10) (L	
	Epipedon (A2)		```	d Matrix (,			Red Parent Materia	. ,
Black I	Histic (A3)						t MLRA 1)	Very Shallow Dark S	
	gen Sulfide (A4)			Gleyed M	``)		Other (Explain in Re	emarks)
	ed Below Dark Surfa	ace (A11)		ed Matrix (2		
	Dark Surface (A12)			Dark Surf				cators of hydrophytic vege	
Sandy	Muck Mineral (S1)		Deplete	ed Dark S	urface (F	7)	We	etland hydrology must be p	resent,
Sandy	gleyed Matrix (S4)		Redox	Depressic	ons (F8)		ı	unless disturbed or probler	natic.
Гуре:	Layer (if present):					н	/dric Soil Pr	esent? Yes	X No
						,			
ROLOG									
	· /drology Indicators	5:							
-	icators (minimum or		; check all that ap	ply)				Secondary Indicators	(2 or more requi
		i						Water-Stained Leav	· · ·
	e water (AT)		vvater-	Stained Le	eaves (B) (excep	ot MLRA		(D9) (IVILKA I
x Surfac	e Water (A1) Vater Table (A2)					9) (excep	ot MLRA	4A and 4B)	es (D9) (WILKA I
x Surfac High W	vater (A1) Vater Table (A2) tion (A3)		1, 2	Stained Le , 4A and 4 ust (B11)		9) (excep	ot MLRA		
x Surfac High W x Satura	Vater Table (A2)		1, 2 Salt Cr	, 4A and 4	4B)		ot MLRA	4A and 4B)	B10)
x Surfac High W x Satura Water	Vater Table (A2) tion (A3)		1, 2 Salt Cru Aquatic	, 4A and 4 ust (B11)	4B) rates (B1	3)	ot MLRA	4A and 4B) Drainage Patterns (B10) Fable (C2)
x Surfac High W x Satura Water Sedim	Vater Table (A2) tion (A3) Marks (B1)		1, 2 Salt Cru Aquatic Hydrog	, 4A and 4 ust (B11) c Invertebr en Sulfide	4B) rates (B1 e Odor (C	3) 1)	ot MLRA g Roots (C3)	4A and 4B) Drainage Patterns (Dry-Season Water Saturation Visible on	B10) Table (C2) n Aerial Imagery
x Surfac High W x Satura Water Sedime Drift D	Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2)		1, 2 Salt Cru Aquatic Hydrog	, 4A and 4 ust (B11) c Invertebr en Sulfide	4B) rates (B1 e Odor (C oheres al	3) 1) ong Livin		4A and 4B) Drainage Patterns (Dry-Season Water Saturation Visible on	B10) Table (C2) n Aerial Imagery n (D2)
X Surfac High W X Satura Water Sedime Drift De Algal N	Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)		1, 2 Salt Cru Aquatic Hydrog Oxidize	, 4A and 4 ust (B11) : Invertebr en Sulfide	4B) rates (B1 e Odor (C oheres all luced Iror	3) 1) ong Livin ı (C4)	g Roots (C3)	4A and 4B) Drainage Patterns (Dry-Season Water Saturation Visible of Geomorphic Positio	B10) Fable (C2) n Aerial Imagery n (D2) 3)
x Surfac High W x Satura Water Sedime Drift De Algal N Iron De	Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4)		1, 2 Salt Cri Aquatic Hydrog Oxidize Presen Recent	, 4A and 4 ust (B11) Invertebr en Sulfide d Rhizosp ce of Red	4B) rates (B1 e Odor (C oheres al- luced Iror uction in	3) 1) ong Livin ı (C4) Plowed S	g Roots (C3) Soils (C6)	4A and 4B) Drainage Patterns (Dry-Season Water Saturation Visible of Geomorphic Positio Shallow Aquitard (D	B10) Fable (C2) n Aerial Imagery n (D2) 3) D5)
x Surfac High W x Satura Water Sedime Drift Di Algal M Iron De Surfac	Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5)	al Imagery (1, 2 Salt Cri Aquatic Hydrog Oxidize Presen Recent Stunted	, 4A and 4 ust (B11) invertebr en Sulfide id Rhizosp ce of Red Iron Redu	4B) rates (B1 e Odor (C oheres all luced Iror uction in sed Plant	3) 1) ong Livin i (C4) Plowed S s (D1) (L	g Roots (C3) Soils (C6)	4A and 4B) Drainage Patterns (Dry-Season Water Saturation Visible of Geomorphic Positio Shallow Aquitard (D FAC-Neutral Test (E	B10) Table (C2) n Aerial Imagery n (D2) 3) 05) (D6) (LRR A)
Xurfac High W High W Satura Water Sedim Drift Du Algal N Iron De Surfac Inunda	Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6)	• •	1, 2 Salt Cru Aquatic Hydrog Oxidize Presen Recent Stuntec (B7) Other (, 4A and 4 ust (B11) is Invertebr en Sulfide ad Rhizosp ce of Red Iron Redu d or Stress	4B) rates (B1 e Odor (C oheres all luced Iror uction in sed Plant	3) 1) ong Livin i (C4) Plowed S s (D1) (L	g Roots (C3) Soils (C6)	4A and 4B) Drainage Patterns (Dry-Season Water Saturation Visible of Geomorphic Positio Shallow Aquitard (D FAC-Neutral Test (E Raised Ant Mounds	B10) Table (C2) n Aerial Imagery n (D2) 3) 05) (D6) (LRR A)
Xurfac High W High W X Satura Water Sedim Drift D Algal N Iron De Surfac Inunda Sparse	Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria	• •	1, 2 Salt Cru Aquatic Hydrog Oxidize Presen Recent Stuntec (B7) Other (, 4A and 4 ust (B11) is Invertebr en Sulfide ad Rhizosp ce of Red Iron Redu d or Stress	4B) rates (B1 e Odor (C oheres all luced Iror uction in sed Plant	3) 1) ong Livin i (C4) Plowed S s (D1) (L	g Roots (C3) Soils (C6)	4A and 4B) Drainage Patterns (Dry-Season Water Saturation Visible of Geomorphic Positio Shallow Aquitard (D FAC-Neutral Test (E Raised Ant Mounds	B10) Table (C2) n Aerial Imagery n (D2) 3) 05) (D6) (LRR A)
Xurfac High W High W X Satura Water Sedim Drift Du Algal N Iron De Surfac Inunda Sparse Field Obser	Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ely Vegetated Conca	ave Surface	<pre>1, 2 Salt Crr Aquatic Aquatic Hydrog Oxidize Presen Recent Stunted (B7) Other (e (B8)</pre>	, 4A and 4 ust (B11) c Invertebr en Sulfide d Rhizosp ce of Red Iron Redu d or Stress Explain in	4B) rates (B1 e Odor (C oheres ale uced Iror uction in sed Plant Remarks	3) 1) ong Livin (C4) Plowed S s (D1) (L	g Roots (C3) Soils (C6)	4A and 4B) Drainage Patterns (Dry-Season Water Saturation Visible of Geomorphic Positio Shallow Aquitard (D FAC-Neutral Test (E Raised Ant Mounds	B10) Table (C2) n Aerial Imagery n (D2) 3) 05) (D6) (LRR A)
Xurfac High W High W X Satura Water Sedim Drift Du Algal N Iron De Surfac Inunda Sparse Field Obser	Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) ation Visible on Aeria ely Vegetated Conca rvations: ter Present? Yes	ave Surface	1, 2 Salt Cri Aquatic Hydrog Oxidize Presen Recent Stunted (B7) Other (No	, 4A and 4 ust (B11) is Invertebr en Sulfide ad Rhizosp ce of Red Iron Redu d or Stress	4B) rates (B1 e Odor (C oheres ale uced Iror uction in sed Plant Remarks <u>3 inch</u>	3) 1) ong Livin (C4) Plowed S s (D1) (L	g Roots (C3) Soils (C6)	4A and 4B) Drainage Patterns (Dry-Season Water Saturation Visible of Geomorphic Positio Shallow Aquitard (D FAC-Neutral Test (E Raised Ant Mounds	B10) Table (C2) n Aerial Imagery n (D2) 3) 05) (D6) (LRR A)

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Standing water a few inches deep in depression. No water table, surface water flowed into data plot hole.

Project/Site:	Freeman Road Logistics City/County: Puyallup/Pierce Cour						inty	Sampling Date:	3/1	1/2022
Applicant/Owner:	Vector Developmen	nt Company					State: WA	Sampling Point:	Wet B	DP12 Up
Investigator(s):	C. Douglas, M. Curran Section, Township, Range:						S17 R4E T20N			
Landform (hillslope	, terrace, etc.):	Forested		Local relie	f (concave,	conve	k, none): <u>concave</u>		Slope:	1-5
Subregion (LRR):	Northwest Forests a	and Coast (LRR A)	Lat: 4	7.12'33			Long: <u>122.19'03</u>		Datum:	NAD83
Soil Map Unit Nam	e: Pilchuck fine	e sand					NWI Classification:	PFO, PSS, POW		
Are climatic / hydro	logic conditions on t	he site typical for this t	time of ye	ar?	Yes	х	No	(If no, explain in R	emarks)	
Are Vegetation	, Soil	, or Hydrology	:	significantly di	sturbed?	Are "	Normal Circumstanc	es" Present? Yes	<u>x</u>	No
Are Vegetation	, Soil	, or Hydrology	I	naturally probl	ematic?	(If ne	eded, explain any an	swers in Remarks.))	

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes _ Yes _ Yes _	x x	No No	X	Is the Sampled Area within a Wetland?	Yes	No	<u>x</u>
Remarks: Suspect area identified as surrounds standing water	3 SP 12 in	Confl	uence R	Report. De	pression area within grass past	ture, ground is cle	eared of vegeta	ation, grass vegetation

<u>Tree Stratum</u> (Plot size:) 1	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
2				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
4 5 50%= 0 20%= 0 Total Cover:				Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index Worksheet:
				Total % Cover of: Multiply by:
1				OBL species 0 x1 = 0
				FACW species 0 x2 = 0
4				FAC species 100 x3 = 300
5.				FACU species 0 x4 = 0
50%= 0 20%= 0 Total Cover	0			UPL species 0 x5 = 0
Herb Stratum (Plot size:)				Column Totals: 100 (A) 300 (B)
1. Agrostis capillaris	30	Yes	FAC	Prevalence Index = B/A = 3.0
2. Festuca rubra	70		FAC	
3				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (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

SOIL

Profile Description: (Des Depth Mat		-	Redox Feat				
· · ·		-			12	Tautura	Demedia
(inches) Color (mois	· · · · · · · · · · · · · · · · · · ·	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
<u> </u>	99	10YR 5/4	1	D	M	SiL	
¹ Type: C=Concentration, I	D=Depletion, R	M=Reduced Mat	rix, CS=Co	vered or C	coated S	and Grains. ² Lo	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: (A	Applicable to	all I RRs unloss	otherwise	noted)		Indicators for	r Problematic Hydric Soils ³ :
Histosol (A1)			y Redox (S				2 cm Muck (A10) (LRR B)
Histic Epipedon (A2)			ped Matrix (,			Red Parent Material (TF2)
Black Histic (A3)			y Mucky M		(excent	MIRA 1)	Very Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)		iy Gleyed N		•		Other (Explain in Remarks)
Depleted Below Dark	,		eted Matrix				
·				. ,		³ Indicator	re of hydrophytic vogetation and
Thick Dark Surface (#			x Dark Surl		~		rs of hydrophytic vegetation and
Sandy Muck Mineral			eted Dark S)		d hydrology must be present,
Sandy gleyed Matrix	(S4)	Redo	x Depressi	ons (F8)		unles	ss disturbed or problematic.
Restrictive Layer (if pres	ent):						
Туре:							
Depth (inches):					Ну	rdric Soil Preser	nt? Yes <u>NoX</u>
Depth (inches):					Ну	rdric Soil Preser	nt? Yes No <u>_X</u>
Depth (inches):	ators:				Ну	rdric Soil Preser	
Depth (inches):	ators:	d; check all that a					Secondary Indicators (2 or more required)
Depth (inches): larks: 3 chroma with redox DROLOGY Wetland Hydrology Indic	ators:	d; check all that a	apply) r-Stained L	eaves (B9			
Depth (inches): arks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu	ators: um one require	d; check all that a					Secondary Indicators (2 or more required)
Depth (inches): arks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1)	ators: um one require	d; check all that a Wate 1,	r-Stained L				Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,
Depth (inches): arks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2	ators: um one require	d; check all that a Wate 1, Salt (r-Stained L 2, 4A and	4B)) (excep		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
Depth (inches): arks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1)	ators: Im one require	d; check all that a Wate 1, Salt C Aqua	r-Stained L 2, 4A and Crust (B11) tic Inverteb	4B) rates (B13) (excep		Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) Drainage Patterns (B10)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B	ators: Im one require	d; check all that a Wate Salt C Aqua Hydro	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide	4B) rates (B13 e Odor (C) (excep	t MLRA	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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3)	ators: Im one require 2) 32)	d; check all that a Wate Salt C Squa Hydro Oxidi:	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos	4B) rates (B13 e Odor (C pheres alc) (excep)))) ng Living		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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (E Drift Deposits (B3) Algal Mat or Crust (B	ators: Im one require 2) 32)	d; check all that a Wate 1, Salt (Aqua Hydro Oxidi: Prese	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec	4B) rates (B13 e Odor (C pheres alc duced Iron) (excep)))) ng Living (C4)	t MLRA	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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5)	ators: um one require 2) 32) 4)	d; check all that a Wate 1, Salt C Aqua Hydro Oxidia Prese Rece	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F) (excep)))) ng Living (C4) Plowed S	t MLRA	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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks (ators: um one require 2) 32) 4) B6)	d; check all that a Wate 1, Salt C Aqua Hydro Qxidi: Rece Stunt	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red ed or Stres	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F sed Plants) (excep) (or cep))))))) (C4)) (C4)) Or cep) (C4)) (D1) (L	t MLRA	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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5)	ators: im one require 2) 32) 4) B6) Aerial Imagery	d; check all that a Wate Salt (Aqua Hydro Prese Rece Stunt / (B7) Other	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F sed Plants) (excep) (or cep))))))) (C4)) (C4)) Or cep) (C4)) (D1) (L	t MLRA	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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks (Inundation Visible on Sparsely Vegetated C	ators: im one require 2) 32) 4) B6) Aerial Imagery	d; check all that a Wate Salt (Aqua Hydro Prese Rece Stunt / (B7) Other	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red ed or Stres	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F sed Plants) (excep) (or cep))))))) (C4)) (C4)) Or cep) (C4)) (D1) (L	t MLRA	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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Drift Deposits (B3) Algal Mat or Crust (B) Iron Deposits (B5) Surface Soil Cracks (Inundation Visible on Sparsely Vegetated C Field Observations:	ators: <u>Im one require</u> 2) 32) 4) B6) Aerial Imagery Concave Surfac	d; check all that a Wate 1, Salt C Aqua Hydro Oxidi: Prese Rece Stunt (B7) Other ce (B8)	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red ed or Stres r (Explain ir	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F sed Plants n Remarks) (excep)) ng Living (C4) Plowed S ; (D1) (L	t MLRA	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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Drift Deposits (B3) Algal Mat or Crust (B) Iron Deposits (B5) Surface Soil Cracks (Inundation Visible on Sparsely Vegetated O Field Observations: Surface Water Present?	ators: Im one require 2) 32) 4) B6) Aerial Imagery Concave Surface Yes	d; check all that a Wate 1, Salt C Aqua Hydro Oxidi: Prese Rece Stunt ((B7) Other ce (B8)	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red ed or Stres r (Explain ir	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F sed Plants n Remarks) (excep) ng Living (C4) Plowed S 5 (D1) (L	t MLRA	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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B3) Algal Mat or Crust (B) Surface Soil Cracks (Inundation Visible on Sparsely Vegetated C Field Observations: Surface Water Present? Water table Present?	ators: um one require 2) 32) 4) B6) Aerial Imagery Concave Surfact Yes	d; check all that a	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red ed or Stres r (Explain ir	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F sed Plants Remarks) (excep)) ng Living (C4) Plowed S ; (D1) (L)	t MLRA	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)
Depth (inches): harks: 3 chroma with redox DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Drift Deposits (B3) Algal Mat or Crust (B) Iron Deposits (B5) Surface Soil Cracks (Inundation Visible on Sparsely Vegetated O Field Observations: Surface Water Present?	ators: Im one require 2) 32) 4) B6) Aerial Imagery Concave Surface Yes	d; check all that a	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red ed or Stres r (Explain ir	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F sed Plants Remarks) (excep)) ng Living (C4) Plowed S ; (D1) (L)	t MLRA	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)
Depth (inches): narks: 3 chroma with redox Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks (Inundation Visible on Sparsely Vegetated O Field Observations: Surface Water Present? Water table Present? Saturation Present? (includes capillary fringe)	ators: im one require 2) 32) 4) B6) Aerial Imagery Concave Surfact Yes Yes Yes	d; check all that a	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red ed or Stres r (Explain ir eth (inches) oth (inches)	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F sed Plants Remarks) (excep)) ng Livin, (C4) 20wed S ; (D1) (L) 	t MLRA	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)
Depth (inches): marks: 3 chroma with redox 'DROLOGY Wetland Hydrology Indic Primary Indicators (minimu Surface Water (A1) High Water Table (A2 x Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks (Inundation Visible on Sparsely Vegetated O Field Observations: Surface Water Present? Water table Present? Saturation Present?	ators: im one require 2) 32) 4) B6) Aerial Imagery Concave Surfact Yes Yes Yes Yes red Tributary	d; check all that a	r-Stained L 2, 4A and Crust (B11) tic Inverteb ogen Sulfide zed Rhizos ence of Rec nt Iron Red ed or Stres r (Explain ir eth (inches) oth (inches)	4B) rates (B13 e Odor (C pheres alc duced Iron uction in F sed Plants Remarks) (excep)) ng Livin, (C4) 20wed S ; (D1) (L) 	t MLRA	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)

WETLAND DE Se		OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)								
Project/Site: Freeman Road - Parcel 0420201104 City/County: Fife/Pierce								Sampling Date:	5/20/23	
Applicant/Owner:	ant/Owner: Vector Development State:						WA	Sampling Point:	DP-13 Up	
Investigator(s): Hanr	hah Fotherby an	d Jakob Rowr	ıy	Se	ection, Towns	ship, Range:	S20, T	20N, R04E		
Landform (hillside, te	errace, etc.): <u>Di</u>	tch/trench bot	tom	Local	relief (conca	ve, convex, no	one):	concave	Slop	oe (%): <u>0</u>
Subregion (LRR):	LRR A, MLRA	2 Lat: <u>4</u>	7.208359		L	ong: <u>-122.32</u>	21114		Datum:	WGS84
Soil Map Unit Name:	Pilchuck fine s	and						NWI classi	fication: none	
Are climatic / hydrolo	ogic conditions o	on the site typi	cal for this time	of year?	Yes	X No)	(If no, exp	plain in Remarks.)	
Are Vegetation	, Soil, o	r Hydrology	significan	tly disturb	ed? Are "N	Normal Circum	nstance	s" present?	Yes <u>X</u> No)
Are Vegetation	, Soil, c	r Hydrology	naturally p	oroblema	ic? (If nee	eded, explain	any ans	wers in Rer	marks.)	
SUMMARY OF	FINDINGS –	Attach site	e map show	/ing sa	mpling po	oint locatio	ons, tra	ansects,	important feat	ures, etc.
Hydrophytic Vegeta	tion Present?	Yes X	No		Is the Sar	npled Area				
Hydric Soil Present		Yes	No X		within a V	Vetland?		Yes	No <u>X</u>	
Wetland Hydrology	Present?	Yes	No X							
Demenden										

Remarks:

Data point located in a low area in the northeast portion of the parcel, within a small trench/ditch about 3 feet deep.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
1. Populus balsamifera	75	Yes	FAC	Number of Dominant Species That
2. Acer macrophyllum	15	No	FACU	Are OBL, FACW, or FAC: (A)
3				Total Number of Dominant Species
4				Across All Strata: 7 (B)
	90	=Total Cover		Percent of Dominant Species That
Sapling/Shrub Stratum (Plot size: 15	1			Are OBL, FACW, or FAC: <u>57.1%</u> (A/B)
1. Symphoricarpos albus	40	Yes	FACU	
2. Corylus cornuta	30	Yes	FACU	Prevalence Index worksheet:
3. Fraxinus latifolia	30	Yes	FACW	Total % Cover of: Multiply by:
4. Rubus armeniacus	15	No	FAC	OBL species 0 x 1 = 0
5				FACW species 30 x 2 = 60
	115	=Total Cover		FAC species 105 x 3 = 315
Herb Stratum (Plot size: 5)				FACU species 90 x 4 = 360
1. Ranunculus repens	10	Yes	FAC	UPL species 0 x 5 = 0
2. Rubus ursinus	5	Yes	FACU	Column Totals: 225 (A) 735 (B)
3. Unknown grass sp.	5	Yes	FAC	Prevalence Index = B/A = 3.27
4				
5				Hydrophytic Vegetation Indicators:
6.				1 - Rapid Test for Hydrophytic Vegetation
7				X 2 - Dominance Test is >50%
8.				3 - Prevalence Index is ≤3.0 ¹
9.		. <u></u>		4 - Morphological Adaptations ¹ (Provide supporting
10				data in Remarks or on a separate sheet)
11		. <u></u>		5 - Wetland Non-Vascular Plants ¹
		=Total Cover		Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size: 15				¹ Indicators of hydric soil and wetland hydrology must
1				be present, unless disturbed or problematic.
2.				Hydrophytic
		=Total Cover		Vegetation
% Bare Ground in Herb Stratum 80				Present? Yes X No
Remarks:				

SOIL

Profile Descr	iption: (Describe t	o the depth	needed to docu	nent the	e indicato	or or co	nfirm the a	bsence of indicat	ors.)		
Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Tex	ture	Remarks		
0-18	10YR 3/3	100					Sa	ndy	sandy loam		
											-
											-
		<u> </u>									_
											_
¹ Type: C=Cor	ncentration, D=Deple	etion, RM=R	educed Matrix, C	S=Cove	red or Coa	ated Sar	nd Grains.	² Location: P	PL=Pore Lining, M=I	Matrix.	-
	dicators: (Applicat								roblematic Hydric		
Histosol (A1)		Sandy Gle	yed Mat	rix (S4)		2 cm Muck (A10) (LRR A, E)				
Histic Epi	pedon (A2)		Sandy Red	lox (S5)	. ,			Iron-Mangar	nese Masses (F12)	(LRR D)	
Black His	tic (A3)		Stripped M	latrix (Se	6)		Red Parent Material (F21)				
Hydrogen	Sulfide (A4)		Loamy Mu	Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (F22)					2)		
1 cm Muc	k (A9) (LRR D, G)		Loamy Gle	Loamy Gleyed Matrix (F2) Other (Explain in Remarks)							
Depleted	Below Dark Surface	(A11)	Depleted N	/atrix (F	3)						
Thick Dar	k Surface (A12)	. ,	Redox Dark Surface (F6) ³ Indicators of hydrophytic vegetat				drophytic vegetatior	and			
Sandy Mu	ucky Mineral (S1)		Depleted D	Depleted Dark Surface (F7) wetland hydrology must be p			rology must be pres	ent,			
2.5 cm M	ucky Peat or Peat (S	62) (LRR G)	Redox Dep				unless distur	isturbed or problematic.			
Restrictive La	ayer (if observed):										_
Type:	none										
Depth (inches):			_				Hydric Se	oil Present?	Yes	No X	
Remarks:						ļ					_
No redoximor	phic features presen	t.									

HYDROLOGY

Wetland Hydrology Indicate	ors:					
Primary Indicators (minimum	of one is required	Secondary Indicators (2 or more required)				
Surface Water (A1)			Water-S	Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2	
High Water Table (A2)			MLR	RA 1, 2, 4A, and 4B)	4A, and 4B)	
Saturation (A3)			Salt Cru	ust (B11)	Drainage Patterns (B10)	
Water Marks (B1)			Aquatic	Invertebrates (B13)	Dry-Season Water Table (C2)	
Sediment Deposits (B2)			Hydroge	en Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)	
Drift Deposits (B3)			Oxidize	d Rhizospheres on Living Roc	ots (C3) Geomorphic Position (D2)	
Algal Mat or Crust (B4)			Presend	ce of Reduced Iron (C4)	Shallow Aquitard (D3)	
Iron Deposits (B5)			Recent	Iron Reduction in Tilled Soils	(C6) FAC-Neutral Test (D5)	
Surface Soil Cracks (B6))		Stunted	or Stressed Plants (D1) (LRF	R A) Raised Ant Mounds (D6) (LRR A)	
Inundation Visible on Ae	rial Imagery (B7)	Other (Explain in Remarks)			Frost-Heave Hummocks (D7)	
Sparsely Vegetated Con	cave Surface (B8)					
Field Observations:						
Surface Water Present?	Yes	No	Х	Depth (inches):		
Water Table Present?	Yes	No	Х	Depth (inches):		
Saturation Present?	Yes	No	Х	Depth (inches):	Wetland Hydrology Present? Yes No _X	
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:						
Remarks:						
Soil lightly moist at around 10 inches deep but no saturation or other hydrology indicators present.						

RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 Wetland A
 Date of site visit:
 3/11/22

 Rated by C. Douglas
 Trained by Ecology?
 Yes No Date of training 2007

 HGM Class used for rating
 Depressional
 Wetland has multiple HGM classes?
 Y
 N

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

OVERALL WETLAND CATEGORY <u>III</u> (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		H	lydrologic		Habitat				
	Circle the appropriate ratings						tings			
Site Potential	Н	M	L	Н	M	L	Н	M	L	
Landscape Potential	Н	M	L	H	Μ	L	Н	Μ	L	
Value	Н	M	L	Н	M	L	Н	Μ	L	TOTAL
Score Based on Ratings		6			7			4		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	Ι	II	
Wetland of High Conservation Value	I		
Bog		Ι	
Mature Forest	Ι		
Old Growth Forest		Ι	
Coastal Lagoon	Ι	II	
Interdunal	I II	III IV	
None of the above		Х	

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including 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	S 4.1	
(can be added to figure above)		
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

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

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

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

•N0 – 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) 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).
- •N0 go to 4

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

4. <u>Does the entire wetland unit **meet all** of the following criteria?</u>

____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**.

•N0 – 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. <u>Does the entire wetland unit **meet all** of the following criteria?</u>

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 <u>A</u>

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

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

DEPRESSIONAL AND FLATS WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water 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	0
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2	3
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	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 (No = 0)	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):	
Wetland has persistent, ungrazed, plants > 95% of area points = 5	
Wetland has persistent, ungrazed, plants > $\frac{1}{2}$ of area points = 3	3
Wetland has persistent, ungrazed plants $> 1/10$ of area points = 1	
Wetland has persistent, ungrazed plants $<^{1}/_{10}$ of area points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:	
This is the area that is ponded for at least 2 months. See description in manual.	
Area seasonally ponded is $> \frac{1}{2}$ total area of wetland points = 4	2
Area seasonally ponded is > ¼ total area of wetland points = 2	
Area seasonally ponded is < ¼ total area of wetland points = 0	_
Total for D 1Add the points in the boxes above	8

Rating of Site Potential If score is: \square **12-16 = H** \boxtimes **6-11 = M** \square **0-5 = L** Record the ratio

Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? (Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes = 1) No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 (No = 0)	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? SourceYes = 1 (No = 0)	0
Total for D 2Add the points in the boxes above	2

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

D 3.0. Is the water quality improvement provided by the site valuable	e to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, rive 303(d) list?	er, lake, or marine water that is on the Yes = 1 (No = 0)	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on	the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important <i>if there is a TMDL for the basin in which the unit is found</i>)?	for maintaining water quality (<i>answer YES</i> Yes = 2 (No = 0)	0
Total for D 3	Add the points in the boxes above	1
Rating of Value If score is: 2-4 = H X 1 = M 0 = L	Record the rating on the first page	

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DEPRESSIONAL AND FLATS WETLANDS Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradati	ion
D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: points = 4 Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outletpoints = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	4
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part. Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	7
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	0
Total for D 4Add the points in the boxes above	11
Rating of Site PotentialIf score is: \square 12-16 = H \boxtimes 6-11 = M \square 0-5 = LRecord 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	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	3
Rating of Landscape Potential If score is: \boxed{X} 3 = H $\boxed{1}$ or 2 = M $\boxed{0}$ = 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. <u>The unit is in a landscape that has flooding problems</u>. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. <u>Choose the highest score if more than one condition is met</u>. 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. <i>Explain why</i> points = 0 	1
There are no problems with flooding downstream of the wetland. points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 (No = 0)	0
Total for D 6 Add the points in the boxes above	1
Rating of Value If score is: $2 - 4 = H$ $1 = M$ $0 = L$ Record the rating on the	first page

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked. Aquatic bed A structures or more: points = 4 X Emergent 3 structures: points = 2) X 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:	2
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).	2
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	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. <i>If you</i> <i>have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points All three diagrams in this row are HIGH = 3points	2

 H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points</i>. 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) X Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>) 	4
Total for H 1Add the points in the boxes above	11
Rating of Site Potential If score is:15-18 = H7-14 = M0-6 = LRecord 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).	

H 2.1. Accessible habitat (include only habitat that directly abuts wetland uni	t).	
Calculate: % undisturbed habitat <u>5</u> + [(% moderate and low	intensity land uses)/2] $0 = 5\%$	
If total accessible habitat is:		
> ¹ / ₃ (33.3%) of 1 km Polygon	points = 3	0
20-33% of 1 km Polygon	points = 2	
10-19% of 1 km Polygon	points = 1	
< 10% of 1 km Polygon	points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.		
Calculate: % undisturbed habitat <u>10</u> + [(% moderate and low	intensity land uses)/2] <u>10</u> = <u>20</u> %	
Undisturbed habitat > 50% of Polygon	points = 3	1
Undisturbed habitat 10-50% and in 1-3 patches	points = 2	1
Undisturbed habitat 10-50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3. Land use intensity in 1 km Polygon: If		
> 50% of 1 km Polygon is high intensity land use	points = (- 2)	-2
≤ 50% of 1 km Polygon is high intensity	points = 0	
Total for H 2	Add the points in the boxes above	-1
Rating of Landscape Potential If score is: 4-6 = H 1-3 = M </td <td>L Record the rating on th</td> <td>ne first page</td>	L Record the rating on th	ne 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? <i>Choose only the highest score</i>			
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)			
8 It provides habitat for Threatened or Endangered species (any plant or animal on the sta	ate or federal lists)		
K It is mapped as a location for an individual WDFW priority species		0	
8 It is a Wetland of High Conservation Value as determined by the Department of Natural	Resources		
8 It has been categorized as an important habitat site in a local or regional comprehensive	e 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		
	Record the rating on	the first page	

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

WDFW Priority Habitats

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

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.

- **X** 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*).
- **K** Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.
- Sold-growth/Mature forests: <u>Old-growth west of Cascade crest</u> 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. <u>Mature forests</u> Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ✗ Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 − see web link above*).
- ✗ Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ★ Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 see web link above*).
- K 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.
- 𝔅 **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	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
8 The dominant water regime is tidal,	
N Vegetated, and	
Note:	
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	OCat. 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)	OCat. I
X 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.	Cat. II
* 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 I	Ŭ
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	Cat. I
Conservation Value? OYes – Go to SC 2.2 ONo – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	O and I
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 ONO = 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? OYes = Category I ONO = Not a WHCV	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or	
more of the first 32 in of the soil profile?	
SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep	
over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or	
pond? \bigcirc Yes – Go to SC 3.3 \bigcirc 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? \bigcirc Yes = Is a Category I bog \bigcirc 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.	Cat. I
SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar,	
western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the	
species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	
Yes = Is a Category I bog No = Is not a bog	

SC 4.0. Forested Wetlands	
Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate</i> <i>the wetland based on its functions.</i>	
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 ONO = Not a forested wetland for this section	OCat. 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	
N 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)	Cat. I
\bigcirc Yes – Go to SC 5.1 \bigcirc No = Not a wetland in a coastal lagoon	\cup
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).	OCat. II
🛠 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.	
\aleph 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:	
 K Long Beach Peninsula: Lands west of SR 103 K Conclused Westwart Longbourget of SR 105 	
 Grayland-Westport: Lands west of SR 105 Ocean Shores-Copalis: Lands west of SR 115 and SR 109 	Ocari
\bigcirc Yes – Go to SC 6.1 \bigcirc 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 ONO – Go to SC 6.2	OCat. II
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 ONO – Go to SC 6.3	OCat. III
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 \bigcirc No = Category IV	OCat. IV
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA
n you answered no for an types, enter not Applicable. On Summary Form	1

Figures



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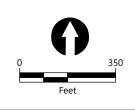
Figure 1 Wetland A - Cowardin Vegetation Classes and 150-foot Wetland Offset

Wetland Rating Form - Wetland A Freeman Road Logistics



LEGEND: Hydroperiod Permanently Flooded Saturated

NOTE: 1. Aerial image provided by Esri Online Services.



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Figure 2 Wetland A - Hydroperiods Wetland Rating Form - Wetland A Freeman Road Logistics



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Figure 3 Wetland A - Map of the Contributing Basin

Wetland Rating Form - Wetland A Freeman Road Logistics

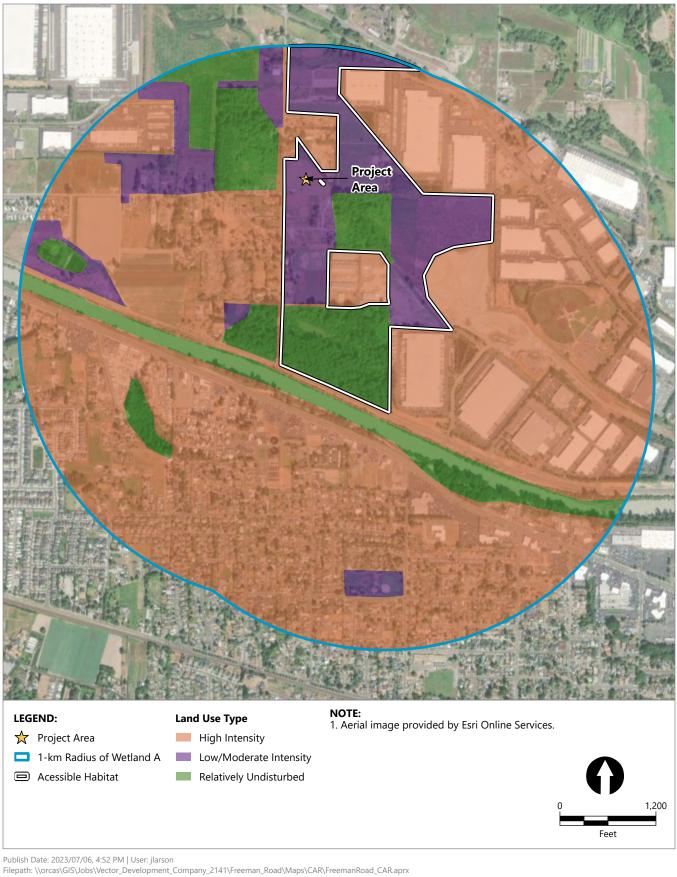
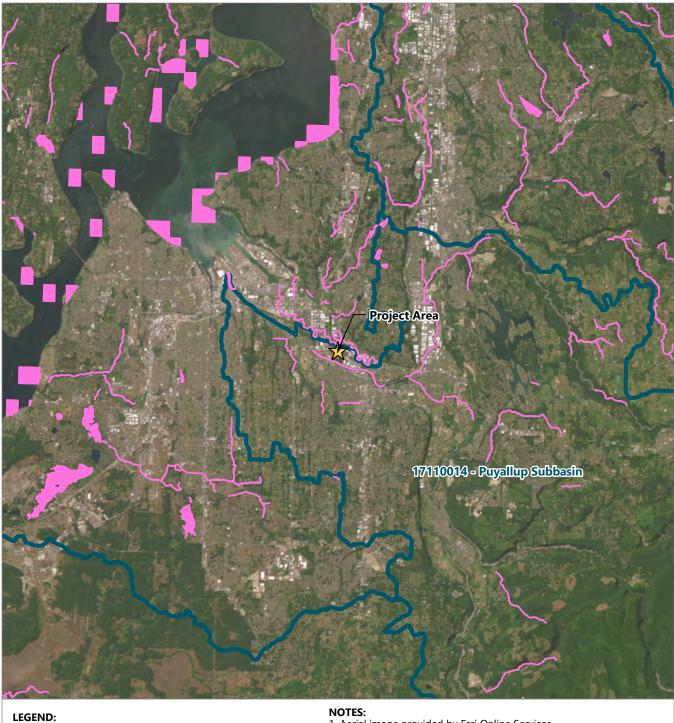
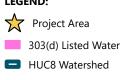




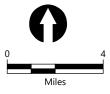
Figure 4 Land Use Intensity within 1-km of the Wetland

Wetland Rating Form - Wetland A Freeman Road Logistics





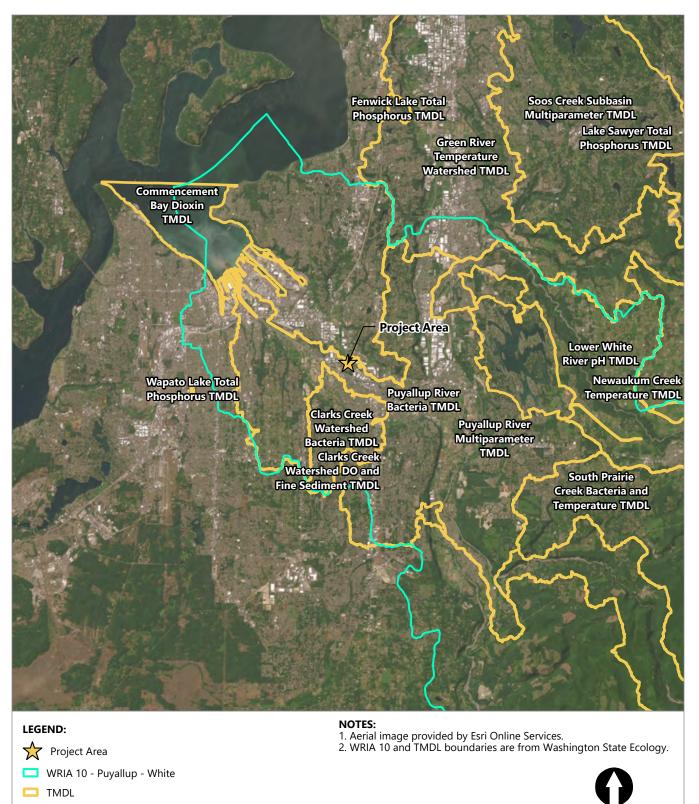
1. Aerial image provided by Esri Online Services. 2. 303(d) lised waters and HUC8 Watershed boundary from Washington State Ecology.



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Figure 5 303(d) Listed Waters Wetland Rating Form - Wetland A Freeman Road Logistics



0 Miles

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Figure 6 List of TMDLs for WRIA 10 - Puyallup - White

Wetland Rating Form - Wetland A Freeman Road Logistics

RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 On-site Wetland B
 Date of site visit:
 5/20/23

 Rated by Hannah Fotherby, Jakob Rowny
 Trained by Ecology? X Yes
 No Date of training 12/8/22

 HGM Class used for rating
 Depressional
 Wetland has multiple HGM classes?
 Y
 X
 N

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

OVERALL WETLAND CATEGORY []] (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

____Category I – Total score = 23 - 27

_____Category II – Total score = 20 - 22

X Category III – Total score = 16 - 19

Category IV – Total score = 9 - 15

FUNCTION		mprov Iter Qu	•	Hy	ydrolo	gic	ŀ	labit	at	
					Circle t	he ap	propri	ate r	atings	
Site Potential	Н	M	L	Н	M	L	Н	Μ	L	
Landscape Potential	Н	M	L	Н	M	L	Н	Μ		
Value	H	М	L	H	М	L	H	Μ	L	ΤΟΤΑ
Score Based on Ratings		7			7			5		19

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

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	Figure 1
Hydroperiods	D 1.4, H 1.2	Figure 2
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	Figure 2
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	Figure 1
Map of the contributing basin	D 4.3, D 5.3	Figure 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	Figure 4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	Figure 5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	Figure 6

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	Н 1.1, Н 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	S 4.1	
(can be added to figure above)		
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including 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	

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) 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.

YES - Freshwater Tidal Fringe

Wetland name or number <u>B</u>

NO - go to 6YES - The wetland class is RiverineNOTE: The Riverine unit can contain depressions that are filled with water when the river is notflooding

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

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

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve wa	ter 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 (n	no outlet).	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing		3
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 2 points = 1 points = 1	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes	s = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowa	ardin classes):	
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > $\frac{1}{2}$ of area	points = 3	5
Wetland has persistent, ungrazed plants $> \frac{1}{10}$ of area	points = 1	
Wetland has persistent, ungrazed plants $<^{1}/_{10}$ of area	points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:		
This is the area that is ponded for at least 2 months. See description in manual.		
Area seasonally ponded is > ½ total area of wetland	points = 4	2
Area seasonally ponded is > ¼ total area of wetland	points = 2	
Area seasonally ponded is < ¼ total area of wetland	points = 0	
Total for D 1Add the points in the b	oxes above	10

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? houses are gone but septic may still be leaching Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? SourceYes = 1 No = 0	0
Total for D 2Add the points in the boxes above	2

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

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (<i>answer YES if there is a TMDL for the basin in which the unit is found</i>)? Yes = 2 No = 0	2
Total for D 3Add the points in the boxes above	3
Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page	

DEPRESSIONAL AND FLATS WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradati	on
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: points = 4 Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outletpoints = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	4
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part. Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 1 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	0
 D 4.3. <u>Contribution of the wetland to storage in the watershed</u>: <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself</i>. The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is nore than 100 times the area of the unit points = 0 Entire wetland is in the Flats class 	5
Total for D 4 Add the points in the boxes above	9
Rating of Site PotentialIf score is:12-16 = HX6-11 = M0-5 = LRecord 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	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	0
Total for D 5Add 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 provided on the pro	first page
D 6.0. Are the hydrologic functions provided by the site valuable to society?	
 D 6.1. <u>The unit is in a landscape that has flooding problems</u>. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. <u>Choose the highest score if more than one condition is met</u>. 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. <i>Explain why</i> points = 0 	2
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 = 1Flooding from groundwater is an issue in the sub-basin.points = 1The existing or potential outflow from the wetland is so constrained by human or natural conditions that the	2
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 = 1Flooding from groundwater is an issue in the sub-basin.points = 1The 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 whypoints = 0	2
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 = 1Flooding from groundwater is an issue in the sub-basin.points = 1The 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 whypoints = 0D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?plan	

HABITAT FUNCTIONS - Indicat	se questions apply to wetland ors that site functions to provi		
H 1.0. Does the site have the pote	•		
Cowardin plant classes in the w of ¼ ac or more than 10% of the Aquatic bed Emergent Scrub-shrub (areas where Forested (areas where tree If the unit has a Forested The Forested class has 3 o	etland. Up to 10 patches may be cor y unit if it is smaller than 2.5 ac. Add shrubs have > 30% cover) es have > 30% cover) class, check if: ut of 5 strata (canopy, sub-canopy, s	strata within the Forested class. Check the nbined for each class to meet the threshold the number of structures checked. 4 structures or more: points = 4 3 structures: points = 2 2 structures: points = 1 1 structure: points = 0 hrubs, herbaceous, moss/ground-cover)	0
more than 10% of the wetland Permanently flooded or in X Seasonally flooded or inum Occasionally flooded or inu X Saturated only Permanently flowing strea	es (hydroperiods) present within the or ¼ ac to count (<i>see text for descrip</i> undated dated	4 or more types present: points = 3 3 types present: points = 2 2 types present: points = 1 1 type present: points = 0	1
Different patches of the same s the species. Do not include Eu If you counted: > 19 species 5 - 19 species	ies in the wetland that cover at leas becies can be combined to meet the rasian milfoil, reed canarygrass, pu Alopecurus pratensis, Ranur Trifolium repens, Juncus effo	size threshold and you do not have to name rple loosestrife, Canadian thistle nculus repens, usus points = 1	0
the classes and unvegetated ar		points = 0 vardin plants classes (described in H 1.1), or flats) is high, moderate, low, or none. <i>If you</i> <i>e rating is always high.</i> Moderate = 2 points	0

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> 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 <i>(cut shrubs or trees that have not yet weathered where wood is exposed)</i>	1
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians)</i> X Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of otrate)	
strata) Total for H 1 Add the points in the boxes above	2

Rating of Site Potential If score is: ____**15-18 = H** ____**7-14 = M** ___**X** __**0-6 = L**

Record the rating on the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	-
<i>Calculate:</i> % undisturbed habitat <u>6</u> + [(% moderate and low intensity land uses)/2] <u>6</u> = <u>12</u> %	
If total accessible habitat is:	
> ¹ / ₃ (33.3%) of 1 km Polygon points = 3	1
20-33% of 1 km Polygon points = 2	
10-19% of 1 km Polygon points = 1	
< 10% of 1 km Polygon points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	
<i>Calculate:</i> % undisturbed habitat <u>18</u> + [(% moderate and low intensity land uses)/2] <u>12</u> = <u>30</u> %	
Undisturbed habitat > 50% of Polygon points = 3	1
Undisturbed habitat 10-50% and in 1-3 patches points = 2	
Undisturbed habitat 10-50% and > 3 patches points = 1	
Undisturbed habitat < 10% of 1 km Polygon points = 0	
H 2.3. Land use intensity in 1 km Polygon: If	
> 50% of 1 km Polygon is high intensity land use points = (-2)	-2
≤ 50% of 1 km Polygon is high intensity points = 0	
Total for H 2 Add the points in the boxes above	0
Rating of Landscape Potential If score is:4-6 = H1-3 = M X < 1 = L Record the rating on the	ne 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 scol that applies to the wetland being rated. Site meets ANY of the following criteria: points = 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 list 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 	2 s) <i>2</i> 1
Site does not meet any of the criteria abovepoints =Rating of ValueIf score is: X2 = H1 = M0 = LRecord the rating	o on the first page
	, on the just page

WDFW Priority Habitats

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

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: <u>Old-growth west of Cascade crest</u> 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. <u>Mature forests</u> 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.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
— The dominant water regime is tidal,	
— Vegetated, and	
— With a salinity greater than 0.5 ppt Yes –Go to SC 1.1 No= Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area	
Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	Cat. I
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	Cat. I
than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25)	
— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland.	
— The wetland has at least two of the following features: tidal channels, depressions with open water, or	Cat. II
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	Cat. I
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 bogNo - 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	Cat. I
plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar,	
western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the	
species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	
Yes = Is a Category I bog No = Is not a bog	

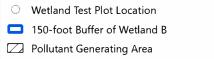
SC 4.0. Forested Wetlands	
Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA	
Department of Fish and Wildlife's forests as priority habitats? If you answer YES you will still need to rate	
the wetland based on its functions.	
— Old-growth forests (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)	Cat. I
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	Cat. II
than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).	Cat. II
— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mouved grazeland	
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 	Cat I
 Ocean Shores-Copalis: Lands west of SR 115 and SR 109 	
Yes – Go to SC 6.1 No = not an interdunal wetland for rating	
	Cat. II
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	Cat. III
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. IV
Category of wetland based on Special Characteristics	NI/A
If you answered No for all types, enter "Not Applicable" on Summary Form	N/A

Wetland name or number <u>B</u>

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Figures

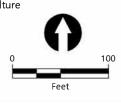




Cowardin Class

Palustrine Emergent

1. Aerial imagery: USDA (2019) NOTE: 1. USDA: United States Department of Agriculture



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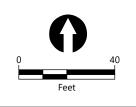
Figure 1 Cowardin Plant Classes and Area Within 150 feet of the Wetland

Wetland Rating Form - Wetland B Freeman Road Logistics



Hydroperiods Saturated

Seasonally Flooded



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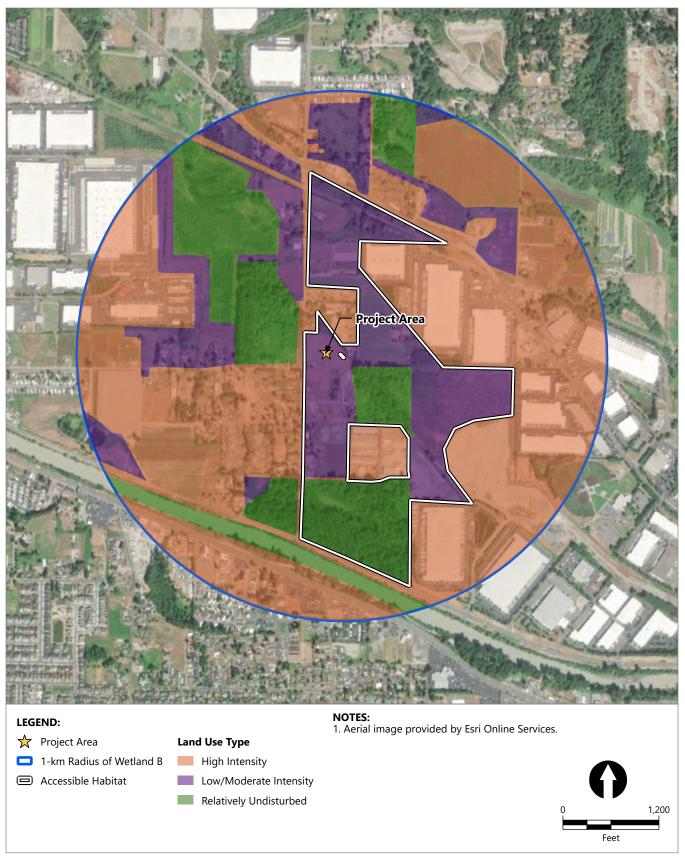


Figure 2 **Hydroperiods** Wetland Rating Form - Wetland B Freeman Road Logistics





Figure 3 **Contributing Basin** Wetland Rating Form - Wetland B Freeman Road Logistics

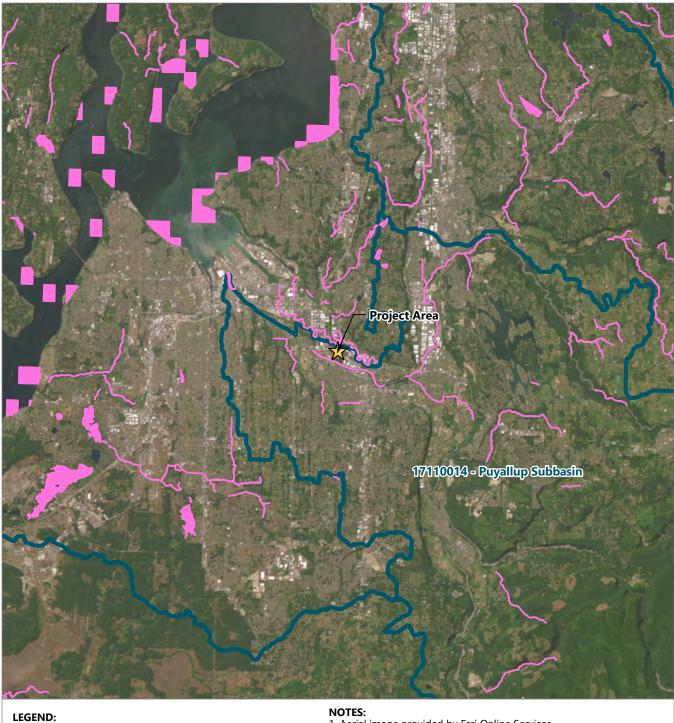


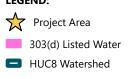
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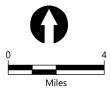
Figure 4 Land Use Intensity within 1-km of the Wetland

Wetland Rating Form - Wetland B Freeman Road Logistics





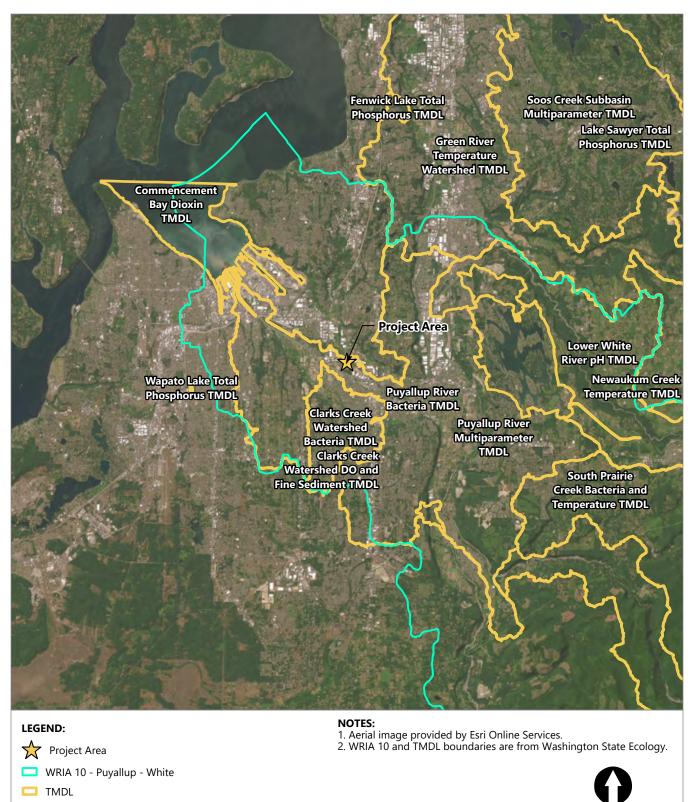
1. Aerial image provided by Esri Online Services. 2. 303(d) lised waters and HUC8 Watershed boundary from Washington State Ecology.



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Figure 5 303(d) Listed Waters Wetland Rating Form - Wetland B Freeman Road Logistics



0 Miles

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Figure 6 List of TMDLs for WRIA 10 - Puyallup - White

Wetland Rating Form - Wetland B Freeman Road Logistics