WETLAND AND STREAM ASSESSMENT REPORT

SR 167 Completion Project, Stage 1A

SR 167/70th Avenue E. Vicinity Bridge Replacement Project

Pierce County, Washington

XL-5913

PIN: 316708T (WIN:C16708T)

Prepared by

WSDOT SR 167 Completion Project

Puget Sound Gateway Program

February 27, 2019

Washington State
Department of Transportation

Note:
Some pages in this document have been purposely skipped or blank pages inserted so that this document will copy correctly when duplexed.

WETLAND AND STREAM ASSESSMENT REPORT

SR 167 Completion Project, Stage 1A

SR 167/70th Avenue E. Vicinity Bridge Replacement Project

February 27, 2019

Prepared By:

Christina Merten, PWS, Senior Ecologist and Eliza Spear, WPIT, Natural Resource Scientist
206-441-9080
Herrera Environmental Consultants, Inc.
2200 Sixth Avenue, Suite 1100
Seattle, Washington 98121

Project Engineer:

Steve Fuchs, PE, Project Manager, SR 167 Completion Project
360-357-2623
Olympic Region

Other Contributors and Role:

Darcey B. Miller, PWS
206-717-7010
Stell, Inc.
22617 76th Avenue West, Suite 205
Edmonds, Washington 98026

Executive Summary

The Washington State Department of Transportation (WSDOT) is proposing to complete the State Route (SR) 167 freeway by building approximately 4 miles of a new, four-lane limited-access facility from its current terminus in Puyallup at SR 161, through the Puyallup River Valley, and connecting to Interstate 5 (I-5) near the existing 70th Avenue East crossing over I-5. The project also includes a new, approximately 2-mile highway section, defined as the SR 509 Spur, from SR 509 near the Port of Tacoma to I-5 and SR 167 at a new interchange near 70th Avenue East. The SR 167 Completion Project is one of two large projects comprising WSDOT's Puget Sound Gateway Program. The wetland and stream delineations described in this report are within areas relevant to the Stage 1A portion of the SR 167 Completion Project, known as the SR 167/70th Avenue E. Vicinity Bridge Replacement Project (Figure ES-1).

The SR 167/70th Avenue E. Vicinity Bridge Replacement (hereafter referred to as Stage 1A) is the first stage of the SR 167 Completion Project's "Phase 1 Improvements," which encompass the entire corridor. Stage 1A of the project includes the following activities:

- Reconstructing the 70th Avenue East overcrossing, which is key to the I-5/SR 167 interchange construction in subsequent stages
- Replacing a narrow roadway segment on the existing 70th Avenue East with a new, wider roadway over I-5, which includes a shared-use path for pedestrians
- Widening SR 99 for left-turn channelization, bike lanes, drainage, planter strips, sidewalk, and a new traffic signal
- Adding a waterline from 20th Street East to SR 99
- Constructing a new trailhead parking facility for the Interurban Trail along with several hundred feet of new trail
- Partially demolishing and remodeling the building housing WSDOT's Fife Project Engineer Office (PEO)
- Constructing approximately 45,900 square feet of new bridge.

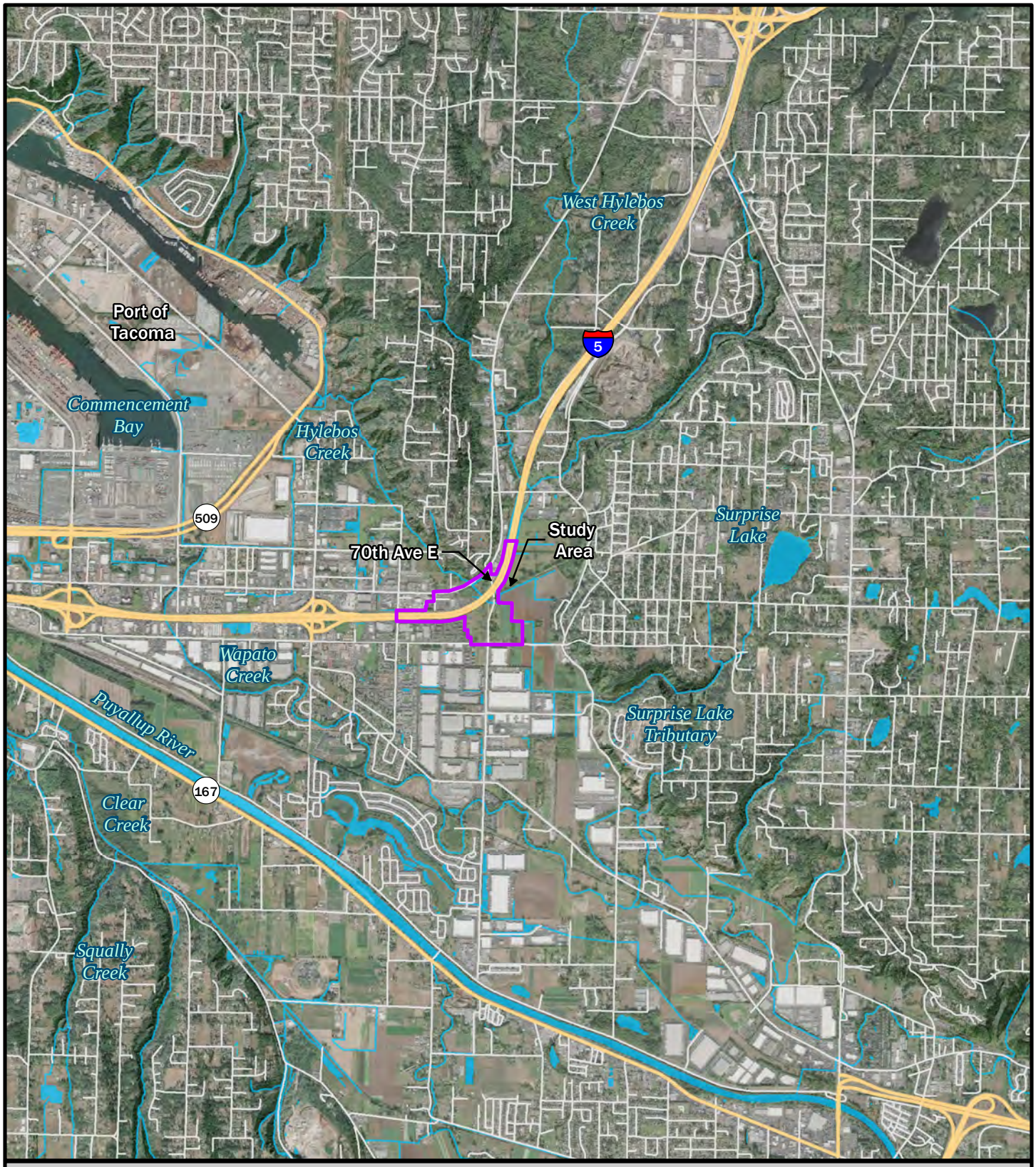
The SR 167 Completion Project area is entirely within Pierce County, Washington. The SR 167 Completion Project's Phase 1 Improvements alignment runs through the cities of Tacoma, Fife, Milton, Puyallup, and unincorporated Pierce County. The Stage 1A study area is within Pierce County, Fife, and Milton.

Wetland delineations in the study area were done according to procedures specified under the routine wetland determination method (Environmental Laboratory 1987). Wetland biologists evaluated field conditions by traversing the study area and noting wetlands, streams, and other aquatic features. Twenty-three (23) wetlands covering 98.44 acres were identified within the study area. The wetlands include palustrine forested, palustrine scrub shrub, and palustrine emergent; depressional, riverine, and slope wetland types, and are rated as Category II and III wetlands dominated by a variety of plant species as detailed in Tables 3 through 25 in this report. Wetlands in the study area typically provide a moderate level of hydrologic and water quality functionality, and a low level of habitat for wildlife. The conditions of the wetland buffers in the

study area are typically poor with high intensity land uses including paved roads and sidewalks, commercial agriculture, human transient/homeless encampments, and vegetation dominated by a mix of native and invasive species including reed canarygrass (*Phalaris arundinacea*) and Himalayan blackberry (*Rubus armeniacus*).

Five streams were identified within the study area. The streams consist of:

- Surprise Lake Tributary (Stream 01)
- Hylebos Creek (Stream 02)
- Stream 03: originates east of 70th Avenue East and west of the existing Interurban Trail parking lot and flows into Surprise Lake Tributary northeast of the parking lot
- Stream 04: a small tributary to Hylebos Creek located west of I-5 and originating north of Hylebos Creek along I-5
- Stream 05: a tributary to Surprise Lake Tributary located between 70th Avenue East and I-5.



Legend

- Study area
- Highway
- Roads
- Stream

ES-1.
Project Vicinity Map for the SR 167 Completion, Stage 1A Project Corridor.

N

0 2,000 4,000 8,000 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\Fig1_VicinityMap_WLDelineation_letter.mxd

Table of Contents

Executive Summary ..... **i**

Abbreviations and Acronyms ..... **vii**

Chapter 1. Introduction **1**

Chapter 2. Proposed Project **3**

2.1 Location *3*

2.2 Purpose and Description *3*

Stage 1A improvements include, but are not limited to the following: *3*

Chapter 3. Methods **9**

3.1 Review of Available Information *9*

3.2 Wetland Delineation *9*

3.3. Wetland Classification, Rating, and Functional Assessment *10*

3.4 Stream Delineation and Classification *11*

Chapter 4. Existing Conditions **13**

4.1 Landscape Setting *13*

4.2 Wetlands *13*

4.3 Streams *50*

4.4 Sensitive Plants, Fish, and Wildlife *58*

Chapter 5. References **59**

Figures

Figure ES-1. Project Vicinity Map for the SR 167 Completion Project, Stage 1A. iii

Figure 1. Project Vicinity Map for the SR 167 Completion Project, Stage 1A. 2

Figure 2-A. Wetlands and Streams Within the SR 167 Completion Project, Stage 1A. 5

Figure 2-B. Wetlands and Streams Within the SR 167 Completion Project, Stage 1A. 6

Figure 2-C. Wetlands and Streams Within the SR 167 Completion Project, Stage 1A. 7

Figure 3. Photos of Typical Existing Wetland Buffers. 40

Tables

Table 1. Wetlands Within the SR 167 Completion Project, Stage 1A Study Area. 14

Table 2. Evaluation of Normal Precipitation for the 3-Month Period Preceding Field Investigations. 15

Table 3. Wetland 01 Summary. 16

Table 4. Wetland 02 Summary. 17

Table 5. Wetland 03 Summary. 18

Table 6. Wetland 04 Summary. 19

Table 7. Wetland 05 Summary. 20

Table 8. Wetland 06 Summary 21
Table 9. Wetland 07 Summary. 22
Table 10. Wetland 08 Summary. 23
Table 11. Wetland 09 Summary. 24
Table 12. Wetland 10 Summary. 25
Table 13. Wetland 11 Summary. 26
Table 14. Wetland 12 Summary. 27
Table 15. Wetland 13 Summary. 28
Table 16. Wetland 14 Summary. 29
Table 17. Wetland 15 Summary. 30
Table 18. Wetland 16 Summary. 31
Table 19. Wetland 17 Summary. 32
Table 20. Wetland 18 Summary. 33
Table 21. Wetland 19 Summary. 34
Table 22. Wetland 20 Summary. 35
Table 23. Wetland 21 Summary. 36
Table 24. Wetland 22 Summary. 37
Table 25. Wetland 23 Summary. 38
Table 26. Functions and Values of the Existing Wetlands. 41
Table 27. Stream Information Summary—Stream 01 (Surprise Lake Tributary). 53
Table 28. Stream Information Summary—Stream 02 (Hylebos Creek). 54
Table 29. Stream Information Summary—Stream 03. 55
Table 30. Stream Information Summary—Stream 04. 56
Table 31. Stream Information Summary—Stream 05. 57

Appendices

Appendix A — Methods and Tools
Appendix B — Background Information
Appendix C — Plan Sheets
Appendix D — Wetland Delineation Data Sheets
Appendix E — Wetland Rating Forms
Appendix F — Wetland Functional Assessment Forms

Abbreviations and Acronyms

BPJ	best professional judgment
CZM	Coastal Zone Management
dbh	diameter at breast height
Ecology	Washington State Department of Ecology
ESA	Endangered Species Act
FAC	facultative plants
FACU	facultative upland plants
FACW	facultative wetland plants
FGDC	Federal Geographic Data Committee
FMC	Fife Municipal Code
JARPA	Joint Aquatic Resources Permit Application
HGM	hydrogeomorphic
HPA	Hydraulic Project Approval
HUC	Hydrologic Cataloging Unit
MMC	Milton Municipal Code
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate wetland plants
OHWM	ordinary high water mark
PCC	Pierce County Code
PEM	palustrine emergent
PEOs	Project Engineer Offices
PFO	palustrine forested
PSS	palustrine scrub-shrub
SIP	State Implementation Plan
SR	State Route
TMDL	Total Maximum Daily Load
UPL	Obligate upland plants
USACE	US Army Corps of Engineers

USFWS	US Fish and Wildlife Service
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WSDOT	Washington State Department of Transportation
WRIA	Water Resource Inventory Area

Chapter 1. Introduction

The wetland and stream delineations described in this report were performed for the Washington State Department of Transportation (WSDOT) in support of the State Route (SR) 167 Completion Project (hereafter referred to as the Project). The Project involves construction of approximately 4 miles of a new, four-lane limited-access highway facility from the current SR 167 terminus in Puyallup at SR 161 to a connection with I-5 near the existing 70th Avenue East crossing over I-5. The project also includes a new, approximately 2-mile highway section, defined as the SR 509 Spur, from SR 509 near the Port of Tacoma to I-5 and SR 167 at a new interchange near 70th Avenue East. The Project will be constructed in three stages, through sequential design-build contracts. The SR 167/70th Avenue E. Vicinity Bridge Replacement (hereafter referred to as Stage 1A) is the first contract stage of the Project.

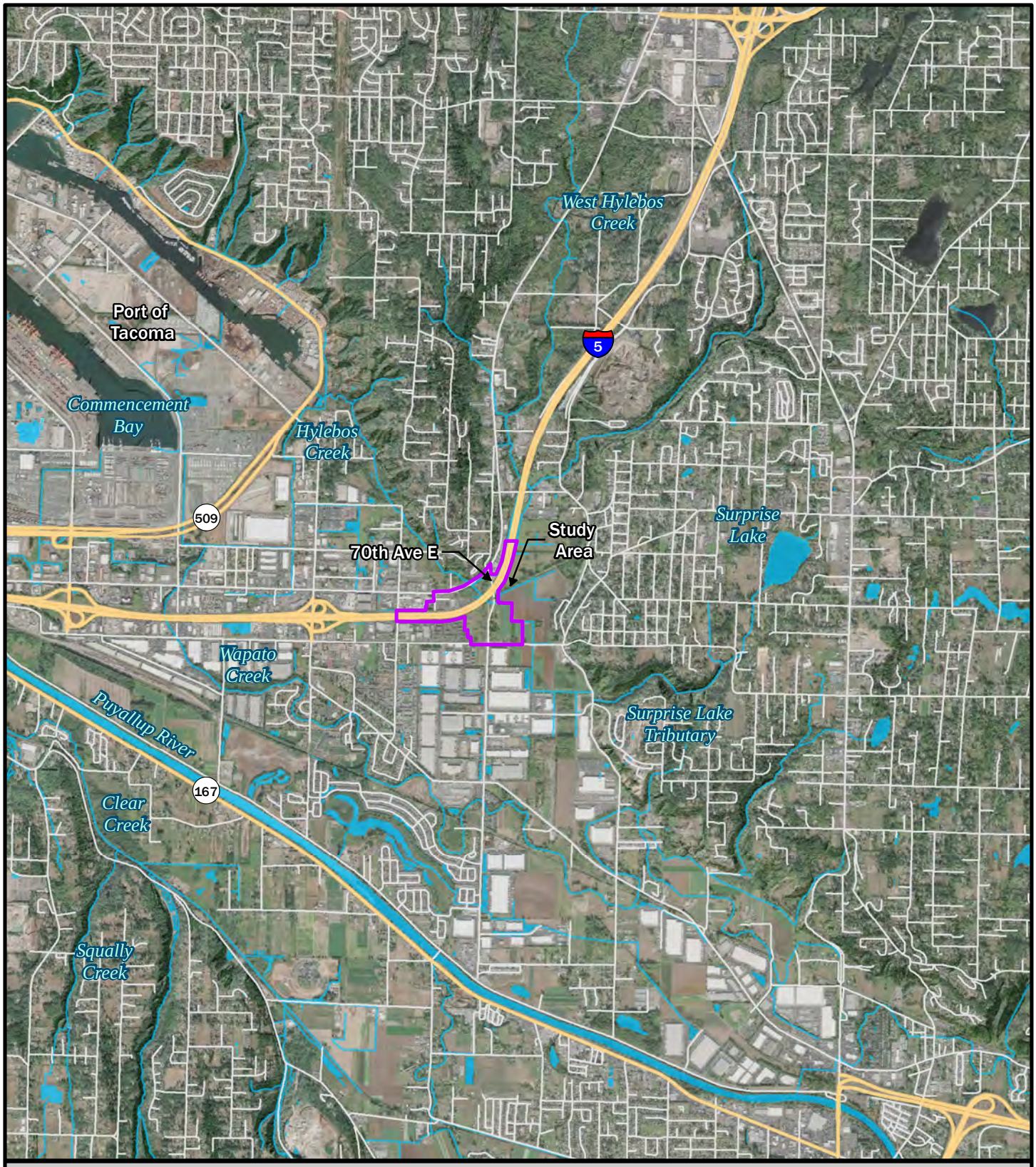
The wetland and stream delineations described in this report are within areas relevant to Stage 1A (hereafter referred to as the study area) (Figure 1).

The purpose of this report is to identify and describe wetlands and streams in the study area. This report facilitates WSDOT's efforts to:

1. Avoid or minimize impacts to wetlands and streams during the design process.
2. Document wetland and stream boundary determinations for review by regulatory authorities.
3. Provide early indications to project designers of sensitive species within the study area corridor.
4. Provide supporting documentation for wetland and stream mitigation planning and permitting.

This report will support applications for relevant permits to be obtained by WSDOT via a Joint Aquatic Resources Permit Application (JARPA). The required permits and approvals related to wetlands and streams and the associated regulatory issuing agency are as follows for Stage 1A:

- Section 404 Individual Permit, US Army Corps of Engineers (USACE)
- Section 401 Water Quality Certification, Washington State Department of Ecology (Ecology)
- Coastal Zone Management (CZM) Consistency Certification, Ecology
- Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW)
- Shoreline Substantial Development/Conditional Use Permit, City of Fife
- Land use [Critical Areas Ordinance (CAO)] permits/approval as required from City of Fife



Legend

- Study area
- Highway
- Roads
- Stream

Figure 1.
Project Vicinity Map for the SR 167 Completion, Stage 1A Project Corridor.

N

0 2,000 4,000 8,000 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\Fig1_VicinityMap_WLDelineation_letter.mxd

Chapter 2. Proposed Project

2.1 Location

The SR 167 Completion Project area is located entirely within Pierce County, Washington, Township 20 North, Ranges 3 East (Section 1) and 4 East (Sections 5, 6, 7, and 8). The Project alignment runs through the cities of Tacoma, Fife, Milton, and Puyallup, and unincorporated Pierce County. The Project is within Water Resources Inventory Area (WRIA) 10, Puyallup-White River watershed. Stage 1A is located within the Hylebos Creek basin (Figure 1) and is within the regulatory jurisdiction of the cities of Fife, Milton, and unincorporated Pierce County. Wetlands and streams delineated in the study area are shown in Figures 2-A through 2-C.

2.2 Purpose and Description

The purpose of the SR 167 Completion Project's Phase 1 Improvements is to improve regional mobility of the transportation system to serve multimodal local and port freight movement between the Puyallup termini of SR 167, SR 410, and SR 512, as well as the I-5 corridor, the SR 509 freeway, and the Port of Tacoma. The Project will reduce traffic congestion, improve safety on arterial roads and intersections in the Project vicinity, and provide improved system continuity between the existing SR 167 corridor and I-5. The Project will also maintain or improve air quality in the corridor to ensure compliance with the current State Implementation Plan (SIP) and the Clean Air Act (FHWA 2007).

Stage 1A improvements include, but are not limited to the following:

- Constructing a new four-lane 70th Avenue East bridge over I-5 with a shared-use path for pedestrians and bicyclists
- Widening of southbound and northbound I-5 in close proximity to the new bridge crossing to facilitate center pier construction in the median of I-5
- Constructing retaining walls at various locations
- Widening SR 99 in relation to the new SR 99/70th Avenue East intersection for bike lanes, drainage, planter strips, sidewalks, and a new traffic signal
- Constructing a new 12-inch waterline from 20th Street East to SR 99
- Constructing a new trailhead parking facility for the Interurban Trail along with several hundred feet of new trail
- Relocating and protecting existing utilities
- Constructing new stormwater best management practices (BMPs) for water quality treatment and flow control

- Providing signing, illumination, traffic signals, pavement markings and intelligent transportation system (ITS) components
- Demolishing part of the existing building housing the WSDOT Fife and Tacoma PEOs, remodeling the portion of the building to remain, and constructing a new street access connecting the building parking areas to SR 99, which includes new underground utilities to serve the building

Legend

- Study area
- Wetland boundary
- Wetland area
- Soil pit
- City limit

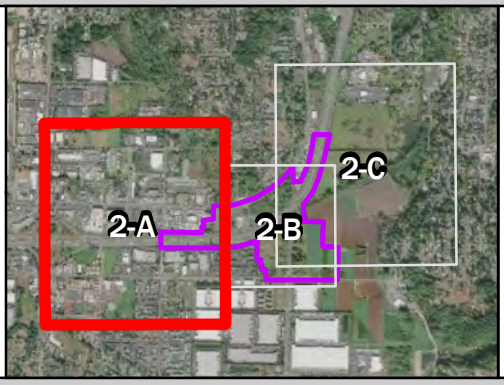


Figure 2-A.
Wetlands and Streams Within the SR 167 Completion Project, Stage 1A Project Corridor.

N

0 250 500 1,000 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\Fig2_WL_STR_ProjectCorridor_letter.mxd

Legend

- Study area
- Wetland boundary
- Estimated boundary
- Wetland area
- Stream area
- Soil pit
- City limit

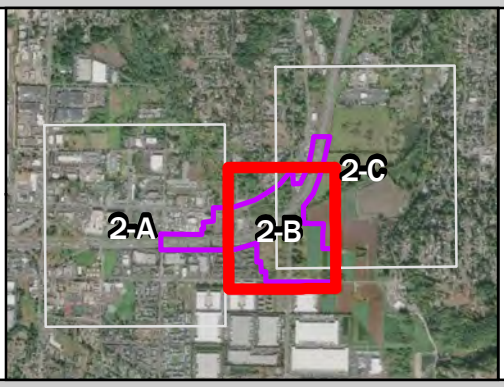


Figure 2-B.
Wetlands and Streams Within the SR 167 Completion Project, Stage 1A Project Corridor.

N

0 150 300 600 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\Fig2_WL_STR_ProjectCorridor_letter.mxd

Legend

- Study area
- Wetland boundary
- Estimated boundary
- Wetland area
- Stream area
- Soil pit
- City limit

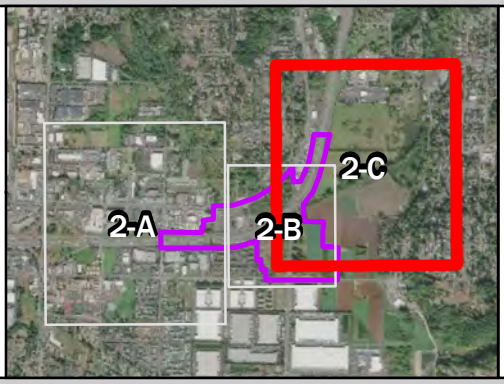


Figure 2-C.
Wetlands and Streams Within the SR 167 Completion Project, Stage 1A Project Corridor.

N

0 250 500 1,000 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\Fig2_WL_STR_ProjectCorridor_letter.mxd

Chapter 3. Methods

This chapter summarizes the methods used to comply with WSDOT, federal, state, and local guidance. More information about the methodology used in the wetland and stream delineation, classification, and rating is available in Appendix A.

3.1 Review of Available Information

Determining the presence, extent, and type of wetlands and streams on a site requires a review of available information about the site (e.g., surveys, studies) before conducting field work for onsite delineations. Biologists conducted the wetland and stream delineation in the study area for Stage 1A in accordance with the *Regional Supplement to the US Army Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region* (Environmental Laboratory 2010), which is consistent with the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987).

Herrera Environmental Consultants (Herrera) and Stell conducted a literature review to ascertain the historical and current presence of wetlands and streams within and near the study area. Sources of information included:

- Aerial photographs of the study area (Google Earth Aerial 2018) (DigitalGlobe 2017)
- National Wetlands Inventory (NWI) map of wetland areas in the study area (USFWS 2017) (Appendix B)
- Pierce County Public GIS (tax parcels and road locations) (Pierce County 2018a, 2018c)
- Hydrographic data (stream locations) for Pierce County (Pierce County 2018b)
- SalmonScape computer mapping system (WDFW 2018a)
- Washington State Priority Habitat and Species (PHS) database (WDFW 2018b)
- Washington Natural Heritage Program Data (WDNR 2018)
- Climate and precipitation data (NRCS 2018a)
- Soil survey maps for the study area (NRCS 2018b) (Appendix B)
- Soil descriptions for the study area (NRCS 2018c, 2018d)
- Pierce County topographic data (Pierce County 2011) (Appendix B).

3.2 Wetland Delineation

Precipitation characteristics in the weeks and months preceding wetland delineation work for the project are important to understand with respect to potential for drier- or wetter-than-normal conditions on the site. Nearby precipitation gage records were evaluated for that purpose. Precipitation results are discussed in Section 4.2.1, and methods of analysis are further explained in Appendix A.

Wetland delineations in the study area were conducted in accordance with procedures specified under the routine wetland determination method (Environmental Laboratory 1987). Wetland biologists evaluated field conditions by traversing the study area and noting wetlands, streams, and other aquatic features in July, August, September, and November of 2018. A test plot was established for each area that appeared to have potential wetland characteristics. Biologists also analyzed the conditions in adjacent uplands. Based on collected data, a determination of wetland or upland was made for each area examined.

Following confirmation of wetland conditions in a given area, biologists delineated the wetland boundary by placing sequentially numbered, pink flagging along the wetland perimeter. Test plot locations were marked with orange flagging. The wetland boundary and test plot flags were subsequently located by a WSDOT survey crew and are included in plan sheets provided in Appendix C.

The conditions of wetland buffers in the study area were qualitatively assessed using the following criteria:

- Dominant land use (e.g., agriculture, residential, commercial, industrial).
- Dominant buffer vegetation type (tree, shrub, herb, vine, unvegetated).
- Presence of invasive plants.

3.3. Wetland Classification, Rating, and Functional Assessment

3.3.1 Wetland Classification

Wetlands delineated in the study area were classified according to the US Fish and Wildlife Service (USFWS) classification system (FGDC 2013), which is based on an evaluation of attributes such as vegetation class, hydrologic regime, salinity, and substrate. The wetlands were also classified according to the hydrogeomorphic system (Brinson 1993), which is based on an evaluation of attributes such as the position of the wetland within the surrounding landscape.

3.3.2 Wetland Rating

Wetlands were evaluated using the Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby 2014) because it is approved by Ecology for evaluating wetlands in Washington and because it is required by Pierce County Policy (Policy Number RM2015-2), the City of Fife (FMC 17.17.010), and the City of Milton (MMC 18.16.310). The Ecology rating system (Hruby 2014) generates scores for each wetland function. Using the scores, a qualitative functional rating (high, moderate, or low) was derived for each of the functions (water quality, hydrology, and habitat) provided by each delineated wetland.

3.3.3 Wetland Functional Assessment

Wetlands were evaluated using the Wetland Functions Characterization Tool for Linear Projects (hereafter referred to as BPJ Tool) (WSDOT 2000). The BPJ Tool (WSDOT 2000) evaluates

wetlands in a consistent, yet rapid manner for routine application on linear highway projects based on best professional judgement (BPJ).

3.4 Stream Delineation and Classification

Herrera and Stell delineated the ordinary high water marks (OHWMs) of stream channels within the study area using the definition provided in the WAC, Section 222-16-010, which has been adopted by Pierce County, the City of Fife, and the City of Milton. In addition, methods in the publication *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016) were applied.

Herrera and Stell placed white flags with blue dots, or blue pin flags, on the site, indicating the horizontal and vertical location of the OHWM along the streams. These flags were subsequently located by a WSDOT survey crew and the resultant OHWM of the streams are included in plan sheets provided in Appendix C.

Streams were classified in Pierce County (PCC 18E.40.60), the City of Fife (FMC 17.15.040), and the City of Milton (MMC 18.16.620) per Washington State Department of Natural Resources water typing system based on WAC 222-16-030.

Chapter 4. Existing Conditions

4.1 Landscape Setting

The study area is located in the lower Puyallup River Valley within the Puget Sound lowlands. Commencement Bay is to the northwest in the Puget Sound. The headwaters of the Puyallup River originate from glaciers on the north and west sides of Mount Rainier. The Carbon River and the White River are the two main tributaries to the Puyallup River as it flows towards the bay. The Project is located in the lower extent of WRIA 10 Puyallup-White in the Hylebos Creek Frontal Commencement Bay and Puyallup River Hydrologic Cataloging Units (HUCs) (Ecology 2018) (USDA, NRCS, and USGS 2018). Surface water in the area flows through the Lower Puyallup Basin, the Wapato Basin, and the Hylebos basin before entering Commencement Bay via the Hylebos and Blair Waterways in the Port of Tacoma (WSDOT 2016). Stage 1A is located entirely in the Hylebos Basin.

The study area is in a flat valley where soils were historically formed from deposited river alluvium. The study area is surrounded by dense industrial, commercial, and residential developments as well as agricultural land use (WSDOT 2016).

The vegetation and hydrology in the study area have been impacted by the surrounding land use activities. Vegetation is largely disturbed amid a variety of upland, wetland, riparian, and stream habitats. These habitats contain a mix of native and nonnative trees, shrubs, and herbaceous vegetation. The eastern edge of the study area has been used for agricultural crop production for decades. Hydrology in the study area has been altered by the placement of fill material and the rerouting of surface water through agricultural and roadside ditches. Land development in the Project corridor is ongoing, and likely to have continued impacts on vegetation and hydrology in the study area (WSDOT 2016).

4.2 Wetlands

4.2.1 Overview

Appendix B includes wetland inventory maps (NWI 2018), topographic maps (Pierce County 2011), and a soil survey map (NRCS 2018). Appendices D, E, and F document the delineation of each wetland, including wetland delineation data sheets and wetland functional assessment forms. Table 1 summarizes the wetlands within the study area. Tables 3 through 25 provide additional details on each wetland. See Section 4.2.3 for additional information on wetland functions and Appendices E and F for detailed function and value information. Wetlands and streams delineated in the study area are shown in Figures 2-A through 2-C.

Precipitation characteristics in the weeks and months preceding wetland delineation work for the project are important to understand with respect to potential for drier- or wetter-than-normal conditions on the site. Nearby precipitation gage records were evaluated for that purpose. Precipitation data were obtained from the Natural Resources Conservation Service (NRCS) WETS database (NRCS 2018a). The historical average measurements were based on data collected in Tacoma, Washington (WETS Station Tacoma No. 1) for the period of record 1981 to 2010. The station is approximately 2 miles west of the study area.

Table 1. Wetlands Within the SR 167 Completion Project, Stage 1A Study Area.

Wetland[a]	Wetland Classification				Wetland Size (acres)	Regulated Buffer Width (feet)
	Cowardin[b]	HGM	Ecology[c]	Local Jurisdiction		
W01	PEM	Slope/Depressional	III	III	2.30	60[e]
W02	PFO, PSS, PEM	Depressional	II	II	9.00	165[e]
W03	PEM	Slope/Depressional	II	II	0.63	105[e]
W04	PEM, PSS, PFO	Depressional	III	III	13.19	105[e]
W05	PEM	Depressional	III	III	0.15	105[e]
W06	PEM	Slope/Riverine	III	III	0.03	80[d]
W07	PFO, PEM	Slope/Depressional	III	III	0.04	165[e]
W08	PEM	Depressional	III	III	0.05	60[e]
W09	PEM	Slope/Depressional	III	III	0.07	105[e]
W10	PFO, PEM	Depressional	III	III	0.13	60[e]
W11	PFO	Depressional	III	III	0.07	60[e]
W12	PEM	Slope/Depressional	III	III	0.02	105[e]
W13	PEM	Depressional	III	III	0.004 (193.17 square feet)	105[e]
W14	PEM	Slope/Depressional	III	III	0.01	105[e]
W15	PEM	Slope/Depressional	III	III	0.61	105[e]
W16	PFO, PSS	Depressional	III	III	0.30	105[e]
W17	PFO, PEM	Depressional	II	II	71.10[f]	150/165[d,g]
W18	PSS	Depressional	III	III	0.02	60[e]
W19	PEM, PFO	Depressional	III	III	0.12	60[e]
W20	PEM	Slope/Depressional	III	III	0.04	80[d]
W21	PSS, PEM	Depressional	II	II	0.04	150[d]
W22	PEM	Slope/Depressional	III	III	0.02	80[d]
W23	PEM	Slope/Depressional	III	III	0.52	80[d]
				Total:	98.44	

[a] Wetland locations from beginning to end.

[b] Federal Geographic Data Committee (FGDC 2013) or National Wetland Inventory (NWI) Class based on vegetation: PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub; PFO = Palustrine Forested.

[c] Ecology rating according to Hruby (2014), which is consistent with local jurisdiction requirements in Pierce County, the City of Fife, and the City of Milton

[d] Wetland buffer width according to Pierce County Wetland Ordinance (PCC 18E.20.020; Pierce County 2015)

[e] Wetland buffer width according to the City of Fife Wetlands Ordinance (FMC 17.17.010)

[f] Total acreage of Wetland 17 includes 68.88 acres outside of the Stage IA study area.

[g] Wetland buffer width according to the City of Milton Wetlands Ordinance (MMC 18.16.310).

Precipitation was evaluated for a 3-month period prior to field investigations, which occurred in July, August, September, and November of 2018. In the months preceding field investigations, measured rainfall for April and September 2018 was wetter than normal; May, June, July, August, and November 2018 were drier than normal; and October 2018 was normal. The

resultant conditions during field investigations were drier than normal in June, July, August, and September, and normal in October and November (Table 2).

Table 2. Evaluation of Normal Precipitation for the 3-Month Period Preceding Field Investigations.

Prior Month	WETS Rainfall Percentile (inches)		Measured Rainfall (inches)	Condition: Dry, Wet, Normal
	30th	70th		
2018				
April	1.98	3.54	5.81	Wet
May	1.15	2.5	0.09	Dry
June	1.00	1.89	0.69	Dry
July	0.28	0.81	0.02	Dry
August	0.31	0.95	0.12	Dry
September	0.59	1.47	1.55	Wet
October	2.22	4.33	3.96	Normal
November	4.59	7.79	4.09	Dry

Table 3. Wetland 01 Summary.

WETLAND 01 – INFORMATION SUMMARY			
Location	North side of I-5, from approximately 54th Avenue East, east to 65th Avenue East		
Date(s) Evaluated	7/13/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Ratings (Hruby 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Widths	60 feet
		Wetland Size	2.30 acres
		Cowardin Classification	PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W01-SP1
		Upland Data Sheet(s)	Appendix D: W01-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 01 (W01) contains a palustrine emergent vegetation community dominated by reed canarygrass (*Phalaris arundinacea*), creeping buttercup (*Ranunculus repens*), and velvet grass (*Holcus lanatus*). The portion of Wetland 01 within the Stage 1A project area is mowed, while some of the areas farther west are not.		
Soils	Soils for the palustrine emergent portion of W01 are described in the data form W01-SP1, and the nearby buffer is described in the data form W01-SP2. Soils in W01 meet hydric soil indicators for redox dark surface (F6). Soils in W01 are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Soils were saturated to the surface and the water table was observed at 14 inches below ground surface at the time of the field delineation. Stormwater runoff and precipitation are the dominant sources of hydrology to this wetland, although some groundwater is also likely.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands, per FMC 17.17.020.		
Wetland Functions Summary[a]			
Water Quality	W01 has a moderate potential to improve water quality at the site due to its depressional HGM class and dense, herbaceous vegetation.		
Hydrologic	W01 has a high potential to reduce flooding and stream degradation because it is depressional (although open) and receives stormwater inputs.		
Habitat	W01 has a low to moderate potential to provide habitat functions for wildlife because it has only one Cowardin class and a low diversity of plant species.		
Buffer Condition	The wetland buffer condition is poor, consisting of a narrow, mowed strip of grass with I-5 on one side and commercial development on the other side. The buffer is also disturbed by the presence of human encampments.		

Table 4. Wetland 02 Summary.

WETLAND 02 – INFORMATION SUMMARY			
Location	South of I-5 and west of 70th Avenue East		
Date(s) Evaluated	7/17/18, 7/18/18, 8/13/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	II
		City of Fife Rating	II
		City of Fife Buffer Width	165 feet
		Wetland Size	9.00 acres
		Cowardin Classification	PFO, PSS, PEM
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W02-SP1, W02-SP2, W02-SP4, W02-SP5
		Upland Data Sheet(s)	Appendix D: W02-SP3
		Flag Color	Pink
Dominant Vegetation	Wetland 02 (W02) contains palustrine emergent, scrub-shrub and forested communities. Emergent vegetation is dominated by reed canarygrass, redtop (*Agrostis gigantea*), common velvetgrass, tall fescue (*Schedonorus arundinaceus*), field horsetail (*Equisetum arvense*), irises (*Iris* spp.), and Canada thistle (*Cirsium arvense*). Scrub-shrub communities are dominated by domestic apple (*Malus* spp.), Himalayan blackberry (*Rubus armeniacus*), and red-osier dogwood (*Cornus sericea*). Forested communities are dominated by Scouler's willow (*Salix scouleriana*), and black cottonwood (*Populus balsamifera*).		
Soils	Soils in the palustrine emergent portion of the wetland are described in the data forms, W02-SP2 and W02-SP4. Soils for the palustrine scrub shrub portion of the wetland are described in the data form, W02-SP5. Soils for the palustrine forested portion of the wetland are described in the data form, W02-SP5. Soils in W02 meet hydric soil indicators for depleted matrix (F3). Soils in W02 are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Soils were not saturated during the site visit. Oxidized rhizospheres along living roots (C3) were present. Groundwater and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W02 has a moderate potential to improve water quality at the site due to its depressional HGM class; closed depressional system; and dense, herbaceous vegetation.		
Hydrologic	W02 has a moderate potential to reduce flooding and stream degradation due to the irregularity of flooding and its closed depressional system.		
Habitat	W02 has a moderate potential to provide habitat functions for wildlife because it has a high interspersion of Cowardin classes and diversity of plant species.		
Buffer Condition	The condition of the buffer surrounding W02 is poor. The buffer is highly developed, consisting of roads, residential development and noxious weed species. The buffer is disturbed by the presence of human encampments.		

Table 5. Wetland 03 Summary.

WETLAND 03 – INFORMATION SUMMARY			
Location	North side of I-5, from approximately 65th Avenue East, east of WSDOT floodplain mitigation site		
Date(s) Evaluated	7/19/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category II
		City of Fife Rating	Category II
		City of Fife Buffer Width	105 feet
		Wetland Size	0.63 acre
		Cowardin Classification	PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W03-SP1
		Upland Data Sheet(s)	Appendix D: W03-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 03 (W03) contains a palustrine emergent vegetation community dominated by reed canarygrass and field horsetail. Some Himalayan blackberry and Canada thistle are also present.		
Soils	Soils in the palustrine emergent portion of W03 are described in the data form W03-SP1, and the nearby upland buffer is described in the data form for W03-SP2. Soils in W03 meet hydric soil indicators for depleted below dark surface (A11). Soils in W03 are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Soils were not saturated during the site visit. Oxidized rhizospheres along living roots (C3) were present. Stormwater runoff and precipitation are the dominant sources of hydrology to this wetland, although some groundwater input is also likely.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W03 has a moderate potential to improve water quality at the site due to its depressional HGM class and dense, herbaceous vegetation.		
Hydrologic	W03 has a high potential to reduce flooding and stream degradation due to the fact that it is depressional (although open), and that it receives stormwater inputs.		
Habitat	W03 has a low to moderate potential to provide habitat functions for wildlife because it has only one Cowardin class and a low diversity of plant species.		
Buffer Condition	The wetland buffer condition is poor, consisting of a narrow, mowed strip of grass with I-5 on one side and commercial development on the other side. The buffer is also disturbed by the presence of human encampments.		

Table 6. Wetland 04 Summary.

WETLAND 04 – INFORMATION SUMMARY			
Location	East of 70th Avenue East, north, east, and south of the Interurban trailhead parking lot		
Date(s) Evaluated	8/1/18, 8/13/18, 11/28/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	105 feet
		Wetland Size	13.19 acres
		Cowardin Classification	PEM, PSS, PFO
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W04-SP1, W04-SP2, W04-SP3, W04-SP4, W04-SP6, W04-SP7, W04-SP8, W04-SP9
		Upland Data Sheet(s)	Appendix D: W04-SP5, W04-SP10, W04-SP11
		Flag Color	Pink
Dominant Vegetation	Wetland 04 (W04) contains palustrine emergent, scrub-shrub, and forested communities covering approximately 30 percent of the wetland. W04 also contains cropped agricultural land that was planted with iceberg lettuce and cabbage at the time of delineation. Emergent vegetation is dominated by reed canarygrass and field horsetail. Scrub-shrub communities are dominated by Himalayan blackberry. Forested communities are dominated by hooker's willow (*Salix hookeriana*), Scouler's willow, Sitka willow (*Salix sitchensis*), and black cottonwood.		
Soils	Soils in the palustrine emergent portion of W04 are described in the data forms W04-SP1, W04-SP2, and W04-SP3. Soils in the palustrine scrub shrub portion of W04 are described in the data form W04-SP6. Soils in the palustrine forested portion of the wetland are described in the data form W04-SP4. Soils in W04 meet hydric soil indicators for depleted below dark surface (A11), redox dark surface (F6) and depleted matrix (F3). Soils in W04 are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Soils were not saturated during the August site visit. Oxidized rhizospheres along living roots (C3) were present at that time. Groundwater and precipitation are the dominant sources of hydrology to this wetland. During the November site visit, soil saturation and groundwater were both observed within 12 inches of the soil surface.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W04 has a moderate potential to improve water quality at the site due to its depressional HGM class; highly constricted outlet; and dense, herbaceous vegetation.		
Hydrologic	W04 has a high potential to reduce flooding and stream degradation due to a constricted outlet, which increases storage during flood events, and stormwater inputs.		
Habitat	W04 has a low potential to provide habitat functions for wildlife despite its interspersion of Cowardin classes because it is surrounded by a highly developed landscape.		
Buffer Condition	The condition of the buffer surrounding W04 is poor. The buffer is highly developed, consisting of roads, a paved trail, and conventional agriculture. The buffer is disturbed by the presence of human encampments.		

Table 7. Wetland 05 Summary.

WETLAND 05 – INFORMATION SUMMARY	
Location	North of I-5, south of SR 99 and Hylebos Creek, west of 70th Avenue East overpass
Date(s) Evaluated	8/1/18

Local Jurisdiction	Fife, WA
WRIA	10: Puyallup-White
Ecology Ratings (Hruby 2014)	Category III
City of Fife Rating	Category III
City of Fife Buffer Width	105 feet
Wetland Size	0.15 acre
Cowardin Classification	PEM
HGM Classification	Depressional
Wetland Data Sheet(s)	Appendix D: W05-SP1
Upland Data Sheet(s)	Appendix D: W05-SP2
Flag Color	Pink

Dominant Vegetation	Wetland 05 (W05) contains a palustrine emergent vegetation community dominated by reed canarygrass, giant horsetail (*Equisetum telmateia*), fringed willow herb (*Epilobium ciliatum*), Canada thistle, and creeping buttercup.
Soils	Soils in the palustrine emergent portion of W05 are described in the data form W05-SP1, and the nearby buffer is described in the data form W05-SP2. Soils in W05 meet hydric soil indicators for redox dark surface (F6). Soils are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.
Hydrology	Secondary hydrology indicators including water-stained leaves (B9) and geomorphic position (D2) were observed during delineation. Wetland hydrology was assumed during early growing season based on secondary indicators. Stormwater runoff and precipitation are dominant sources of hydrology to this wetland.
Rationale for Delineation	All three wetland parameters were met.
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands, per FMC 17.17.020.
Wetland Functions Summary	
Water Quality	W05 has a moderate potential to improve water quality at the site due to its closed depressional HGM class; dense, herbaceous vegetation; and seasonal ponding.
Hydrologic	W05 has a high potential to reduce flooding because it is in a closed depression, and is in a highly developed area with potential for flooding.
Habitat	W05 has a low potential to provide habitat functions for wildlife because it has only one Cowardin class and a low diversity of plant species, is only seasonally inundated, and is in a highly developed area.
Buffer Condition	Buffer condition is moderate to poor, consisting of native and nonnative vegetation including horse chestnut (*Aesculus hippocastanum*), English walnut (*Juglans regia*), redwood (*Sequoia sempervirens)*, beaked hazelnut (*Corylus cornuta*), Indian plum (*Oemleria cerasiformis*), fruit trees, English ivy (*Hedera helix*), Canada thistle, and stinging nettle (*Urtica dioica*). The buffer is also disturbed by the presence of human encampments and associated footpaths and trash.

Table 8. Wetland 06 Summary

WETLAND 06 – INFORMATION SUMMARY	
Location	West of I-5, east and adjacent to Hylebos Creek, and south of the Hylebos I-5 crossing
Date(s) Evaluated	8/2/18

Local Jurisdiction	Unincorporated Pierce County, WA
WRIA	10: Puyallup-White
Ecology Rating (Hruby 2014)	Category III
Unincorporated Pierce County Rating	Category III
Unincorporated Pierce County Buffer Width	80 feet
Wetland Size	0.03 acre
Cowardin Classification	PEM
HGM Classification	Slope/Riverine
Wetland Data Sheet(s)	Appendix D: W06-SP1
Upland Data Sheet(s)	Appendix D: W06-SP2
Flag Color	Pink

Dominant Vegetation	Wetland 06 (W06) contains a palustrine emergent vegetation community dominated by reed canarygrass, common rush (*Juncus effusus*), climbing nightshade (*Solanum dulcamara*), western lady fern (*Athyrium cyclosorum*), yellow-flag iris (*Iris pseudacorus*), creeping buttercup, and bird's-foot trefoil (*Lotus corniculatus*).
Soils	Soils in W06 are described in the data form W06-SP1, and the nearby buffer is described in the data form W06-SP2. Soils in W06 meet hydric soil indicators for redox dark surface (F6). Nearby upland soils did not meet hydric requirements. Soils in W06 are mapped by the NRCS (2018b) as Tisch silt (north portion of WL) and Sultan silt loam (south portion), both of which are hydric.
Hydrology	Soils were saturated to the surface and inundated in areas at the time of field delineation. Flooding from Hylebos Creek and stormwater runoff are the dominant sources of hydrology to this wetland.
Rationale for Delineation	All three wetland parameters were met.
Rationale for Local Rating	Pierce County uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per Policy RM2015-2, which updates Pierce County Code (PCC) 18E.30.020.D.
Wetland Functions Summary[a]	
Water Quality	W06 has a moderate potential to improve water quality at the site due to the presence of some depressions and its dense herbaceous vegetation.
Hydrologic	W06 has a moderate potential to reduce flooding and stream degradation due to its width, dense herbaceous vegetation, and landscape position.
Habitat	W06 has a low potential to provide habitat functions for wildlife because it has only one Cowardin class, a low diversity of plant species, is only seasonally flooded, and is located in a highly developed area.
Buffer Condition	The wetland buffer condition is poor. The east side consists of a chainlink fence, then a narrow, mowed strip of grass, then I-5. The wetland contains Hylebos Creek, and to the west is a commercial development.

Table 9. Wetland 07 Summary.

WETLAND 07 – INFORMATION SUMMARY			
Location	SW of the intersection of SR 99 and 70th Avenue East overpass, north side of Hylebos Creek		
Date(s) Evaluated	8/3/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	165 feet
		Wetland Size	0.04 acre
		Cowardin Classification	PFO, PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W07-SP1, W07-SP2
		Upland Data Sheet(s)	Appendix D: W07-SP3
		Flag Color	Pink
Dominant Vegetation	The eastern side of Wetland 07 contains a palustrine forested vegetation community dominated by black cottonwood. The western side of Wetland 07 contains palustrine emergent vegetation community dominated by reed canarygrass and jewelweed (*Impatiens capensis*).		
Soils	Soils in the palustrine forested portion of the wetland are described in data form W07-SP1. Soils in the palustrine emergent portion of the wetland are described in data form W07-02. The nearby buffer is described in the data form W07-SP3. Soils in the wetland meet hydric soil indicators for hydrogen sulfide (F4). Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Soils were saturated to the surface and the water table was observed at 7 inches below ground surface (see data forms in Appendix D) at the time of field delineation. Stormwater runoff and precipitation are the dominant sources of hydrology to this wetland, and a pipe under SR 99 likely directs water to the wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands, per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W07 has a moderate to high potential to improve water quality at the site due to its landscape position (by roads) and dense herbaceous vegetation that can filter water prior to it flowing into Hylebos Creek		
Hydrologic	W07 has a moderate potential to reduce flooding and stream degradation due to the landscape position (adjacent to Hylebos Creek) and its dense vegetation.		
Habitat	W07 has moderate potential to provide habitat functions for wildlife because it is not extremely fragmented, connects to other habitats, and has moderate plant diversity.		
Buffer Condition	The wetland buffer condition to the north and east is poor, consisting of fill slopes associated with SR 99 and 70th Avenue East. To the south is a higher-quality buffer consisting of Hylebos Creek, which is vegetated with a mix of willows, Himalayan blackberry, and reed canarygrass. To the west is the north bank of Hylebos Creek, which is adjacent to the SR 99 fill slope.		

Table 10. Wetland 08 Summary.

WETLAND 08 – INFORMATION SUMMARY			
Location	East of 70th Avenue East and north of 20th Street East		
Date(s) Evaluated	8/2/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby 2014)	Category III
		City of Fife Rating	Category IIII
		City of Fife Buffer Width	60 feet
		Wetland Size	0.05 acre
		Cowardin Classification	PEM
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W08-SP2
		Upland Data Sheet(s)	Appendix D: W08-SP1
		Flag Color	Pink
Dominant Vegetation	Wetland 08 (W08) contains palustrine emergent communities dominated by reed canarygrass, common rush, and climbing nightshade.		
Soils	Soils in W08 are described in data form W08-SP2. The nearby upland soils are described in W08-SP1. Soils in the wetland meet the hydric soil indicator for depleted matrix (F3). Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Soils in W08 were not saturated during the site visit. Oxidized rhizospheres along living roots (C3) were present. Groundwater and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands, per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W08 has a low to moderate potential to improve water quality due to its depressional HGM class, unconstricted outlet, and dense, herbaceous vegetation.		
Hydrologic	W08 has a moderate potential to reduce flooding and stream degradation due to its storage capacity, unconstricted outlet, and stormwater inputs.		
Habitat	W08 has a low potential to provide habitat functions for wildlife because it has no interspersion of Cowardin classes, only one hydroperiod, and highly developed surroundings.		
Buffer Condition	The wetland buffer condition is poor, consisting primarily of fill slopes associated with 70th Avenue East and a paved sidewalk in all directions.		

Table 11. Wetland 09 Summary.

WETLAND 09 – INFORMATION SUMMARY			
Location	Northwest side of I-5, extending from Surprise Lake Tributary northeast to 70th Avenue East overpass		
Date(s) Evaluated	8/3/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Ratings (Hruby 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	105 feet
		Wetland Size	0.07 acre
		Cowardin Classification	PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W09-SP1
		Upland Data Sheet(s)	Appendix D: W09-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 09 (W09) contains a palustrine emergent vegetation community dominated by reed canarygrass, creeping buttercup, common rush, and Himalayan blackberry. Wetland may be mowed periodically by WSDOT.		
Soils	Soils in W09 are described in the data form W09-SP1, and the nearby buffer is described in the data form W09-SP2. All data forms are included in Appendix D. Soils in W09 meet hydric soil indicators for redox dark surface (F6). Soils in W09 are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Secondary hydrology indicators including geomorphic position (D2), vegetation meeting the FAC-neutral test (D5), drainage patterns (B10), and water-stained leaves (B9) were observed during delineation. Inundation was later seen during an October 2018 site visit. Stormwater runoff and precipitation are the dominant sources of hydrology to this wetland. Flooding from Surprise Lake Tributary also occurs in just the southwest end.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands, per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W09 has a moderate potential to improve water quality at the site due to its depressional HGM class; intermittently flowing outlet; persistent, ungrazed plants; and seasonal ponding.		
Hydrologic	W09 has a high potential to reduce flooding and stream degradation due to its depressional HGM class, depth of storage, and downstream flooding.		
Habitat	W09 has a low to moderate potential to provide habitat functions for wildlife because it has only one Cowardin class and a low diversity of plant species, is only seasonally inundated, and is located in a highly developed area.		
Buffer Condition	The buffer condition on the southeast side is poor, consisting of a narrow, mowed strip of grass between the wetland and I-5. The southwest side contains Himalayan blackberry and a fence, to the northwest of which are relatively undeveloped areas that contain human encampments.		

Table 12. Wetland 10 Summary.

WETLAND 10 – INFORMATION SUMMARY			
Location	East of 70th Avenue East and north of 20th Street East, south of the Interurban trailhead parking lot		
Date(s) Evaluated	8/8/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	60 feet
		Wetland Size	0.13 acre
		Cowardin Classification	PFO, PEM
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W10-SP1
		Upland Data Sheet(s)	Appendix D: W10-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 10 (W10) contains palustrine forested and emergent vegetation communities. The forested vegetation community is dominated by black cottonwood. The emergent vegetation community is dominated by reed canarygrass.		
Soils	Soils in the palustrine forested and palustrine emergent vegetation community are described in the data form W10-SP1. Soils in W10 meet the hydric soil indicator for depleted matrix (F3). Soils in W10 are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Soils in W10 were not saturated during the site visit. Oxidized rhizospheres along living roots (C3) were present. Groundwater and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W10 has a moderate potential to improve water quality at the site due to its depressional HGM class; intermittently flowing outlet; and dense, herbaceous vegetation.		
Hydrologic	W10 has a high potential to reduce flooding and stream degradation due to its depressional HGM class, intermittently flowing outlet, and stormwater inputs.		
Habitat	W10 has a low potential to provide habitat for wildlife due to its low interspersion of Cowardin classes, low variety of hydroperiods, and its highly developed surroundings.		
Buffer Condition	The condition of the buffer surrounding W10 is poor. A forested plant community that includes noxious weed species is to the north; commercial agricultural land is to the east; W16 and a mix of ornamental, native, and noxious weed species are to the south; and 70th Avenue East is to the west.		

Table 13. Wetland 11 Summary.

WETLAND 11 – INFORMATION SUMMARY			
Location	West of 70th Avenue East across from the Interurban trailhead parking lot		
Date(s) Evaluated	8/13/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	60 feet
		Wetland Size	0.07 acre
		Cowardin Classification	PFO
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W11-SP1
		Upland Data Sheet(s)	Appendix D: W11-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 11 (W11) contains forested communities dominated by black cottonwood and reed canarygrass.		
Soils	Soils are described in the data form, W11-SP1. Soils in the wetland meet hydric soil indicators for depleted matrix (F3). Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loams, which are hydric. Upland soils are described in data form W11-SP2, which is included in Appendix D. Soils in W11-SP2 did not exhibit hydric soil characteristics.		
Hydrology	Soils were not saturated during the site visit. Oxidized rhizospheres along living roots (C3) were present. Groundwater and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W11 has a moderate potential to improve water quality at the site due to its depressional HGM class, intermittently flowing outlet, and dense vegetation.		
Hydrologic	W11 has a high potential to reduce flooding and stream degradation due to its water storage capacity, intermittently flowing outlet, and stormwater inputs from adjacent roads.		
Habitat	W11 has a low potential to provide habitat functions for wildlife because it has no interspersion of Cowardin classes and low variety in hydroperiods.		
Buffer Condition	The condition of the buffer surrounding W11 is poor. A mix of native and noxious weed species are to the north; 70th Avenue East is to the east and south, and an unpaved access road and stormwater ponds are to the west.		

Table 14. Wetland 12 Summary.

WETLAND 12 – INFORMATION SUMMARY			
Location	Located along west side of small access road west of 70th Avenue East, across from trailhead		
Date(s) Evaluated	8/7/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	105 feet
		Wetland Size	0.02 acre
		Cowardin Classification	PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W12-SP1
		Upland Data Sheet(s)	Appendix D: W12-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 12 (W12) contains a palustrine emergent class dominated by reed canarygrass, field horsetail, bird's-foot trefoil, Canada thistle, and some Himalayan blackberry (mostly rooted outside).		
Soils	Soils in the palustrine emergent portion of W12 are described in the data form W12-SP1, and the nearby buffer is described in the data form W12-SP2. Soils in W12 meet hydric soil indicators for depleted matrix (F3). Nearby upland soils did not meet hydric requirements. Soils in W12 are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Hydrology indicators including geomorphic position (D2), vegetation meeting the FAC-neutral test (D5), and water-stained leaves (B9) were observed during delineation. Wetland hydrology was assumed here during the early growing season, due to secondary hydrologic indicators and the clear hydric soils. Stormwater runoff and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands, per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W12 has a moderate potential to improve water quality at the site due to its depressional HGM class; intermittently flowing outlet; persistent, ungrazed plants; and seasonal ponding.		
Hydrologic	W12 has a high potential to reduce flooding and stream degradation due to its depressional HGM class (although open), depth of storage, the highly developed surroundings, and the fact that flooding occurs downstream.		
Habitat	W12 has a low to moderate potential to provide habitat functions for wildlife because it has only one Cowardin class and a low diversity of plant species, is only seasonally inundated, and is located in a highly developed area.		
Buffer Condition	The condition of the buffer surrounding W12 is poor. The buffer is highly developed, consisting of roads (gravel/paved access road and 70th Avenue East), a paved trail, and agricultural land to the east and south; and stormwater detention ponds and a historic homesite to the west. W02 is located to the southwest; and W13, W14, Stream 05, and Surprise Lake Tributary are to the north.		

Table 15. Wetland 13 Summary.

WETLAND 13 – INFORMATION SUMMARY			
Location	Located along west side of small access road west of 70th Avenue East, across from trailhead.		
Date(s) Evaluated	8/7/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	105 feet
		Wetland Size	0.004 acre (193.17 square feet)
		Cowardin Classification	PEM
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W13-SP1
		Upland Data Sheet(s)	Appendix D: W14-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 13 (W13) contains a palustrine emergent class dominated by reed canarygrass, field horsetail, broad-leaf cattail (*Typha latifolia*), and some Canada thistle.		
Soils	Soils in the palustrine emergent portion of W13 are described in the data form W13-SP1, and the nearby buffer is described in the data form W14-SP2 (shared upland pit). All data forms are included in Appendix D. Soils in the wetland meet hydric soil indicators for depleted matrix (F3). Nearby upland soils did not meet hydric requirements. Soils in W13 are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Secondary hydrologic indicators of geomorphic position (D2) and vegetation meeting the FAC-neutral test (D5) were observed. Very moist soils at 12 inches below ground surface and lower were also observed during delineation. Wetland hydrology was assumed here during the early growing season, due to secondary indicators and clear hydric soils. Stormwater runoff and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W13 has a moderate potential to improve water quality at the site due to its depressional closed HGM class; persistent, ungrazed plants; and seasonal ponding.		
Hydrologic	W13 has a high potential to reduce flooding and stream degradation due to its depressional closed HGM class, depth of storage, the highly developed surroundings, and the fact that flooding occurs downstream.		
Habitat	W13 has a low to moderate potential to provide habitat functions for wildlife because it has only one Cowardin class and a low diversity of plant species, is only seasonally inundated, and is located in a highly developed area.		
Buffer Condition	The condition of the buffer surrounding W13 is poor. The buffer is highly developed, consisting of roads (gravel/paved access road and 70th Avenue East), a paved trail, and agricultural land to the east and south; and stormwater detention ponds and a historic homesite to the west. W02 and W12 are located to the south; and W14, Stream 05, and Surprise Lake Tributary are to the north.		

Table 16. Wetland 14 Summary.

WETLAND 14 – INFORMATION SUMMARY			
Location	Located along west side of small access road west of 70th Avenue East, across from trailhead		
Date(s) Evaluated	8/7/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	105 feet
		Wetland Size	0.01 acre
		Cowardin Classification	PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W14-SP1
		Upland Data Sheet(s)	Appendix D: W14-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 14 (W14) contains a palustrine emergent class dominated by reed canarygrass, bird's-foot trefoil, and some Canada thistle.		
Soils	Soils in W14 are described in the data form W14-SP1, and the nearby buffer is described in the data form W14-SP2. Soils in W14 meet hydric soil indicators for depleted matrix (F3). Nearby upland soils did not meet hydric requirements. Soils in W14 are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Secondary hydrologic indicators of geomorphic position (D2) and vegetation meeting the FAC-neutral test (D5) were observed. Soil was also very moist starting at 15 inches below ground surface during the site visit. Wetland hydrology was assumed here during the early growing season, due to secondary indicators and clear hydric soils. Stormwater runoff and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W14 has a moderate potential to improve water quality at the site due to its depressional HGM class; intermittently flowing outlet; persistent, ungrazed plants; and seasonal ponding.		
Hydrologic	W14 has a high potential to reduce flooding and stream degradation due to its depressional HGM class (although open), depth of storage, the highly developed surroundings, and the fact that flooding occurs downstream.		
Habitat	W14 has a low to moderate potential to provide habitat functions for wildlife because it has only one Cowardin class and a low diversity of plant species, is only seasonally inundated, and is located in a highly developed area.		
Buffer Condition	The condition of the buffer surrounding W14 is poor. The buffer is highly developed, consisting of roads (gravel/paved access road and 70th Avenue East), a paved trail, and agriculture to the east and south; and stormwater detention ponds and a historic homesite to the west. W02, W12, and W13 are located to the south; and Stream 05 and Surprise Lake Tributary are to the north.		

Table 17. Wetland 15 Summary.

WETLAND 15 – INFORMATION SUMMARY			
Location	South of I-5, from east of 62nd Avenue East, east to Surprise Lake Tributary		
Date(s) Evaluated	8/8/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	105 feet
		Wetland Size	0.61 acre
		Cowardin Classification	PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W15-SP1
		Upland Data Sheet(s)	Appendix D: W15-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 15 (W15) contains a palustrine emergent class dominated by reed canarygrass, common duckweed (*Lemna minor*), climbing nightshade, slough sedge (*Carex obnupta*), creeping buttercup, fringed willow herb (*Ciliatum arvense*), broad-leaf cattail, western lady fern, American brook-lime (*Veronica americana*), white clover (*Trifolium repens*), common spike-rush (*Eleocharis palustris*), rushes (*Juncus* and *Scirpus* spp.), morning glory (*Ipomoea* sp.), and iris. A small area (less than 10 percent of the wetland) at the east end is comprised of scrub-shrub vegetation.		
Soils	Soils in W15 are described in the data form W15-SP1, and the nearby buffer is described in the data form W15-SP2. Soils in the wetland meet hydric soil indicators for depleted below dark surface (A11) and redox dark surface (F3). Nearby upland soils did not meet hydric requirements. Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Much of the wetland appears to have permanent ponding. Secondary hydrology indicators such as a dry-season water table (C2), geomorphic position (D2), and water-stained leaves (B9) were present during delineation. Groundwater, runoff, and precipitation are the dominant sources of hydrology to this wetland. In addition, some hydrology is provided at the east end by Surprise Lake Tributary.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W15 has a moderate potential to improve water quality at the site due to its persistent, ungrazed vegetation, and highly developed surroundings.		
Hydrologic	W15 has a high potential to reduce flooding and stream degradation due to its depth of ponding, especially near the outlet at Surprise Lake Tributary, occurrence of flooding downstream, and the highly developed surroundings.		
Habitat	W15 has a low potential to provide habitat functions for wildlife because it has only one Cowardin class (PEM) and is in a highly developed area. However, it has varying water depths, a moderate richness of plant species, and several priority habitats nearby.		
Buffer Condition	The condition of the buffer surrounding W15 is poor. The buffer is highly developed, consisting of mowed grass and I-5 to the north, and commercial/residential developments to the south. An area of undeveloped land (previous homestead) is present to the south of the eastern portion. Near the east end are stormwater ponds, Surprise Lake Tributary, an access road, and 70th Avenue East.		

Table 18. Wetland 16 Summary.

WETLAND 16 – INFORMATION SUMMARY			
Location	East of 70th Avenue East, south of the Interurban trailhead parking lot and W4		
Date(s) Evaluated	8/2/18, 8/13/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	105 feet
		Wetland Size	0.30 acre
		Cowardin Classification	PFO, PSS
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W16-SP1, W16-SP3, W16-SP4
		Upland Data Sheet(s)	Appendix D: W16-SP2, W16-SP5
		Flag Color	Pink
Dominant Vegetation	Wetland 16 (W16) contains palustrine scrub-shrub and forested communities. Scrub-shrub communities are dominated by Himalayan blackberry and red osier dogwood. Forested communities are dominated by Oregon ash (*Fraxinus latifolia*), paper birch (*Betula papyrifera*), and domesticated apple trees.		
Soils	Soils in the palustrine scrub shrub portion of the wetland are described in the data forms W16-SP1 and W16-SP4. Soils in the palustrine forested portion of the wetland are described in the data form W16-SP3. Soils in the wetland meet hydric soil indicators for redox dark surface (F6) and depleted matrix (F3). Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loams, which are hydric. Upland soils are described in the data forms W16-SP2 and W16-SP5 D. Soils in W16-SP2 exhibited the hydric soil indicator redox dark surface (F6), but the area was identified as upland due to the lack of hydrology indicators. Soils in W16-SP5 did not exhibit hydric soil characteristics.		
Hydrology	Soils were not saturated during the site visit. Oxidized rhizospheres along living roots (C3) were present. Groundwater and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W16 has a moderate potential to improve water quality at the site due to its closed depressional nature and dense, herbaceous vegetation.		
Hydrologic	W16 has a moderate potential to reduce flooding and stream degradation due to its closed, depressional character, which provides storage during flood events.		
Habitat	W16 has a low potential to provide habitat functions for wildlife because it has a high interspersion of Cowardin classes, but is surrounded by a highly developed landscape.		
Buffer Condition	The condition of the buffer surrounding W16 is poor. W04 and W10 are to the north, along with an upland vegetation community with a mix of native and noxious weed species; commercial agricultural land is to the east, and a similarly vegetated upland community is to the south and west. The buffer is disturbed by the presence of human encampments.		

Table 19. Wetland 17 Summary.

WETLAND 17 – INFORMATION SUMMARY			
Location	East of and adjacent to I-5, north of the Interurban trailhead parking lot.		
Date(s) Evaluated	8/13/18		
		**Local Jurisdiction**	Unincorporated Pierce County and Milton, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category II
		Unincorporated Pierce County and City of Milton Rating	Category II
		Unincorporated Pierce County and City of Milton Buffer Width	150 feet/165 feet
		Wetland Size	71.11 acres
		Cowardin Classification	PFO, PEM
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W17-SP1
		Upland Data Sheet(s)	Appendix D: W17-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 17 (W17) contains a palustrine emergent community dominated by reed canarygrass. Outside of the study area, W17 also includes a palustrine forested vegetation community.		
Soils	Soils in W17 are described in W17-SP1. Soils in the wetland meet the criteria for hydric soil indicator for thick dark surface (A11). Soils in the wetland are mapped by the NRCS (2018b) as Tisch silt and Semiahmoo muck. Upland soils are described in the data form W17-SP2 which is included in Appendix D.		
Hydrology	Soils were not saturated during the site visit. Oxidized rhizospheres along living roots (C3) were present. Groundwater and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	Pierce County and the City of Milton use the 2014 Ecology rating system (Hruby 2014) to classify wetlands per Policy RM2015-2, which updates PCC 18E.30.020.D; and Milton Municipal code (MMC 18.16.310).		
Wetland Functions Summary[a]			
Water Quality	W17 has a moderate potential to improve water quality at the site due to its depressional HGM class, intermittently flowing outlet, and dense vegetation.		
Hydrologic	W17 has moderate potential to reduce flooding and stream degradation due to its depressional HGM class and intermittently flowing outlet that increase water storage during flood events.		
Habitat	W17 has a low to moderate potential to provide habitat for wildlife because it has low interspersion of Cowardin classes, and three hydroperiods that create a variety of habitats within the wetland.		
Buffer Condition	The condition of the buffer surrounding W17 is poor. The buffer is highly developed, with industrial development to the north; residential development to the east; commercial agricultural land and a former landfill site to the south; and I-5 to the west.		

Table 20. Wetland 18 Summary.

WETLAND 18 – INFORMATION SUMMARY			
Location	East of 70th Avenue East, south of I-5, west of the Interurban trail		
Date(s) Evaluated	8/13/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	60 feet
		Wetland Size	0.02 acre
		Cowardin Classification	PSS
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W18-SP1
		Upland Data Sheet(s)	Appendix D: W18-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 18 (W18) contains palustrine scrub-shrub communities. Scrub-shrub communities are dominated by Himalayan blackberry.		
Soils	Soils in W18 are described in the data form W18-SP1. Soils in the wetland meet hydric soil indicator for redox dark surface (F6). Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loams, which are hydric.		
Hydrology	Soils were not saturated during the site visit. Secondary indicators including Water-stained leaves (B9), geomorphic position (D2), and the FAC-neutral test (D5) indicated the presence of wetland hydrology. Groundwater and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions			
Water Quality	W18 has a moderate potential to improve water quality due to its closed depressional nature and dense, herbaceous vegetation.		
Hydrologic	W18 has a moderate potential to reduce flooding and stream degradation due its closed, depressional character, which provides storage during flood events.		
Habitat	W18 has a low potential to provide habitat for wildlife because it has no interspersion of Cowardin classes and is surrounded by a highly developed landscape.		
Buffer Condition	The condition of the buffer surrounding W18 is poor. The buffer is highly developed in all directions and consists primarily of fill associated with 70th Avenue East and paved sidewalk.		

Table 21. Wetland 19 Summary.

WETLAND 19 – INFORMATION SUMMARY			
Location	North of 20th Street East and east of 70th Avenue East.		
Date(s) Evaluated	8/13/18		
		**Local Jurisdiction**	Fife, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		City of Fife Rating	Category III
		City of Fife Buffer Width	60 feet
		Wetland Size	0.12 acre
		Cowardin Classification	PEM, PFO
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W19-SP1
		Upland Data Sheet(s)	Appendix D: W19-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 19 (W19) contains palustrine emergent and forested communities. Emergent communities are dominated by reed canarygrass and field horsetail. Forested communities are dominated by black cottonwood.		
Soils	Soils in W19 are described in the data form W19-SP1. Soils in the wetland meet the hydric soil indicator for depleted matrix (F3). Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loams, which are hydric.		
Hydrology	Soils were not saturated during the site visit. Oxidized rhizospheres along living roots (C3) were present. Groundwater and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	The City of Fife uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per FMC 17.17.020.		
Wetland Functions Summary			
Water Quality	W19 has a moderate potential to improve water quality at the site due to its closed depressional nature; and dense, herbaceous vegetation.		
Hydrologic	W19 has a moderate potential to reduce flooding and stream degradation due to its closed, depressional character, which provides storage during flood events.		
Habitat	W19 has a low potential to provide habitat for wildlife because it has no interspersion of Cowardin classes, only one hydroperiod, and is surrounded by a highly developed landscape.		
Buffer Condition	The condition of the buffer surrounding W19 is poor. The buffer is highly developed, consisting of commercial agricultural land to the north and east, roads to the south, and fill pads from former building structures to the west.		

Table 22. Wetland 20 Summary.

WETLAND 20 – INFORMATION SUMMARY			
Location	Northwest of I-5, northeast of 70th Avenue East overpass, and south of Hylebos Creek		
Date(s) Evaluated	9/7/18		
		**Local Jurisdiction**	Unincorporated Pierce County, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		Unincorporated Pierce County Rating	Category III
		Unincorporated Pierce County Buffer Width	80 feet
		Wetland Size	0.04 acre
		Cowardin Classification	PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W20-SP1
		Upland Data Sheet(s)	Appendix D: W20-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 20 (W20) contains a palustrine emergent vegetation community dominated by reed canarygrass, creeping buttercup, common rush, bird's-foot trefoil, slough sedge, common dandelion (*Taraxacum officinale*), bluegrass (*Poa* sp.), and bent grass (*Agrostis* sp.). The wetland is mowed periodically by WSDOT, except in the very southern portion.		
Soils	Soils in W20 are described in the data form W20-SP1, and the nearby buffer is described in the data form W20-SP2. Soils in the wetland meet hydric soil indicators for loamy gleyed matrix (F2). Nearby upland soils did not meet hydric requirements. Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loam, which is hydric.		
Hydrology	Soils were saturated to the surface and had water in the pit at 11 inches during the site visit. Water marks were also present. Groundwater, stormwater runoff, and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	Pierce County uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per Policy RM2015-2, which updates PCC 18E.30.020.D.		
Wetland Functions Summary			
Water Quality	W20 has moderate potential to improve water quality at the site due to its depressional HGM class; persistent, ungrazed herbaceous vegetation; seasonal ponding; and location in a highly developed area.		
Hydrologic	W20 has moderate to high potential to reduce flooding and stream degradation due to its depressional HGM character, which provides storage during flood events, as well as its herbaceous class and its location in a highly developed area.		
Habitat	W20 has low to moderate potential to provide habitat functions for wildlife because it has only one Cowardin class and a low diversity of plant species, is only seasonally inundated, and is located in a highly developed area.		
Buffer Condition	The condition of the buffer surrounding W20 is generally poor. Mowed grass is present on both sides of the wetland. To the south of the wetland is I-5, and to the north is a chainlink fence, Hylebos Creek, then commercial development and roads. To the west is the 70th Avenue East overpass.		

Table 23. Wetland 21 Summary.

WETLAND 21 – INFORMATION SUMMARY			
Location	Northwest of SR 99, east of 67th Avenue East, and west of Hylebos Creek		
Date(s) Evaluated	11/28/18		
		**Local Jurisdiction**	Unincorporated Pierce County, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category II
		Unincorporated Pierce County Rating	Category II
		Unincorporated Pierce County Buffer Width	150 feet
		Wetland Size	0.04 acre
		Cowardin Classification	PSS, PEM
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Appendix D: W21-SP1
		Upland Data Sheet(s)	Appendix D: W21-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 21 (W21) contains a palustrine emergent community and a scrub-shrub community. Emergent communities are dominated by reed canarygrass, and creeping buttercup. Scrub-shrub vegetation includes black cottonwood.		
Soils	Soils in W21 are described in the data form W21-SP1. Soils in the wetland meet the hydric soil indicator for depleted matrix (F3). Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loams, which are hydric.		
Hydrology	Soils were saturated to the surface, water table was at the surface, and 4 inches of standing water was observed during the site visit. Groundwater, stormwater runoff, and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	Pierce County uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per Policy RM2015-2, which updates PCC 18E.30.020.D.		
Wetland Functions Summary			
Water Quality	W21 has moderate potential to improve water quality at the site due to its depressional HGM class; lack of an outlet; persistent, ungrazed herbaceous vegetation; seasonal ponding; and its potential to receive stormwater and pollutants.		
Hydrologic	W21 has a high potential to reduce flooding and stream degradation due to its depressional HGM character with no outlet, and its ability to provide storage during flooding.		
Habitat	W21 has low provide general habitat functions due to its limited plant classes and interspersion of habitats as well as its proximity to lots of high intensity land use. The wetland does have a high potential to provide invertebrate habitat.		
Buffer Condition	The condition of the buffer surrounding W21 is generally poor. To the east and northeast are laurel bushes, a fence, Himalayan blackberry, and the northern portion of W23. Hylebos Creek is to the northeast. To the west and south are several trees and shrubs, grasses, and large paved areas in poor condition. SR 99 is farther south.		

Table 24. Wetland 22 Summary.

WETLAND 22 – INFORMATION SUMMARY			
Location	Northwest of SR 99, east of 67th Avenue East, and west of W21		
Date(s) Evaluated	11/28/18		
		**Local Jurisdiction**	Unincorporated Pierce County, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		Unincorporated Pierce County Rating	Category III
		Unincorporated Pierce County Buffer Width	80 feet
		Wetland Size	0.02 acres
		Cowardin Classification	PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W22-SP1
		Upland Data Sheet(s)	Appendix D: W22-SP2
		Flag Color	Pink
Dominant Vegetation	Wetland 22 (W22) contains a palustrine emergent community that is largely dominated by reed canarygrass.		
Soils	Soils in W22 are described in the data form W22-SP1. Soils in the wetland meet the hydric soil indicator for depleted below dark surface (A11). Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loams, which are hydric.		
Hydrology	Soils were saturated to the surface and had water in the pit at 3 inches during the site visit. The presence of reduced iron and drainage patterns were also present. Groundwater, stormwater runoff, and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	Pierce County uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per Policy RM2015-2, which updates PCC 18E.30.020.D.		
Wetland Functions Summary			
Water Quality	W22 has moderate potential to improve water quality at the site due to its depressional HGM class; highly constricted outlet; persistent, ungrazed herbaceous vegetation; seasonal ponding; and its potential to receive stormwater and pollutants.		
Hydrologic	W22 has a high potential to reduce flooding and stream degradation due to its depressional HGM character, its and its proximity to stormwater generating intensive land uses.		
Habitat	W22 has a low potential to provide habitat functions due to the low number of vegetation classes, low interspersion of habitats, and its proximity to high intensity land uses.		
Buffer Condition	The condition of the buffer surrounding W22 is generally poor. To the north are small, non-native conifers and shrubs. To the south is a grassy area, an old building pad, and SR 99.		

Table 25. Wetland 23 Summary.

WETLAND 23 – INFORMATION SUMMARY			
Location	Northwest of SR 99, east of 67th Avenue East, adjacent to SR 99.		
Date(s) Evaluated	11/28/18		
		**Local Jurisdiction**	Unincorporated Pierce County, WA
		WRIA	10: Puyallup-White
		Ecology Rating (Hruby, 2014)	Category III
		Unincorporated Pierce County Rating	Category III
		Unincorporated Pierce County Buffer Width	80 feet
		Wetland Size	0.52 acres
		Cowardin Classification	PEM
		HGM Classification	Slope and Depressional
		Wetland Data Sheet(s)	Appendix D: W23-SP1
		Upland Data Sheet(s)	
		Flag Color	Pink
Dominant Vegetation	Wetland 23 (W23) contains a palustrine emergent community that is largely dominated by reed canarygrass and areas of exposed bare ground.		
Soils	Soils in W23 are described in the data form W23-SP1. Soils in the wetland meet the hydric soil indicator hydrogen sulfide (A4). Soil was too saturated at time of delineation to determine redox features. Soils in the wetland are mapped by the NRCS (2018b) as Sultan silt loams, which are hydric.		
Hydrology	Soils were saturated, groundwater was present to the surface and 1 inch of standing water was observed at the surface during the site visit. Stormwater runoff and precipitation are the dominant sources of hydrology to this wetland.		
Rationale for Delineation	All three wetland parameters were met.		
Rationale for Local Rating	Pierce County uses the 2014 Ecology rating system (Hruby 2014) to classify wetlands per Policy RM2015-2, which updates PCC 18E.30.020.D.		
Wetland Functions Summary			
Water Quality	W23 has a low to moderate potential to improve water quality at the site due to its depressional HGM class and persistent, ungrazed vegetation, and small area of seasonal ponding.		
Hydrologic	W23 has a moderate to high potential to reduce flooding and stream degradation due to its depressional HGM character, its and its proximity to stormwater generating intensive land uses.		
Habitat	W23 has a low to moderate potential to provide habitat functions at the site due to its low number of plant communities, low interspersion of habitats, close proximity to high intensity land uses, and ponding.		
Buffer Condition	The condition of the buffer surrounding W23 is generally poor. Hylebos Creek is to the east, with a narrow upland berm between much of W23 and the stream. W21 is to the northwest, and scattered trees and shrubs are to the west, as well as fencing and paved areas that are in poor condition.		

4.2.2 Wetland Buffers

Buffers in the study area are typically in poor condition. Wetland buffers consist of commercial agricultural land; paved roads and sidewalks; and commercial and residential development. In vegetated wetland buffers, the vegetation community is typically a mix of native and noxious weed species. Typical noxious weed species in the buffer include Himalayan blackberry and reed canarygrass. Native buffer species include Douglas-fir (*Pseudotsuga menziesii*), black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), and bigleaf maple (*Acer macrophyllum*). There are also portions of some of the wetland buffers vegetated by ornamental trees, such as apple (*Malus* spp.). Required wetland buffer widths are identified in the wetland tables in Section 4.2.1 of this report. MMC 18.16.320.C.3 allows for the reduction of buffer where a public roadway transects the wetland buffer. Several of the buffers have roadways transecting them and the resulting reduced buffer width is not listed in the wetland tables in Section 4.2.1. For those buffers within the jurisdiction of Pierce County, the buffer widths documented in this report assume a proposed land use intensity of high as defined in PCC 18E.20.020. All buffer widths shown also assume the existence of a functional buffer community of native vegetation. If the buffer is inadequately vegetated or vegetated with nonfunctional invasive species, the buffer would be widened if not planted to create the appropriate native plant community. Photos of typical wetland buffers are provided in Figure 3.

4.2.3 Wetland Ratings and Functions

Wetland functions were evaluated using the BPJ Tool (WSDOT 2000). Wetlands were also evaluated using the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Hruby 2014) because it is approved by the Washington State Department of Ecology (Ecology) for evaluating wetlands in Washington.

In general, most of the wetlands in the study area provide moderate to high levels of water quality and hydrologic functions, and a low level of habitat functions (Table 26; Appendices E and F). If wetlands and associated vegetation are removed in the study area, the capacity of these areas to provide water quality, hydrologic, and habitat functions will be eliminated or reduced. Wetlands improve water quality by trapping surface water in depressions, where pollutants are filtered out by vegetation and physical settling. Removal of wetland area and associated vegetation reduces the opportunities for water quality improvement in the project area.

Wetlands provide hydrological functions in the study area by reducing downstream flooding and erosion. Wetlands trap surface water in depressions during flood events, reducing the flashiness of storm events and the potential for flooding and erosion downstream. Dense, persistent wetland vegetation slows surface water down as it moves through the system, reducing hydrological stress on downstream systems. Removal of wetland area and associated vegetation would increase hydrological stress in the area and downstream during storm events.

Figure 3. Photos of Typical Existing Wetland Buffers.

Table 26. Functions and Values of the Existing Wetlands.

Function/Value[a]	Wetland																						
	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21	W22	W23
Water Quality Functions																							
Sediment Removal	+	-	+	x	x	x	+	+	+	-	-	+	+	+	+	x	+	-	x	+	x	x	x
Nutrient and Toxicant Removal	+	+	+	+	+	+	+	+	+	x	+	+	+	+	+	x	+	-	+	+	x	+	+
Hydrologic Functions`																							
Flood Flow Alteration	x	x	x	-	x	x	x	-	x	-	-	x	+	x	+	-	+	-	-	+	+	+	+
Erosion Control and Shoreline Stabilization	-	-	-	-	-	+	+	-	x	-	-	-	-	-	x	-	+	-	-	-	-	-	x
Habitat Functions																							
Production and Export of Organic Matter	-	-	x	-	-	x	x	X	x	x	-	x	-	x	x	-	+	-	-	x	-	-	x
General Habitat Suitability	x	-	x	x	x	x	x	-	x	-	-	x	x	x	-	x	+	-	-	x	-	-	-
Habitat for Aquatic Invertebrates	x	-	x	-	-	x	x	X	x	x	-	x	x	x	+	-	x	-	-	x	+	x	x
Habitat for Amphibians	x	-	x	-	-	-	x	-	x	x	-	x	x	x	+	-	x	-	-	x	x	-	-
Habitat for Wetland-Associated Mammals	x	-	-	-	-	-	x	-	-	-	-	-	-	-	x	-	x	-	-	-	-	-	-
Habitat for Wetland-Associated Birds	x	-	-	-	-	-	-	-	-	-	-	-	-	-	x	-	x	-	-	x	-	-	-
General Fish Habitat	-	-	-	-	-	-	-	-	x	-	-	-	-	-	x	x	x	-	-	-	-	-	-
Native Plant Richness	-	-	-	-	-	-	x	-	-	-	-	-	-	-	-	x	x	-	-	-	-	-	-
Special Characteristics																							
Educational or Scientific Value	-	-	-	x	-	-	-	-	-	-	x	-	-	-	-	x	x	-	x	-	-	-	-
Uniqueness and Heritage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	-	-	-	-	-	-

[a] "-" means that the function is not present; "X" means that the function is present is of lower quality; and "+" means the function is present and is of higher quality.

Wetlands provide habitat for wildlife by with a diversity of habitat structure created by variations in vegetative classes, hydroperiods, and special habitat features such as large snags and logs. The majority of the wetlands in the study area have a low capacity to provide habitat due to a lack of structural diversity and connectivity to other functional habitats; however, removal of wetland area and associated vegetation would further decrease the available habitat in the study area amid highly developed surroundings.

Functions provided by the wetlands in the study area are further described below in groups according to similar functional traits.

Wetlands 01, 03, 09, 12, 13, 14, 15, and 20

Wetlands 01, 03, 09, 12, 13, 14, 15, and 20 are located primarily in roadside ditches. All of their overall function scores are the same, and thus they are grouped together for this summary. All of these wetlands aside from W13 have depressional and slope HGM classes and were therefore rated as depressional, and all but one (Wetland 13) has an outlet. W13 has only one HGM class, which is depressional. These qualities give the wetlands a moderate potential to improve water quality. The fact that the wetlands are depressional systems and have herbaceous vegetation increases the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants from surface water; however, the wetlands' outlets (except for Wetland 13, which has no outlet) decrease this retention time. The roads, agriculture, and residential and industrial development in the surrounding landscape contribute pollutants (toxicants) to surface water, increasing the wetlands' potential to improve water quality in the area. Although the wetlands have the structure to provide water quality improvement, they do not discharge directly to a body of water on the State's Clean Water Act Section 303(d) list, and there is no total maximum daily load (TMDL) for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in the study area reduces the societal value of the wetlands' water quality functionality; they provide moderate value regarding water quality functionality to society.

Wetlands in this grouping have a moderate potential to reduce flooding and stream degradation. The wetlands have the capacity to store water during flood events, but the fact that they have outlets (except for Wetland 13) reduces stormwater residence time. The wetlands receive stormwater inputs from nearby roadways associated with the residential and industrial development in the surrounding landscape, increasing the wetlands' potential to reduce flooding and stream degradation by providing water storage. The value of the wetlands to provide these functions to society is high, as flooding occurs immediately downstream.

Wetlands in this grouping have a low potential to provide habitat functions for wildlife. The wetlands have one Cowardin class (emergent) and therefore no habitat interspersion. They generally have no special habitat features, although there are nearby priority habitats. The wetlands are surrounded by areas of industrial and residential development (as opposed to undisturbed areas), which further decrease their potential to provide habitat, due to the lack of connectivity to other functional habitats.

Wetland 02

W02 provides a moderate level of nutrient and toxicant removal functions due its depressional HGM class, closed system, and inputs from polluted water from surrounding roads and development. W02 has dense, persistent herbaceous vegetation, fine-grained mineral soils, and no outlet. These characteristics increase the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants from surface water. The roads and residential and industrial development in the surrounding landscape contribute pollutants to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of Wetland 02's water quality functionality.

W02 has a moderate potential to reduce flooding and stream degradation. W02 does not receive regular overbank creek flooding and likely only receives floodwaters from adjacent ditches and streams as sheet flow during extreme flooding events. The wetland has a constricted outlet, which increases storage duration during flood events, reducing flooding and erosion downstream. The areas surrounding the wetland are highly developed and generate excess surface water runoff, thus increasing the wetland's potential to reduce flooding and stream degradation by providing water storage. The wetland receives stormwater from areas that generate excess runoff and is in a basin with high intensity land use. The value of the wetland to provide these functions to society is high, as flooding occurs immediately downstream.

W02 has a moderate potential to provide habitat functions for wildlife because it has a high interspersion of Cowardin classes and high diversity of plant species; however much of the plant diversity is provided by ornamental and nonnative plant species. Evidence of wildlife use such as tracks and scat was observed, and scientists directly observed bird species (passerines and raptors) during field delineation work. Due to highly developed and disturbed buffers, lack of connectivity to other habitats, and lack of supporting habitat, such as permanent or seasonal inundation, and open water, the habitat is not likely suitable for aquatic invertebrates, amphibians, wetland associated mammals, and birds.

Wetland 04

W04 has a moderate potential to improve water quality at the site due to its depressional HGM class; highly constricted outlet; and dense, herbaceous vegetation. These characteristics increase the retention time of surface water in the wetland so that pollutants are absorbed and filtered. The roads; agricultural land use; and residential and industrial development in the surrounding landscape contribute pollutants to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of Wetland 04's water quality functionality.

W04 has a high potential to reduce flooding and stream degradation. The wetland does not receive regular overbank creek flooding, and likely only receives floodwaters from Hylebos

Creek and Surprise Lake Tributary during large flooding events; however, it has small depressions that trap surface water and reduce flooding during these large events. The wetland receives stormwater inputs from surface flows from adjacent paved surfaces, which increase its opportunity to provide hydrological support. The wetland has an intermittently flowing outlet that increases storage duration during flood events, reducing flooding and erosion downstream. The value of the wetland to provide these functions to society is high, as flooding occurs immediately downstream.

W04 has a low potential to provide habitat functions for wildlife despite a portion of the wetland having high interspersion of Cowardin classes and variety of hydroperiods. A large portion of the wetland is in fields currently used for agricultural crop production. W04 has a low richness of plant species and is surrounded by areas of agricultural, industrial and residential development, which decrease its potential to provide habitat due to the lack of connectivity to other functional habitats.

Wetlands 05 and 21

W05 and W21 have a moderate potential to improve water quality at the site due to their depressional HGM class; lack of outlets; and persistent, ungrazed herbaceous vegetation covering over half of the area. These qualities increase the retention time of surface water in the wetlands, allowing for the absorption and filtration of pollutants from surface water. The roads and residential and industrial development in the surrounding landscape contribute pollutants (toxicants) to surface water, increasing the wetlands' potential to improve water quality in the area. Although the sites have the structure to provide water quality improvement, they do not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the wetlands are located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetlands' water quality functionality; they provide moderate value regarding water quality functionality to society.

W05 and W21 have a high potential to reduce flooding and stream degradation, as they have the capacity to store small volumes of water and do not have an outlet. As a result, the limited volumes of water that are stored in surface depressions in the wetland during storm events do not flow through quickly, and downstream flooding is thus reduced slightly. The areas surrounding the wetlands are highly developed and generate excess surface water runoff, thus increasing the wetlands' potential to reduce flooding and stream degradation by providing water storage. They receive stormwater from areas that generate excess runoff and are in a basin with high intensity land use. The value of the wetlands to provide these functions to society is high, as flooding occurs immediately downstream.

W05 and W21 have a moderate potential to provide habitat functions for wildlife. W05 has one Cowardin class (emergent), and W21 has two Cowardin classes (emergent and scrub shrub). Both wetlands have moderate plant species richness, and zero to moderate habitat interspersion. W05 has no special habitat features, and W21 only has one, although there are nearby priority habitats. The wetland is surrounded by areas of industrial and residential development (as opposed to undisturbed areas), which further decreases their potential to provide habitat, due to the lack of connectivity to other functional habitats.

Wetland 06

W06, a slope, riverine wetland adjacent to Hylebos Creek, has moderate potential to improve water quality at the site. The wetland has dense herbaceous vegetation covering over half of the area, but very few surface depressions to trap water. The roads and residential and industrial development in the surrounding landscape contribute pollutants (toxicants) to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no total maximum daily load (TMDL) for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetland's water quality functionality; the wetland provides moderate value regarding water quality functionality to society.

W06 has a moderate potential to reduce flooding and stream degradation. The wetland is very narrow, has over two-thirds cover by herbaceous species, and has an unconstricted outlet. It has no downcut adjacent to the stream and may receive regular overbank flooding. It receives stormwater from areas that generate excess runoff and is in a basin with high intensity land use. The value of Wetland 06 to provide these functions to society is high, as flooding occurs immediately downstream.

W06 has a low potential to provide habitat functions for wildlife. The wetland has one Cowardin class (emergent), moderate plant species richness, and no habitat interspersion. W06 has no special habitat features, although there are nearby priority habitats. The wetland is surrounded by areas of industrial and residential development (as opposed to undisturbed areas), which further decrease its potential to provide habitat, due to the lack of connectivity to other functional habitats.

Wetland 07

W07 is adjacent to Hylebos Creek, but it is above the OHWM of the stream. W07 is a slope, depressional wetland and was evaluated based on its depressional hydrogeomorphic class. The wetland has moderate potential to improve water quality at the site, as it has an intermittently flowing outlet to the stream; persistent, ungrazed plants for over two-thirds of the area; and seasonal ponding in over half of the wetland. The roads and residential and industrial development in the surrounding landscape contribute pollutants (toxicants) to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no total maximum daily load (TMDL) for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetland's water quality functionality; the wetland provides moderate value regarding water quality functionality to society.

W07 has a moderate potential to reduce flooding and stream degradation. The wetland has an intermittently flowing outlet, ponds to depths of only 6 inches or fewer, has a large contributing drainage area, and has an unconstricted outlet. It receives stormwater from areas that generate excess runoff and is in a basin with high intensity land use. The areas surrounding the wetland are highly developed and generate excess surface water runoff, thus increasing the wetland's potential to reduce flooding and stream degradation by providing water storage. The value of the

wetland to provide these functions to society is high, as flooding occurs immediately downstream.

W07 has a low potential to provide habitat functions for wildlife. The wetland has one Cowardin class (forested and emergent), moderate plant species richness, and no habitat interspersion. W07 has only one special habitat feature (downed woody debris), although there are nearby priority habitats. The wetland is surrounded by areas of industrial and residential development (as opposed to undisturbed areas), which further decrease its potential to provide habitat, due to the lack of connectivity to other functional habitats.

Wetland 08

W08 has a low potential to improve water quality at the site due to its depressional HGM class, and the low value of water quality functionality at the site to society. The wetland's depressional system and herbaceous vegetation increase the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants from surface water; however, the wetland's unconstricted outlet decreases this retention time. The roads; agriculture; and residential and industrial development in the surrounding landscape contribute pollutants to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetland's water quality functionality.

W08 has moderate potential to reduce flooding and stream degradation. The wetland has the capacity to store water during flood events, but its unconstricted outlet reduces the residence time of stormwater. The wetland receives stormwater inputs from nearby roadways associated with the residential and industrial development in the surrounding landscape, increasing the wetland's potential to reduce flooding and stream degradation by providing water storage. The value of the wetland to provide these functions to society is moderate, as flooding occurs downstream.

W08 has a low potential to provide habitat functions for wildlife because it has no interspersion of Cowardin classes and one hydroperiod. W08 is surrounded by areas of industrial and residential development, which further decrease its potential to provide habitat due to the lack of connectivity to other functional habitats.

Wetland 10

W10 has moderate potential to improve water quality at the site due to its depressional HGM class; intermittently flowing outlet; and dense, herbaceous vegetation. These characteristics increase the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants from surface water. As a result, the wetland provides a moderate level of water quality improvement at the site. The roads, agricultural land use, and residential and industrial development in the surrounding landscape contribute pollutants to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the

wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetland's water quality functionality.

W10 has high potential to reduce flooding and stream degradation due to its depressional HGM class and stormwater inputs from its highly developed contributing drainage area. The wetland has the capacity to store small volumes of water during flood events; however, its intermittently flowing outlet reduces retention time. The wetland receives stormwater inputs from nearby roadways associated with residential and industrial development in the surrounding landscape, which increases the wetland's potential to reduce flooding and stream degradation by providing water storage. The wetland's hydrological functions are highly valuable to society because of flooding problems that exist down-gradient of the wetland.

W10 has a low potential to provide habitat functions for wildlife because it has low interspersion of Cowardin classes and low variety in hydroperiods. W10 is surrounded by areas of industrial and residential development, which further decrease its potential to provide habitat due to the lack of connectivity to other functional habitats.

Wetland 11

W11 has a moderate potential to improve water quality at the site due to its depressional HGM class; intermittently flowing outlet; and dense, herbaceous vegetation. The wetland's depressional system and herbaceous vegetation increase the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants from surface water. The intermittently flowing outlet reduces surface water retention time in the wetland. As a result, the wetland provides a moderate level of water quality improvement at the site. The roads, agricultural land use, and residential and industrial development in the surrounding landscape contribute pollutants to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetland's water quality functionality.

W11 has a high potential to reduce flooding and stream degradation. The wetland has small depressions on the surface that trap water during flooding events, but an intermittently flowing outlet, which reduces retention time in the wetland. The wetland receives stormwater inputs from nearby roadways associated with the residential and industrial development in the surrounding landscape, increasing its potential to reduce flooding and stream degradation by providing water storage. This hydrological functionality is highly valuable to society due to flooding problems down-gradient from the wetland.

W11 has a low potential to provide habitat functions for wildlife because it has no interspersion of Cowardin classes and low variety in hydroperiods. W11 is surrounded by areas of industrial and residential development, which further decrease its potential to provide habitat due to the lack of connectivity to other functional habitats.

Wetland 16

W16 has a moderate potential to improve water quality at the site due to its depressional HGM class, lack of an outlet, and dense vegetation, all of which increase the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants from surface water. The roads and residential and industrial development in the surrounding landscape contribute pollutants to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetland's water quality functionality.

W16 has a moderate potential to reduce flooding and stream degradation. The wetland has the capacity to store small volumes of water and does not have an outlet. As a result, the limited volumes of water that are stored in surface depressions in the wetland during storm events do not flow through quickly, and downstream flooding is thus reduced slightly. The areas surrounding the wetland generate excess surface water runoff, increasing its potential to reduce flooding and stream degradation by providing water storage. The hydrological functionality is highly valuable to society due to flooding problems down-gradient from the wetland.

W16 has a low to moderate potential to provide habitat functions for wildlife because it has some interspersion of Cowardin classes and low variety in hydroperiods. W16 is surrounded by areas of industrial and residential development, which decrease its potential to provide habitat due to the lack of connectivity to other functional habitats.

Wetland 17

W17 has moderate potential to improve water quality at the site due to its depressional HGM class, intermittently flowing outlet, and dense vegetation. The wetland's depressional system, dense vegetation, and intermittently flowing outlet increase the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants from surface water. The roads and residential and industrial development in the surrounding landscape contribute pollutants to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetland's water quality functionality.

W17 has a moderate potential to reduce flooding and stream degradation. The wetland has the capacity to store surface water during flood events, and an intermittently flowing outlet. Due to the outlet characteristics, the water stored in the wetland during storm events does not flow through quickly, and downstream flooding is reduced. The areas surrounding the wetland generate excess surface water runoff, increasing its potential to reduce flooding and stream degradation by providing water storage. The hydrological functionality is highly valuable to society because of flooding problems down-gradient of the wetland.

W17 has a low to moderate potential to provide habitat for wildlife because it has low interspersion of Cowardin classes and three hydroperiods that create a variety of habitats within the wetland. W17 is surrounded by areas of industrial and residential development, which decrease its potential to provide habitat due to the lack of connectivity to other functional habitats.

Wetland 18

W18 has moderate potential to improve water quality at the site due to its depressional HGM class, lack of an outlet, and dense vegetation, all of which increase the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants. However, the wetland does not have the capacity to store large volumes of surface water, which reduces the site's water quality functionality. W18 does not receive stormwater inputs, but it is surrounded by development that contributes pollutants to surface flows that may enter the wetland via sheet flow during extremely wet weather. Although the site has the structure to provide some water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetland's water quality functionality.

W18 has a moderate potential to reduce flooding and stream degradation. The wetland has a low capacity to store surface water, but its depressional HGM class and lack of an outlet do slow surface water as it flows into the wetland. The areas surrounding the wetland generate excess surface water runoff, increasing its potential to reduce flooding and stream degradation by providing water storage. The hydrological functionality is moderately valuable to society because of flooding problems downstream of the wetland.

W18 has a low potential to provide habitat for wildlife because it has one Cowardin class, one hydroperiod, and low plant species diversity. W18 is surrounded by areas of industrial and residential development, which further decrease its potential to provide habitat due to the lack of connectivity to other functional habitats.

Wetland 19

W19 has moderate potential to improve water quality at the site due to its depressional HGM class, lack of an outlet, and dense vegetation. The wetland's depressional system, dense vegetation, and lack of an outlet increase the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants from surface water. The roads and residential and industrial development in the surrounding landscape contribute pollutants to surface water, increasing the wetland's potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetland's water quality functionality.

W19 has moderate potential to reduce flooding and stream degradation. The wetland does not have the capacity to store large volumes of water, and it does not have an outlet. As a result, the limited volumes of water that are stored in the wetland during storm events do not flow through

quickly, and downstream flooding is thus reduced slightly. The areas surrounding the wetland generate excess surface water runoff, increasing its potential to reduce flooding and stream degradation by providing water storage. The hydrological functionality is highly valuable to society because of flooding problems down-gradient of the wetland.

W19 has low potential to provide habitat functions for wildlife because it has no interspersion of Cowardin classes and low variety in hydroperiods. W19 is surrounded by areas of industrial and residential development, which further decrease its potential to provide habitat due to the lack of connectivity to other functional habitats.

Wetlands 22 and 23

W22 and W23 are slope, depressional wetlands evaluated based on their depressional hydrogeomorphic class. W22 and W23 have a moderate potential to improve water quality at the site due to their depressional HGM class, intermittently flowing outlets, and dense vegetation. The wetlands' depressional system, dense vegetation, and intermittently flowing outlet increase the retention time of surface water in the wetland, allowing for the absorption and filtration of pollutants from surface water. The roads and residential and industrial development in the surrounding landscape contribute pollutants to surface water, increasing the wetlands' potential to improve water quality in the area. Although the site has the structure to provide water quality improvement, it does not discharge directly to a body of water on the Section 303(d) list, and there is no TMDL for the Hylebos Creek basin in which the wetland is located (Ecology 2018). The lack of prioritization for water quality in this area reduces the societal value of the wetlands' water quality functionality.

W22 and W23 have a moderate potential to reduce flooding and stream degradation. The wetlands do not have the capacity to store large volumes of water and have intermittently flowing outlets. As a result, the limited volumes of water that are stored in the wetland during storm events do not flow through quickly, and downstream flooding is thus reduced slightly. The areas surrounding the wetlands generate excess surface water runoff, increasing their potential to reduce flooding and stream degradation by providing water storage. The hydrological functionality is highly valuable to society because of flooding problems down-gradient of the wetlands.

W22 and W23 have a moderate potential to provide habitat functions for wildlife because they have multiple hydroperiods, and moderate plant diversity. W22 and W23 are surrounded by areas of industrial and residential development, which decrease their potential to provide habitat due to the lack of connectivity to other functional habitats.

4.3 Streams

Five streams were identified within the study area (Figures 2-A through 2-C). Stream 01 is Surprise Lake Tributary. Stream 02 is Hylebos Creek. Stream 03 originates east of 70th Avenue East and west of the Interurban Trail parking lot and flows into Stream 01 northeast of the parking lot. Stream 04 is a small tributary to Hylebos Creek located west of I-5 that originates north of the Hylebos Creek channel along I-5. Stream 05 is a tributary to Stream 01 located

between 70th Avenue East and I-5. Streams 01, 02, and 04 are described further in Tables 27 through 31 at the end of this section.

Jurisdictions listed in Tables 27 through 31 are only those within the Stage 1A project area. Local jurisdiction information is based on the following:

- Pierce County Code (PCC 18E.40)
- City of Fife Municipal Code (FMC 17.14)
- City of Milton Municipal Code (MMC 18.16)

4.3.1 Suspended Sediment

Ecology (2018) does not show any recent elevations in total suspended sediment.

4.3.2 Water Quantity

The natural flow regime of Hylebos Creek is shaped by multiple drivers, including land cover, topography, soils, climate, and precipitation patterns. The Hylebos Basin is a rain-dominated system that has increased flows between October and March (EarthCorps 2016). The combination of increased impervious surfaces and development has restricted the amount of flood storage within the watershed, leading to an increased frequency and severity of flood events (King County 1990; EarthCorps 2016).

During the drier, summer months when there is less precipitation, there are low in-stream flows in Hylebos Creek (NWIFC 2016). In 1980, Ecology set guidelines for in-stream flows and prohibited new surface water withdrawals from Hylebos and Wapato Creeks, as well as the White River and several tributaries to the Puyallup River (Ecology 1995). Despite these stream flow protections and the above-average rainfall, a watershed assessment conducted in 1995 by Ecology determined that low flow levels continued to decrease (Ecology 1995) and may be a result of water well withdrawals (NWIFC 2016).

4.3.3 Channel Conditions

The Hylebos Creek has poor habitat channel conditions, which are critical limiting factors to fish and wildlife. The contrived habitat features within the stream channel create “simple” habitat complexity, with pools, riffles, and glides extending uniformly across the width of the channel. The simplified changes in habitat types are usually in response to a placed rock or invasive emergent plant species (e.g., reed canarygrass and bittersweet nightshade) that have encroached into the channel. Much of the channel is artificially straightened by rock and wood-cribs filled with rock.

The Surprise Lake Tributary begins at the confluence with the Upper Hylebos Reach near I-5. The Surprise Lake Tributary is confined to a channelized drainage ditch that runs through agricultural fields with no natural bend or meander. Any complexity in the stream is likely from eroded road fill or bank stabilization. Substrate consists of sand, silt, and clay; and the stream has no large woody debris or riparian cover. Invasive plant species are prevalent along the streambanks.

4.3.4 Riparian Conditions

Conditions along Hylebos Creek provide limited riparian functions because of vegetation restriction along urban, suburban, and commercial development, and fragmentation of existing habitat by roads, highways, and freeways. The existing riparian areas that remain along Hylebos Creek within the study area are typically less than 25 feet wide. The limited riparian habitat along the lower Hylebos Creek lacks a coniferous component, and what remains has become fragmented. Existing riparian vegetation surrounding Hylebos Creek near the proposed bridge and road projects is limited due to the extensive development in the creek corridor that includes freeways, highways, roadways, and agricultural fields.

The streams within the project area are less diverse and contain more invasive, nonnative species. The riparian corridor width is absent along several stream reaches in the project area, depending on the level of development and proximity to other infrastructure (i.e., roads). Large woody debris is also absent, and recruitment potential is low throughout the reaches. Invasive species within the project area include reed canarygrass (*Phalaris arundinacea*), knotweed (*Polygonum* spp.), field bindweed (*Convolvulus arvensis*), yellow iris (*Iris pseudacorus*), Himalayan blackberry (*Rubus armeniacus*), bittersweet nightshade (*Solanum dulcamara*), common holly (*Ilex aquifolium*), and English ivy (*Hedera helix*).

4.3.5 Fish Use

Historically, the Hylebos Creek contained abundant salmon runs (HDR 2014). Fish surveys have been performed by the Puyallup Tribe from 2002 to present (Marks, E., personal communication) and a survey was performed by HDR in July and August of 2014 (HDR 2014). Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), chum (*O. keta*), and coho (*O. kisutsch*) have all been documented in Hylebos Creek (Stream 02). Pink salmon (*O. gorbuscha*) are presumed to occur in the creek (WDFW 2018a). Bull trout (*Salvelinus confluentus*) may use the mouth of the creek but are not likely to occur further upstream in the project vicinity (WSDOT 2018). These and other fish species that may be present in Hylebos Creek would have access to connected streams and tributaries. Other fish species documented throughout the Hylebos Creek watershed include sculpin (*Cottus* spp.), threespine stickleback, western brook lamprey (*Lampetra richardsonii*), and yellow perch (*Perca flavescens*) (HDR 2014).

Salmonids were observed by Herrera biologists in 2017 and 2018 within Hylebos Creek. No salmonids were observed in Surprise Lake Tributary (Stream 01), Stream 03, or Stream 05 during the 2017 and 2018 field work. Threespine stickleback were observed throughout Surprise Lake Tributary (Stream 01) during field visits in 2017 and 2018, including upstream of the confluence of Stream 03 and Stream 05. No stickleback or other fish were observed in Stream 03 or Stream 05 during 2017 and 2018 fieldwork; however, these streams do appear to have perennial flow and habitat conditions that may be suitable at times for fish. There are no fish passage barriers between Surprise Lake Tributary and Stream 03 and Stream 05. Therefore, it is assumed that fish could use Stream 03 and Stream 05 when habitat conditions are suitable based on WDFW guidance on fish use (WDFW 2009).

Table 27. Stream Information Summary—Stream 01 (Surprise Lake Tributary).

STREAM INFORMATION SUMMARY		
	**Stream Name**	01 – Surprise Lake Tributary
	WRIA	10: Puyallup-White
	WA Stream Catalog No.	0009
	Local Jurisdictions	Unincorporated Pierce County and Fife, WA
	WDNR Stream Type	Type F
	Local Jurisdiction Stream Ratings	Pierce: Type F1 Fife: case-by-case
	Local Jurisdiction Stream Buffer Widths	Pierce: 150 feet Fife: case-by-case
Documented Fish Use	Coho (*Oncorhynchus kisutsch*) have been documented in Surprise Lake Tributary (WDFW 2018a), and threespine stickleback (*Gasterosteus aculeatus)* were observed throughout this stream during field visits conducted as part of the project in 2017 and 2018. Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), and chum (*O. keta*) have all been documented in Stream 02 (Hylebos Creek), and odd-year pink salmon are presumed to occur in the stream (WDFW 2018a). These species have not been documented in Stream 01, but there is a year-round surface water connection between the two streams and no fish passage barriers that would prevent these species from accessing Stream 01.	
Location of Stream Relative to Project Corridor	Within Stage 1A limits, Stream 01 is located near the center of the corridor, flowing generally from southeast (in agricultural fields) to northwest (to SR 99).	
Connectivity (where stream flows from/to)	Stream 01 flows from Surprise Lake (offsite) southwest then northwest through agricultural fields before entering the Stage 1A project area; west under the Interurban Trail and 70th Avenue East; west through an undeveloped area; northwest under I-5; northwest through an undeveloped area; then into Hylebos Creek. The confluence with Hylebos Creek is located just southeast of SR 99, within the Stage 1A project area.	
Riparian/Buffer Condition	Within Stage 1A limits, agricultural fields adjacent to Stream 01 were vegetated at the time of field delineation with lettuce and other crops that are periodically harvested and replanted. Riparian vegetation near the Interurban Trail and east side of 70th Avenue East generally consists of Himalayan blackberry, mixed grasses, and herbaceous nonnative species. To the west of 70th Avenue East, willows (*Salix* sp.), Himalayan blackberry, and reed canarygrass are present adjacent to the stream. These stream buffer areas are generally low quality. Between I-5 and SR 99, the stream buffer condition provides higher functions and values than buffer areas upstream of I-5. Riparian vegetation classes are patchy, alternating between shrub and herbaceous with some trees scattered throughout. Generally, the shrub areas are thicker on both sides of the stream in the southeastern half of this reach. Vegetation in this area includes willows, red-osier dogwood, Pacific ninebark (*Physocarpus capitatus*), Himalayan blackberry, climbing nightshade, reed canarygrass, velvet grass, and manna grass (*Glyceria* sp.).	

Table 28. Stream Information Summary—Stream 02 (Hylebos Creek).

STREAM INFORMATION SUMMARY		
	**Stream Name**	02 – Hylebos Creek
	WRIA	10: Puyallup-White
	WA Stream Catalog No.	Hylebos Creek
	Local Jurisdictions	Unincorporated Pierce County, Milton, and Fife, WA
	WDNR Stream Type	Type F
	Local Jurisdiction Stream Ratings	Pierce: Type F1 Milton: Type F Fife: case-by-case
	Local Jurisdiction Stream Buffer Widths	Pierce: 150 feet Milton: 150 feet Fife: case-by-case
Documented Fish Use	Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), and chum (*O. keta*) have all been documented in Stream 02 (Hylebos Creek), and odd-year pink salmon are presumed to occur in the stream (WDFW 2018a). Bull trout (*Salvelinus confluentus*) may use the mouth of Hylebos Creek, but are not likely to occur within the project vicinity. Herrera observed salmonids (likely coho) in Stream 02 in 2017 and 2018 during habitat surveys for the project. Other fish species documented throughout the Hylebos Creek watershed include sculpin (*Cottus* spp.), threespine stickleback (*Gasterosteus aculeatus*), Western Brook lamprey (*Lampetra richardsonii*), and yellow perch (*Perca flavescens*) (HDR 2014).	
Location of Stream Relative to Project Corridor	Within Stage 1A limits, Stream 02 (Hylebos Creek) is located at the northern boundary of the study area, and flows generally southwest to the central-western portion.	
Connectivity (where stream flows from/to)	Stream 02 flows generally from the north, where it has two main branches (West Hylebos Creek and East Hylebos Creek). The confluence of these branches is in Milton north of Porter Way, and the study area begins approximately 0.35 mile south of that point. Stream 02 then flows west under I-5, then bends south, flowing south-southwest until it turns west and crosses under 70th Avenue East. After that point, it flows west-southwest until its confluence with Stream 01 (Surprise Lake Tributary) at the southeast side of SR 99. Stream 02 then continues flow to the northwest out of Stage 1A and eventually discharges to Commencement Bay.	
Riparian/Buffer Condition	Within Stage 1A limits, the dominant riparian plants from the I-5 crossing southwest to 70th Avenue East are emergent, and include reed canarygrass, common rush, yellow-flag iris, creeping buttercup, and slough sedge. Near the curve closer to 70th Avenue East, Himalayan blackberry is present along the retaining wall and/or fence. This reach of the stream has a generally low-quality buffer. From the 70th Avenue East bridge and westward, the riparian corridor is of higher value, and consists of forested and shrub areas that are dominated by black cottonwood, red alder, willows, salmonberry (*Rubus spectabilis*), Douglas' spirea, English ivy, Himalayan blackberry, reed canarygrass, and various other grasses.	

Table 29. Stream Information Summary—Stream 03.

STREAM INFORMATION SUMMARY		
	**Stream Name**	03
	WRIA	10
	WA Stream Catalog No.[a]	N/A
	Local Jurisdiction	City of Fife
	WDNR Stream Type[b]	N/A
	Local Stream Rating[b]	Non-jurisdictional
	Buffer Width[c]	Case-by-case
Documented Fish Use[b]	No fish have been documented in Stream 03. Threespine stickleback were observed within Stream 01 approximately 20 feet upstream of the confluence with Stream 03 during 2017 and 2018 field visits, and there are no fish passage barriers that would prevent fish from accessing Stream 03.	
Location of Stream Relative to Project Corridor	The stream is on the east side of 70th Avenue East, flowing in an open channel north and south of the roadway at the entrance to the Interurban Trail parking lot.	
Connectivity (where stream flows from/to)	The stream originates east of 70th Avenue East, north of 20th Street East, and west of the Interurban Trail parking lot. The stream flows northeast through a culvert under the access road to the Interurban Trail parking lot and then follows the east edge of the trail embankment until it connects with Stream 01 (Surprise Lake Tributary). No fish passage barriers were observed. Stream flow appears to be perennial. The stream is not identified on WDFW mapping tools.	
Riparian/Buffer Condition	No buffer width requirements based on FMC 17.15.090. Buffer is generally poor and consists of reed canarygrass, actively cropped agricultural fields, and paved trail or roadway.	

[a] Stream is not identified in Washington Stream Catalog.

[b] Stream is not identified in any WDFW, WDNR, or Washington Conservation maps. Stream does not meet the requirements for a shoreline of the state and therefore would not come under the jurisdiction of Fife Municipal Code.

[c] Buffer width as required by city of FMC 17.15.090.

Table 30. Stream Information Summary—Stream 04.

STREAM INFORMATION SUMMARY		
	**Stream Name**	04
	WRIA	10: Puyallup-White
	WA Stream Catalog No.	N/A
	Local Jurisdiction	Unincorporated Pierce County
	WDNR Stream Type	Type F
	Local Jurisdiction Stream Ratings	Pierce: Type F1
	Local Jurisdiction Stream Buffer Widths	Pierce: 150 feet
Documented Fish Use	No fish have been documented in Stream 04; however, there are no fish passage barriers that would prevent fish in Stream 02/Hylebos Creek from accessing Stream 04.	
Location of Stream Relative to Project Corridor	Stream 04 is a very short section of a tributary that flows into Stream 02 (Hylebos Creek) near the north boundary of Stage 1A, just west of I-5.	
Connectivity (where stream flows from/to)	Stream 04 flows south along the west side of I-5 for what appears to be approximately 800 to 850 feet, under a chainlink fence at the Stage 1A boundary, and then another 40 feet before discharging into Stream 02. No fish barriers are present. Stream flow appears to be perennial.	
Riparian/Buffer Condition	Within Stage 1A limits, riparian vegetation bordering Stream 04 is dominated by Pacific ninebark, Douglas' spirea, Himalayan blackberry, reed canarygrass, and several mowed grasses. Fill slopes associated with I-5 and adjacent commercial development are located to the east and west, respectively. As such, the stream buffer condition is generally low quality, except for to the south (Stream 02/Hylebos Creek).	

Table 31. Stream Information Summary—Stream 05.

STREAM INFORMATION SUMMARY		
	**Stream Name**	05
	WRIA	10: Puyallup-White
	WA Stream Catalog No.[a]	N/A
	Local Jurisdiction	City of Fife
	WDNR Stream Type[b]	N/A
	Local Stream Rating[b]	Non-jurisdictional
	Buffer Width[c]	Case-by-case
Documented Fish Use[b]	No fish have been documented in Stream 05. Threespine stickleback were observed within Stream 01 upstream of the confluence with Stream 05 during 2017 and 2018 field visits, and there are no fish passage barriers that would prevent fish from accessing Stream 05.	
Location of Stream Relative to Project Corridor	Stream 05 is a very short tributary that flows into Stream 01 (Surprise Lake Tributary) between 70th Avenue East and I-5.	
Connectivity (where stream flows from/to)	Stream 05 flows north from a culvert that drains Wetland 14 and flows (unconstricted) into Stream 01 from the south. No fish barriers are present. Stream flow appears to be perennial. The wetland and Stream 05 are located immediately west of the dead-end gravel access road on the west side of 70th Avenue East.	
Riparian/Buffer Condition	No buffer width requirements based on FMC 17.15.090. The riparian corridor of Stream 05 is generally of low quality, dominated by Himalayan blackberry (*Rubus armeniacus*) and reed canarygrass (*Phalaris arundinacea*). To the east of the vegetated area is the gravel access road, then Wetland 11. To the west is a shrub area dominated by willows (*Salix* sp.); to the southwest is a stormwater pond; to the south is the gravel access road and Wetlands 12, 13, and 14; and to the north is Stream 01.	

[a] Stream is not identified in Washington Stream Catalog.

[b] Stream is not identified in any WDFW, WDNR, or Washington Conservation maps. Stream does not meet the requirements for a shoreline of the state and therefore would not come under the jurisdiction of Fife Municipal Code.

[c] Buffer width as required by city of FMC 17.15.090.

4.4 Sensitive Plants, Fish, and Wildlife

The WSDOT consulted with the NMFS and USFWS to address potential project impacts to federally listed Chinook (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), and bull trout (*Salvelinus confluentus*) (WSDOT 2018). Chum salmon (*O. keta*), a State Candidate species, may also occur in Hylebos Creek in the study area (WDFW 2018a). WDFW PHS data document one occurrence of western pond turtle (*Actinemys marmorata*), a State Endangered species, in the project vicinity (WDFW 2018b). However, this observation was from 1992; and the species has likely been extirpated from the study area since then. There are no documented occurrences of sensitive plants in the study area (WDNR 2018).

Chapter 5. References

Anderson, P.S., S. Meyer, P. Olson, E. Stockdale. 2016. Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State. Ecology Publication 16-06-029. Washington State Department of Ecology.

Brinson, M.M. 1993. A Hydrogeomorphic Classification for Wetlands. Technical Report WRP-DE-4. US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. August.

Ecology. 1997. Washington State Wetlands Identification and Delineation Manual. Washington State Department of Ecology. Publication #96-94. <http://www.ecy.wa.gov/pubs/9694.pdf>.

Ecology. 2018. Washington State Department of Ecology Water Quality Assessment for Washington, 303(d) Map Tool. Accessed November 1, 2018. <https://fortress.wa.gov/ecy/waterqualityatlas/map.aspx>.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi. January.

Environmental Laboratory. 2010. Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region. Technical Report TR-08-13. US Army Corps of Engineers, Engineer Research and Development Center, Wetlands Regulatory Assistance Program, Vicksburg, Mississippi.

FGDC. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and US Fish and Wildlife Service, Washington, DC.

FHWA. 2007. Record of Decision for State Route (SR) 167 Extension Project Puyallup to State Route 509. Federal Highway Administration. October.

Granger, T., T. Hruby, A. McMillan, D. Peters, J. Rubey, D. Sheldon, S. Stanley, E. Stockdale. 2005. Wetlands in Washington State – Volume 2: Guidance for Protecting and Managing Wetlands. Washington State Department of Ecology. Publication #05-06-008. Olympia, WA. [April 2005] <http://www.ecy.wa.gov/pubs/0506008.pdf>.

HDR. 2014. City of Federal Way Hylebos Creek Fish Use and Habitat Technical Memorandum. Prepared by HDR Engineering, Inc. December.

Hruby, T. 2014. Washington State Wetland Rating System for Western Washington: 2014 Update. Washington State Department of Ecology, Olympia, Washington. Publication #14-06-029.

King County GIS Center. 2018. King County iMap. King County. Accessed November 1, 2018. <http://gismaps.kingcounty.gov/iMap>.

King County GIS Center. 2017. Rivers and Streams in King County. King County Department of Natural Resources and Parks, Water, and Lands Resources Division dataset layer. Accessed November 1, 2018. <http://www5.kingcounty.gov/sdc/Metadata.aspx?Layer=wtrcrs>.

NRCS. 2018a. Agricultural Applied Climate Information System. US Department of Agriculture, Natural Resources Conservation Service. Accessed November 1, 2018. <https://agacis.rcc-acis.org>.

NRCS. 2018b. WebSoil Survey. Natural Resources Conservation Service. Accessed November 1, 2018. <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.

NRCS. 2018c. Official Soil Series Descriptions. Natural Resources Conservation Service. Accessed November 1, 2018. <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/geo/?cid=nrcs142p2_053587>.

NRCS. 2018d. Hydric Soils. Natural Resources Conservation Service. Accessed November 1, 2018. <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/>.

Pierce County. 2015. Using the updated Washington State Wetland Rating System for western Washington, effective January 2015. Policy number RM2015-2. Pierce County Planning and Land Services Department Resource Management Section. May 15. <https://www.co.pierce.wa.us/DocumentCenter/View/36446/Updated-Wetland-Rating-System-RMPOL2015-2>.

Pierce County GIS Center. 2018. Pierce County Public GIS. Pierce County. Accessed November 1, 2018. <https://matterhornwab.co.pierce.wa.us/publicgis/>.

Pierce County. 2011. Topographic data. LiDAR bare earth digital elevation model (DEM) created by Watershed Sciences, Inc. (WSI), April 23 through September 6, 2011. Puget Sound LiDAR Consortium. Accessed November 1, 2018. <http://pugetsoundlidar.ess.washington.edu>.

Pierce County. 2018a. Roads in Pierce County. Pierce County roads layer created by Pierce County, 2018. Pierce County Open Geospatial Data Portal. Accessed November 1, 2018. < http://gisdata-piercecowa.opendata.arcgis.com/>.

Pierce County. 2018b. Streams in Pierce County. Pierce County hydrological centerlines layer created by Pierce County, 2018. Pierce County Open Geospatial Data Portal. Accessed November 1, 2018. < http://gisdata-piercecowa.opendata.arcgis.com/>.

Pierce County. 2018c. Tax parcels in Pierce County. Pierce County tax parcels layer created by Pierce County, 2018. Pierce County Open Geospatial Data Portal. Accessed November 1, 2018. < http://gisdata-piercecowa.opendata.arcgis.com/>.

Sheldon, D., T. Hruby, P. Johnson, K. Harper, A. McMillan, T. Granger, S. Stanley, and E. Stockdale. 2005. Wetlands in Washington State – Volume 1: A Synthesis of the Science. Washington State Department of Ecology. Publication #05-06-006. Olympia, Washington. March. <http://www.ecy.wa.gov/pubs/0506006.pdf>.

USDA. US Department of Agriculture, Natural Resources Conservation Service, and US Geological Survey. 2018. National Watershed Boundary Dataset. July.

USFWS. 2017. National Wetlands Inventory wetlands dataset layer. Digital data created in 2017. US Fish and Wildlife Service. Accessed November 1, 2018. <https://www.fws.gov/wetlands/data/data-download.html>.

Washington State Department of Ecology, US Army Corps of Engineers Seattle District, and US Environmental Protection Agency Region 10. 2006a. Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1). Washington State Department of Ecology Publication #06-06-011a. Olympia, Washington. March. <http://www.ecy.wa.gov/pubs/0606011a.pdf>.

Washington State Department of Ecology, US Army Corps of Engineers Seattle District, and US Environmental Protection Agency Region 10. 2006b. Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Version 1). Washington State Department of Ecology Publication #06-06-011b. Olympia, Washington. March. <http://www.ecy.wa.gov/pubs/0606011b.pdf>.

WDFW. 2018a. SalmonScape mapping system. Washington Department of Fish and Wildlife. Accessed November 1, 2018. <http://wdfw.wa.gov/mapping/salmonscape/index.html>.

WDFW. 2018b. Priority Habitat and Species (PHS): PHS on the Web. Washington State Department of Fish and Wildlife. Accessed November 1, 2018. <http://wdfw.wa.gov/mapping/phs/>.

WDNR. 2018. Washington State Department of Natural Resources, Washington Natural Heritage Program. Accessed November 1, 2018. <http://www.dnr.wa.gov/NHPwetlandviewer>.

WSDOT. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia, Washington.

WSDOT. 2007. Wetland Guidelines. Washington State Department of Transportation, Environmental Affairs Office. Olympia, Washington. <http://www.wsdot.wa.gov/Environment/Biology/Wetlands/guidelines.htm>.

WSDOT. November 2016. Wetland Inventory Technical Memorandum: SR 167 Extension Project – Puyallup to SR 509. Washington State Headquarters Environmental Services and Washington State Olympic Region Environmental and Hydraulic Services. Olympia, Washington.

WSDOT. April 2018. SR 167 Completion Project, Phase I ESA Section 7 Formal Reinitiation. NMFS Tracking No. 2005/05617, 2012/03666. Washington State Headquarters Environmental Services and Washington State Olympic Region Environmental and Hydraulic Services. Olympia, Washington.

Appendix A — Methods and Tools

Table A-1. Methods and Tools Used to Prepare the Report.

Parameter	Method or Tool	Website	Reference
Wetland Delineation	Washington State Wetland Delineation Manual	http://www.ecy.wa.gov/biblio/9694.html	**Ecology**. 1997. Washington state wetland identification and delineation manual. Publication #96-94. Washington Department of Ecology, Olympia, Washington.
	WSDOT Delineation Guidance Documents	https://www.wsdot.wa.gov/environment/technical/disciplines/wetlands/policies-procedures/recon-assess#Reconnaissance	https://www.wsdot.wa.gov/environment/technical/disciplines/wetlands/policies-procedures/recon-assess#Reconnaissance; 2018.
	Western Mountains, Valleys, and Coast Interim Regional Supplement	https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046494.pdf	**Environmental Laboratory**. 2010. Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region. Technical Report TR-08-13. US Army Corps of Engineers, Engineer Research and Development Center, Wetlands Regulatory Assistance Program, Vicksburg, Mississippi.
Wetland Classification	USFWS/ Cowardin Classification System	http://www.fws.gov/nwi/Pubs_Reports/Class_Manual/class_titlepg.htm	**FGDC.** 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and US Fish and Wildlife Service, Washington, DC.
	Hydrogeomorphic Classification (HGM) System	http://el.erdc.usace.army.mil/wetlands/pdfs/wrpde4.pdf	**Brinson**, M. M. (1993). "A hydrogeomorphic classification for wetlands," Technical Report WRP-DE-4, US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
Wetland Rating	Washington State Wetland Rating System	**Western Washington:** https://fortress.wa.gov/ecy/publications/documents/1406029.pdf	**Hruby**. 2014. Washington State wetland rating system for western Washington – Revised. Publication # 04-06-025.
	Local Ordinance	Washington State Wetland Rating System: https://fortress.wa.gov/ecy/publications/documents/1406029.pdf	**Pierce County** (PCC 18E.30.020) and **Pierce County**. 2015. Using the updated Washington State Wetland Rating System for western Washington, effective January 2015. Policy number RM2015-2. Pierce County Planning and Land Services Department Resource Management Section. May 15, 2015. https://www.co.pierce.wa.us/DocumentCenter/View/36446/Updated-Wetland-Rating-System-RMPOL2015-2 **City of Fife** (FMC 17.17.010) **City of Milton** (MMC 18.16.310)
Stream Delineation	OHWM	http://www.usace.army.mil/inet/functions/cw/cecwo/reg/33cfr328.htm	Congressional Federal Register 33 Part 328 Definition of Waters of the United States.

Parameter	Method or Tool	Website	Reference
Stream Classification	Washington State Department of Natural Resources (WDNR) Water Typing System	**Forest Practices Water Typing:** http://www.stage.dnr.wa.gov/forestpractices/watertyping/ **WAC 222-16-030:** http://apps.leg.wa.gov/WAC/default.aspx?cite=222-16-030 **Water Type Mapping:** http://www3.wadnr.gov/dnrapp5/website/fpars/viewer.htm	Washington Administrative Code (WAC) 222-16-030. WDNR Water typing system.
	Local agency	State Typing System	Pierce County (PCC 18E.40.60) City of Fife (FMC 17.15.040) City of Milton (MMC 18.16.620)
Wetland Indicator Status	Northwest (Region 9) (Reed, 1988) and Northwest (Region 9) Supplement (Reed et al., 1993)	http://www.fws.gov/nwi/bha/list88.html	**Reed**, P.B. Jr. 1988. National list of plant species that occur in wetlands: Washington. Biological Report NERC-88/18.47 for National Wetlands Inventory, Washington, D.C. **Reed**, P.B. Jr. 1993. Northwest supplement (Region 9) species with a change in indicator status or added to the Northwest 1988 list, wetland plants of the state of Washington 1988. US Department of Interior Fish and Wildlife Service WELUT – 88 (26.9), Washington, D.C.
Plant Names	USDA Plant Database	http://plants.usda.gov/	**USDA, NRCS**. 2018. The PLANTS Database (http://plants.usda.gov, 6 November 2018). National Plant Data Team, Greensboro, NC 27401-4901 USA.
Soils Data	Soil Survey	**Web Soil Survey:** http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx **Soil Data Mart:** http://soildatamart.nrcs.usda.gov/	**NRCS**. 2018. WebSoil Survey. Natural Resources Conservation Service. Accessed November 1, 2018. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm
Hydric Soils Data	NRCS Hydric Soils List	http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/	**NRCS**. 2018. Hydric Soils. Natural Resources Conservation Service. Accessed November 1, 2018. http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/
Threatened and Endangered Species	Washington Natural Heritage Program	https://www.dnr.wa.gov/NHPwetlandviewer	**WDNR.** 2018. Wetlands of High Conservation Value Map Viewer. Washington State Department of Natural Resources, Washington Natural Heritage Program, Olympia, Washington.
	Washington Priority Habitats and Species	http://wdfw.wa.gov/hab/phspage.htm	**WDFW.** 2018. Priority Species and Habitat Database. Washington Department of Fish and Wildlife. Obtained June 8, 2018, from agency website: http://wdfw.wa.gov/mapping/phs/.
	SalmonScape	http://wdfw.wa.gov/mapping/salmonscape/index.html	**WDFW**. 2018a. SalmonScape mapping system. Washington Department of Fish and Wildlife. Obtained June 8, 2018, from agency website: http://wdfw.wa.gov/mapping/salmonscape/index.html.
Report Preparation	Local agency requirements	http://www.mrsc.org/codes.aspx	Pierce County (PCC 18E.30.030) City of Fife (FMC 17.05.085) City of Milton (MMC 18.16.140)

Wetland Delineation

The wetland delineation for the SR 167 Completion Project, Stage 1A was performed in accordance with the Regional Supplement to the US Army Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region (Environmental Laboratory 2010), which is consistent with the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). These methods use a three-parameter approach for identifying and delineating wetlands: the presence of field indicators for hydrophytic vegetation, hydric soils, and hydrology. The wetland delineations documented in this report were performed according to procedures specified for the routine wetland determination method (Environmental Laboratory 1987).

Hydrophytic Vegetation

Hydrophytic vegetation is characterized by the ability to grow, effectively compete, reproduce, and persist in anaerobic soil conditions resulting from periodic or long-term saturation (Environmental Laboratory 1987). Vegetation must meet at least one of the four indicators (described below) that are used to determine the presence of hydrophytic vegetation in wetlands. Problematic and atypical situations for hydrophytic vegetation are also described in the US Army Corps of Engineers (USACE) delineation manual and supplement (Environmental Laboratory 1987, 2010).

Plant Species Identification

Plant species were identified using *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1987) and *A Field Guide to the Common Wetland Plants of Western Washington and Northwestern Oregon* (Cooke 1997). The indicator status of each plant species is based on the *National Wetland Plant List* (Lichvar 2016) for the Western Mountains, Valleys, and Coast Region.

Dominant Species Determination

Dominant species are those that contribute more than other species to the character of a plant community. To determine dominance, a vegetation sampling area is determined by the field biologist to accurately characterize the plant community that occurs in the area to be evaluated. These are commonly circular sampling areas, centered on the location of the test plot (where soil and hydrologic data is also collected). The radius of the circle is determined in the field, based on site conditions. In large wetlands, a typical sampling radius would be 2 to 5 meters for tree and sapling/shrub species, and 1 meter for herbaceous species. In a small or narrow wetland (or upland), the radius might be reduced to accurately sample wetland (upland) areas, thereby avoiding an overlap into an adjacent community having different vegetation, soils, or hydrologic conditions (Environmental Laboratory 2010).

Within the vegetation sampling area, a complete list of plant species that occur in the sampling area is compiled and the species divided into four strata: tree, shrub (including saplings, see criteria below), herb, and woody vines. A plant is included in the tree stratum if it is a woody

plant 3 inches in diameter at breast height (dbh) or greater; in the shrub stratum if it is a woody plant less than 3 inches dbh (including tree saplings under 3 inches dbh); in the herb stratum if it is an herbaceous (non-woody) plant; and in the woody vine stratum if it is a woody vine of any height (Environmental Laboratory 2010). To be included in the sampling, 50 percent or more of the plant base must be within the radius of the sampling area. For trees specifically, more than 50 percent of the trunk (diameter) must be within the sampling radius to be included.

A rapid test, dominance test (e.g., the 50/20 rule), or prevalence index are commonly used to determine which species are considered dominant and to assess whether the criteria for hydrophytic vegetation are met at each test plot (Environmental Laboratory 2010). Additional hydrophytic vegetation indicators are discussed in the following section.

To conduct a rapid test (Indicator 1 on the wetland determination data form), the dominant species are evaluated visually and if all are FACW or OBL, the vegetation data passes the rapid test. To conduct a dominance test (Indicator 2 on the wetland determination data form), the absolute areal coverage of the plant species within a stratum are totaled, starting with the most abundant species and including other species in descending order of coverage, until the cumulative coverage exceeds 50 percent of the total coverage for the stratum. The plant species that constitute this first 50 percent of areal coverage are considered the dominant species in the stratum. In addition, any other any single plant species that constitutes at least 20 percent of the total percent cover in the stratum is also considered a dominant species (Environmental Laboratory 2010). The indicator status category for each plant (shown in Table A-2) is also listed on the wetland determination form. If more than 50 percent of the dominant species across all strata are rated OBL, FACW, or FAC, the hydrophytic vegetation dominance test (Indicator 2) is met.

Table A-2. Plant Indicator Status Categories.

Indicator Status	Indicator Symbol	Definition
Obligate wetland plants	OBL	Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions but also occur rarely (estimated probability <1 percent) in upland areas
Facultative wetland plants	FACW	Plants that usually occur (estimated probability >67 percent) in wetlands under natural conditions but also occur (estimated probability 1 percent to 33 percent) in upland areas
Facultative plants	FAC	Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and upland areas
Facultative upland plants	FACU	Plants that sometimes occur (estimated probability 1 percent to 33 percent) in wetlands but occur more often (estimated probability >67 percent to 99 percent) in upland areas
Obligate upland plants	UPL	Plants that rarely occur (estimated probability <1 percent) in wetlands under natural conditions
$WET \longleftarrow \underset{OBL - FACW - FAC - FACU - UPL}{\longrightarrow} DRY$		

Source: Environmental Laboratory (1987).

The prevalence index (Indicator 3 on the wetland determination data form) is a weighted-average wetland indicator status of all plant species in the sampling plot, where weighting is by abundance (Environmental Laboratory 2010). This method is used where indicators of hydric soil

and wetland hydrology are present, but the vegetation initially fails the rapid and dominance tests (Indicators 1 and 2). To determine the prevalence index, the absolute cover of each species in each stratum is determined. All species (across all strata) are organized into wetland indicator status groups (i.e., OBL, FACW, FAC, FACU, or UPL) and their cover values are summed within the groups. The formula for the prevalence index is applied. If the prevalence index (which ranges from 1.0 to 5.0) equals 3.0 or less, this hydrophytic vegetation indicator is met.

Additional Hydrophytic Vegetation Indicators

The presence of morphological adaptations to wetland conditions in plants that lack a published hydrophytic vegetation indicator status or with an indicator status of FACU or drier is also a hydrophytic vegetation indicator (Indicator 4). Evidence of physiological, morphological, or reproductive adaptations indicating growth in hydrophytic conditions can include, but are not limited to, buttressed roots, adventitious roots, multi-stemmed trunks, or tussocks. To determine whether Indicator 4 is met, the morphological features must be observed on more than 50 percent of the individuals of a FACU species (or species without a published indicator status) living in an area where hydric soil and wetland hydrology are present. On the wetland determination data form, the indicator status of the species with morphological adaptations would be changed to FAC (with supporting notes), and the dominance test (Indicator 2) and/or prevalence index (Indicator 3) would then be recalculated.

Wetland non-vascular plants, referred to as bryophytes and consisting of mosses, liverworts, and hornworts, may also meet the hydric vegetation criteria, under Indicator 5 (Environmental Laboratory 2010). These plants must be present in areas containing hydric soils and wetland hydrology. The percent cover of wetland specialist bryophytes is determined in 10-inch-by-10-inch square plots placed at the base of hummocks, if present. The summed cover of wetland specialist bryophytes must be more than 50 percent of the total bryophyte cover in the vegetation sampling area.

The problematic hydrophytic vegetation indicator section in the USACE regional supplement further explains how to interpret situations in which hydric soils and wetland hydrology are present but hydrophytic vegetation Indicators 1 through 5 are lacking (Environmental Laboratory 2010). Procedures for looking at settings such as areas with active vegetation management (e.g., farms), areas dominated by aggressive invasive species, active floodplains, and low terraces are described, as well as explanations for specific situations, such as seasonal shifts in plant communities, extended drought conditions, and riparian areas.

Hydric Soils

A hydric soil is a soil that is saturated, flooded, or inundated long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (Environmental Laboratory 1987, 2010). The evaluation of existing soil maps (developed by the US Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] and other sources) is used to understand hydric soil distribution and to identify the likely locations of hydric soils (by verifying their inclusion on the hydric soils list).

Comparison of these mapped soils to conditions found on site help verify the presence of hydric soils.

For onsite soils characterization, hydric soils data were obtained generally by digging test pits at least 20 inches deep and 4 inches wide. Hydric soil conditions were evaluated using indicators outlined in *Field Indicators of Hydric Soils in the United States* (NRCS 2017) and adopted by the *Regional Supplement to the US Army Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region* (Environmental Laboratory 2010).

Hydric soil indicators applicable to the Western Mountains, Valleys, and Coast region include, but are not limited to, the presence of organic soils (i.e., histosols or histic epipedons); sulfidic material (i.e., hydrogen sulfide); depleted, gleyed, or reduced soil matrices; and/or the presence of iron or manganese concretions (Environmental Laboratory 2010). Soil color characterization (i.e., hue, value, and chroma) is a critical tool in determining depleted, gleyed, and reduced soil conditions. Soil color was evaluated by comparing soil colors at test plots to standardized color samples in *Munsell Soil Color Charts* (Munsell Color 2000).

Wetland Hydrology

Wetland hydrology is indicated by site conditions that demonstrate the periodic inundation or saturation to the soil surface for a sufficient duration during the total growing season. A *sufficient duration* during the growing season is defined as 14 or more consecutive days of flooding, ponding, or presence of a water table at 12 inches or fewer from the soil surface (Environmental Laboratory 2010). The growing season is the period of consecutive frost-free days, or the longest period during which the soil temperature stays above biological zero (41°F), when measured at 12 inches below the soil surface.

Two indicators of biological activity can be used to determine whether the growing season has begun and is ongoing (Environmental Laboratory 2010):

- Occurrence of aboveground growth and development of at least two non-evergreen vascular plant species growing within the wetland. Examples of this growth include the emergence or elongation of leaves on woody plants and the emergence or opening of flowers.
- Soil temperature, which can be measured once during a single site visit, should be at least 41°F or higher at a depth of 12 inches.

For this assessment, onsite hydrologic indicators were examined at the test plots. Hydrologic indicators include the presence of surface water, standing water in the test pit at a depth of 12 inches or fewer, saturation in the root zone, watermarks, drift lines, sediment deposits, drainage patterns within wetlands, oxidized rhizospheres surrounding living roots, and water-stained leaves.

Wetland Classification, Rating, and Functional Assessment

Wetland Classification

Wetlands delineated in the study area were classified according to the USFWS classification system (FGDC 2013), which is based on an evaluation of attributes such as vegetation class, hydrologic regime, salinity, and substrate. The wetlands were also classified according to the hydrogeomorphic system (Brinson 1993), which is based on an evaluation of attributes such as the position of the wetland within the surrounding landscape, the source and location of water just before it enters the wetland, and the pattern of water movement in the wetland.

Wetland Rating

Wetlands were evaluated using the Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby 2014) because it is approved by the Washington State Department of Ecology (Ecology) for evaluating wetlands in Washington and because it is required by Pierce County Policy (Policy Number RM2015-2), the City of Fife (FMC 17.17.010), and the City of Milton (MMC 18.16.310).

The Ecology rating system categorizes wetlands according to specific attributes such as rarity; sensitivity to disturbance; hydrologic, water quality, and habitat functions; and special characteristics (such as a mature forested wetland or bog). The Ecology rating system (Hruby 2014) generates scores for each function based on the wetland's potential and opportunity for providing the function. Using the scores on the wetland rating forms, a qualitative functional rating (high, moderate, or low) was derived for each of the functions (water quality, hydrology, and habitat) provided by each delineated wetland, based on supplemental guidance provided by Ecology (2008).The total score for all functions determines the wetland rating. The rating system consists of four categories, with Category I wetlands exhibiting outstanding functions or special characteristics and Category IV wetlands exhibiting minimal attributes and functions. The rating categories are used to identify permitted uses in the wetland and its buffer, to determine the width of buffers needed to protect the wetland from adjacent development, and to identify the mitigation ratios required to compensate for potential impacts on wetlands. PMC 23.20.020 requires the use of the Ecology 2004 rating system. Pierce County Policy requires the use of conversions between the Ecology 2014 rating system and the individual attribute scores used to determine buffers and mitigation stated in Pierce County Code. These conversions are provided on Ecology's website (Ecology 2018). Wetland rating forms are included in Appendix E.

Wetland Functional Assessment

Wetland functions are those physical and chemical processes that occur within a wetland, such as the storage of water, cycling of nutrients, and maintenance of diverse plant communities and habitat that benefit wildlife. Wetland functions can be grouped into three broad categories: water quality functions, hydrologic functions, and habitat functions.

Habitat functions include providing food, water, and shelter for fish, shellfish, birds, amphibians, and mammals. Wetlands also serve as a breeding ground and nursery for numerous species. Hydrologic functions include reducing the velocity of stormwater, recharging and discharging groundwater, and providing flood storage. Water quality functions include the potential for

removing sediment, nutrients, heavy metals, and toxic organic compounds in the water passing through the wetland.

Wetland functions were evaluated using the *Wetland Functions Characterization Tool for Linear Projects* (WSDOT 2000). This tool evaluates wetlands in a consistent, yet rapid manner for routine application on linear highway projects based on best professional judgement (BPJ). Wetland Functions and Value forms were completed to summarize a qualitative analyses of wetland functions and the relative importance of functions in each wetland unit.

Stream Delineation and Classification

Streams are considered to be one type of fish and wildlife conservation area, according to Pierce County Code (PCC 18E.40.020), Fife Municipal Code (FMC 17.15.040), and Milton Municipal Code (MMC 18.16.610). A fish and wildlife conservation area is an area that supports regulated fish or wildlife species or habitats, typically identified by known point locations of specific species, habitat areas, or both.

The OHWMs of streams within the study area were delineated using the definition provided in the WAC, Section 222-16-010, which has been adopted by Pierce County, the City of Fife, and the City of Milton. According to this definition, the OHWM of streams is "that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation." In addition, methods in the publication *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016) were applied.

To delineate the OHWM, the bed and adjacent banks of streams in the study area were examined for indications of regular high water events. Factors considered when assessing changes in vegetation include:

- Scour (removal of vegetation and exposure of gravel, sand, or other soil substrate)
- Drainage patterns
- Elevation of floodplain benches
- Changes in sediment texture across the floodplain
- Sediment layering
- Sediment or vegetation deposition
- Changes in vegetation communities across the floodplain

Herrera and Stell staff placed white flags with blue dots, or blue pin flags, on the site, indicating the horizontal and vertical location of the OHWM along the streams. The flags were subsequently located by a WSDOT survey crew.

Streams were classified in Pierce County (PCC 18E.40.60), the City of Fife (FMC 17.15.040), and the City of Milton (MMC 18.16.620) per Washington State Department of Natural Resources water typing system based on WAC 222-16-030.

Antecedent Precipitation Analysis

Analyzing climatic conditions and local weather patterns is important in the assessment of vegetation, soil conditions, and hydrology for wetland delineations (Environmental Laboratory 1987, 2010), and information on precipitation that precedes a site visit is valuable in helping determine whether conditions observed as a site are reflective of normal rainfall. The NRCS (1997) provides methodology for the analysis of normal environmental conditions using antecedent rainfall measurements. For this method, "normal precipitation" is defined as ranges of normal precipitation or values falling within defined thresholds, in this case, the 30th and 70th percentile thresholds (Sprecher and Warne 2000). These ranges for a particular site are provided by WETS tables, which can be accessed through the NRCS National Water and Climate Center (NRCS 2018) and are calculated using long-term data (30 years) recorded at National Weather Service meteorological stations. USDA WETS tables display monthly average rainfall data (50th percentile) in addition to the upper and lower limits at which there is a 30 percent chance that rainfall will be more or less than the average (30th and 70th percentiles) (NRCS 2017). USDA WETS tables use climatological probabilities and are calculated on the basis of the most recent three decades of data, as factors such as climate change and different recording technologies may alter probabilities (Sprecher and Warne 2000). Currently, the 30-year range from 1981 to 2010 is used. This method makes the assumptions that rainfall is evenly distributed within a month, that antecedent precipitation can be properly evaluated for a 3-month period (i.e., assumes that evapotranspiration is the same in each season), that antecedent precipitation affects different systems similarly, and that snowmelt has the same contribution to hydrology as rainfall (Sprecher and Warne 2000).

To determine whether recent precipitation is reflective of normal precipitation, a representative weather station near the site is selected. Because other conditions may affect precipitation (e.g., elevation, aspect, and proximity to mountains), the nearest station may not be the most representative of the site (Environmental Laboratory 2010). The procedure for determining normal precipitation uses measured rainfall data from the 3 months prior to the month of the site visit. For example, if the site visit occurs in September, precipitation data from June, July, and August would be analyzed. The recorded rainfall of each month is first compared to the long-term range of normal precipitation (30th and 70th percentiles) and is determined to have a "normal" condition if it falls within this range; if the recorded data is higher or lower than the range, then it is determined to have a "wet" or "dry" condition, respectively. The condition is then given a value, "1" for "dry," "2" for "normal," and "3" for "wet"; and this value is multiplied by the weighted monthly value, where the most recent month (1 month prior) is weighted heavier (3) than 3 months prior (1). The sum of this product is then used to determine whether the entire 3-month period is "drier than normal" (6–9), "normal" (10–14) or "wetter than normal" (15–18) (Sprecher and Warne 2000; Sumner et al. 2009).

References

Anderson, P.S., S. Meyer, P. Olson, E. Stockdale, E. 2016. Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State. Ecology Publication 16-06-029. Washington State Department of Ecology.

Brinson, M.M. 1993. A Hydrogeomorphic Classification for Wetlands. Technical Report WRP-DE-4. US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. August.

Cooke, S. 1997. A Field Guide to the Common Wetland Plants of Western Washington and Northwest Oregon. Seattle Audubon Society and Washington Native Plant Society, Seattle, Washington. June.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi. January 1987.

Environmental Laboratory. 2010. Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region. Technical Report TR-08-13. US Army Corps of Engineers, Engineer Research and Development Center, Wetlands Regulatory Assistance Program, Vicksburg, Mississippi.

FGDC. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and US Fish and Wildlife Service, Washington, DC.

Hitchcock, C.L., and A. Cronquist. 1987. Flora of the Pacific Northwest. University of Washington Press, Seattle, Washington.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30:1–17. US Army Corps of Engineers. Accessed June 27, 2016. <http://rsgisias.crrel.usace.army.mil/NWPL/>.

Munsell Color. 2000. Munsell Soil Color Charts. New Windsor, New York.

NRCS. 1997. Hydrology Tools for Wetland Determination. Chapter 19, Engineering field handbook. D. E. Woodward, ed. USDA-NRCS, Fort Worth, Texas.

NRCS. 2017. Field Indicators of Hydric Soil in the United States, Version 8.1. Vasilas, L.M., G.W. Hurt, and J.F. Berkowitz, eds. US Department of Agriculture, Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils.

NRCS. 2018. Agricultural Applied Climate Information System. US Department of Agriculture, Natural Resources Conservation Service. Accessed January 25, 2018. <https://efotg.sc.egov.usda.gov/efotg_locator.aspx>.

Pierce County. 2011. Topographic data. LiDAR bare earth digital elevation model (DEM) created by Watershed Sciences, Inc. (WSI), April 23 through September 6, 2011. Puget Sound LiDAR Consortium. Accessed November 1, 2018. <http://pugetsoundlidar.ess.washington.edu>.

Pierce County. 2018a. Roads in Pierce County. Pierce County roads layer created by Pierce County, 2018. Pierce County Open Geospatial Data Portal. Accessed November 1, 2018. < http://gisdata-piercecowa.opendata.arcgis.com/>.

Pierce County. 2018b. Streams in Pierce County. Pierce County hydrological centerlines layer created by Pierce County, 2018. Pierce County Open Geospatial Data Portal. Accessed November 1, 2018. < http://gisdata-piercecowa.opendata.arcgis.com/>.

Pierce County. 2018c. Tax parcels in Pierce County. Pierce County tax parcels layer created by Pierce County, 2018. Pierce County Open Geospatial Data Portal. Accessed November 1, 2018. < http://gisdata-piercecowa.opendata.arcgis.com/>.

Sprecher, S., and A. Warne. 2000. Accessing and Using Meteorological Data to Evaluate Wetland Hydrology. Technical Report TRWRAP0001. US Army Corps of Engineers, Engineer Research and Development Center, Operations Division Regulatory Branch, Vicksburg, Mississippi. April.

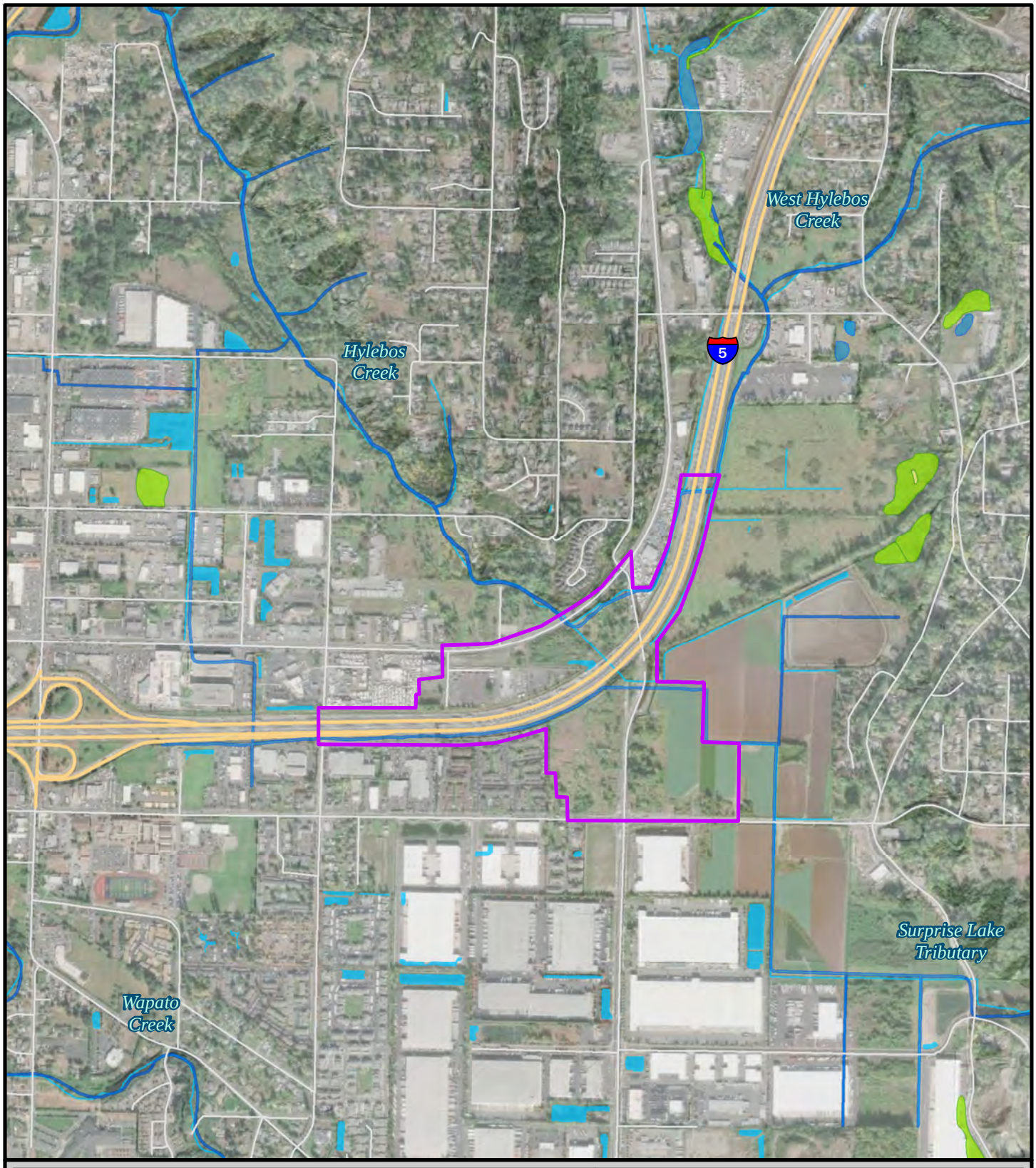
Sumner, J.P., M.J. Vepraskas, and R.K. Kolka. 2009. Methods to Evaluate Normal Rainfall for Short-Term Wetland Hydrology Assessment. Wetlands 29(3):1049–1062.

Washington State Department of Ecology (Ecology). 2018. Tables for adjusting rating scores (2004 to 2014 versions with July 2018 modifications). Accessed October 22, 2018. https://ecology.wa.gov/Water-Shorelines/Wetlands/Tools-resources/Rating-systems.

WSDOT. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia, Washington.

Appendix B — Background Information

Appendix B1 NWI Mapped Wetlands in the Project Corridor



Legend

- Study area
- Highway
- Roads
- Stream (Pierce County)
- Waterbody (Pierce County)

Wetland Type (NWI)

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Figure B-1.
NWI Mapped Wetlands and Streams in the SR 167 Completion Project, Stage IA Project Corridor.

N

0 600 1,200 2,400 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\FigB1_PrevMappedWL_letter.mxd

Appendix B2 Topography in the Project Corridor

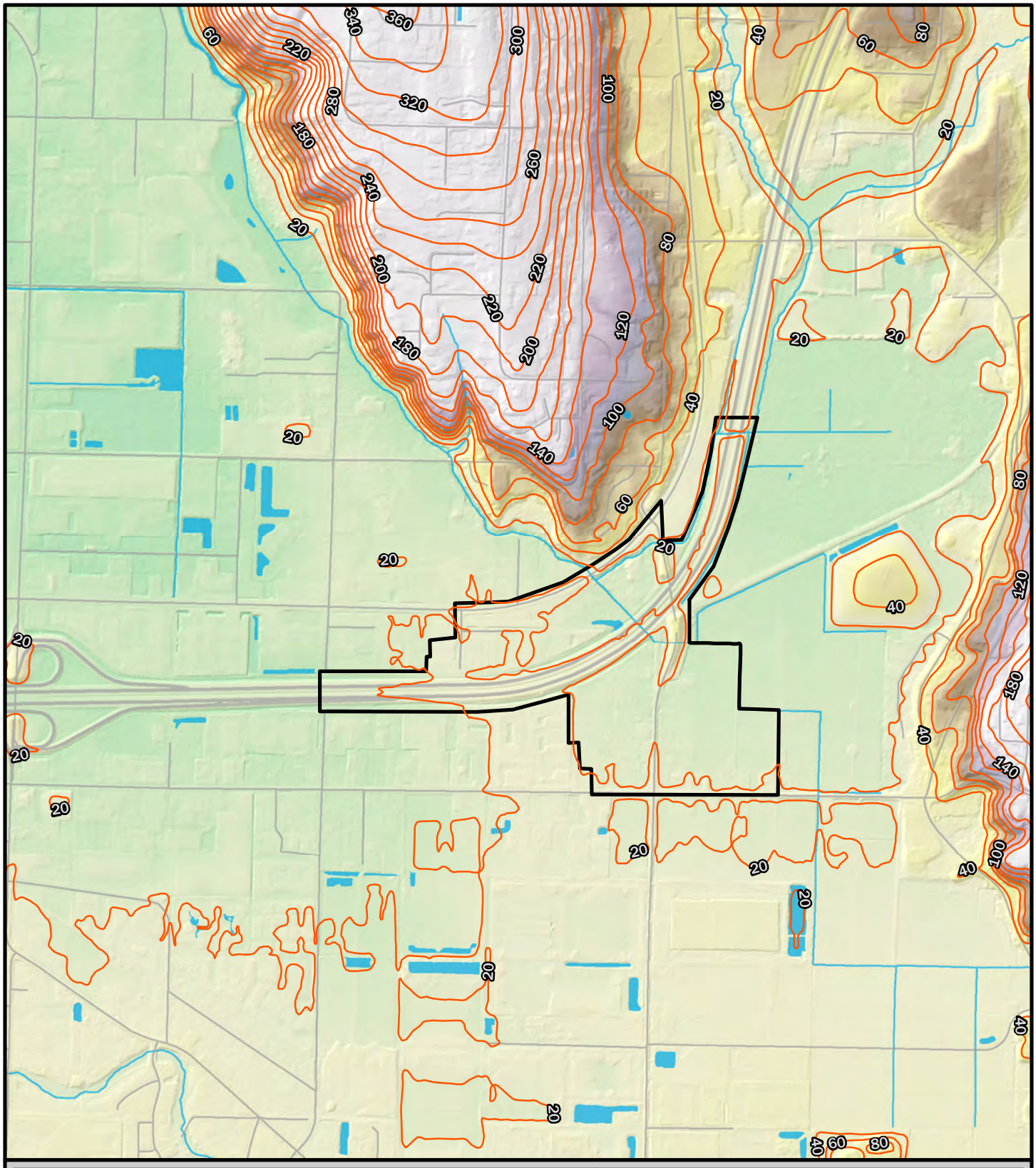
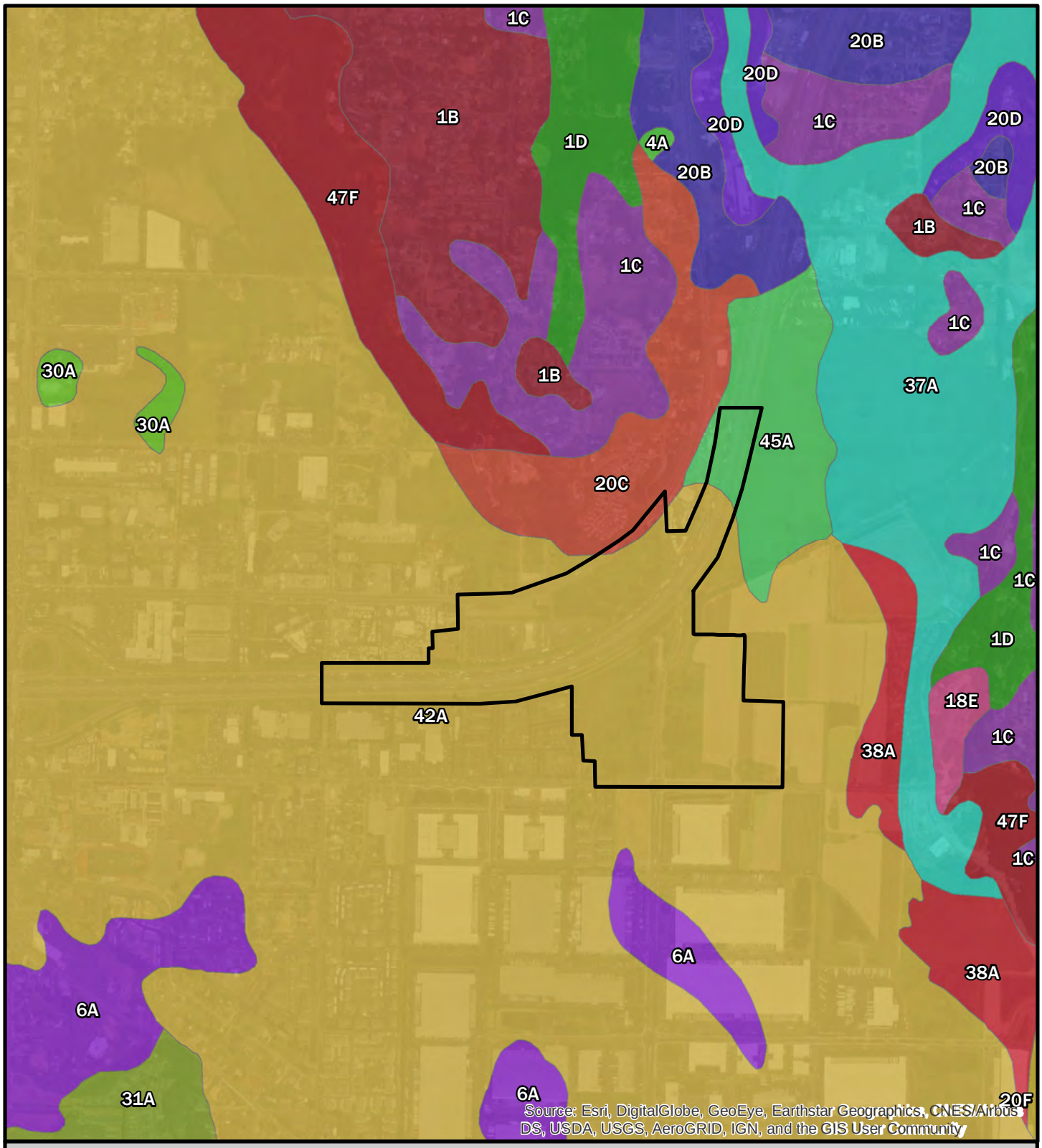


Figure B-2.
Topography in the SR 167 Completion Project, Stage IA Project Corridor.

Appendix B3 Mapped Soils in the Project Corridor



Legend

Study area

Soil type

- 18E - Indianola loamy sand, 15-30% slopes
- 1B - Alderwood gravelly sandy loam, 0-8% slopes
- 1C - Alderwood gravelly sandy loam, 8-15% slopes
- 1D - Alderwood gravelly sandy loam, 15-30% slopes
- 20B - Kitsap silt loam, 2-8% slopes
- 20C - Kitsap silt loam, 8-15% slopes
- 20D - Kitsap silt loam, 15-30% slopes
- 20F - Kitsap silt loam, 30-65% slopes
- 30A - Puget silty clay loam
- 31A - Puyallup fine sandy loam
- 37A - Semiahmoo muck
- 38A - Shalcar muck
- 42A - Sultan silt loam
- 45A - Tisch silt
- 47F - Xerochrepts, 45-70% slopes
- 4A - Bellingham silty clay loam
- 6A - Briscot loam

Figure B-3.
Mapped Soils in SR 167 Completion Project, Stage IA Project Corridor.

N

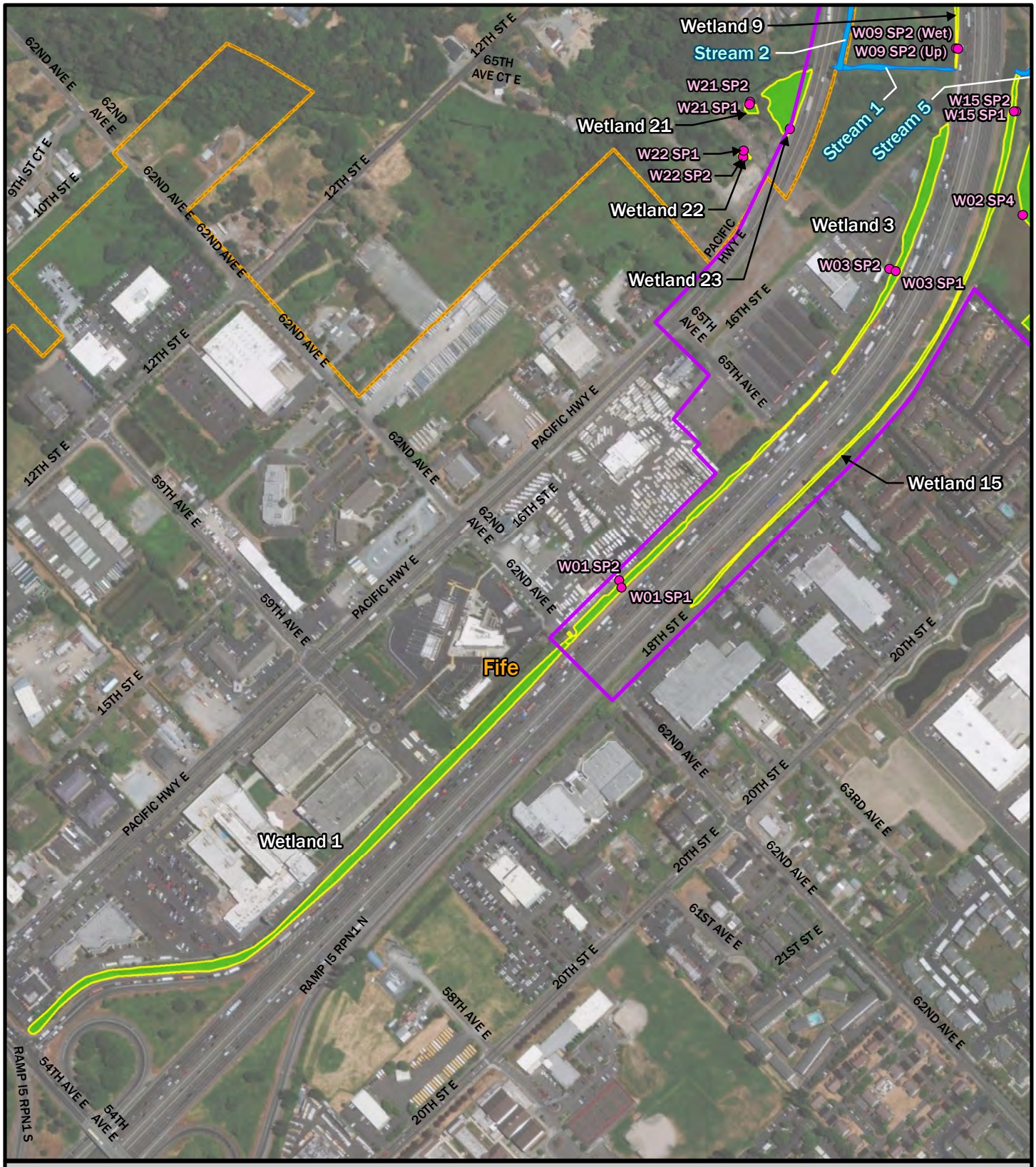
0 600 1,200 2,400 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\FigB3_Soils_letter.mxd

Appendix C — Plan Sheets



Legend

- Study area
- Wetland boundary
- Wetland area
- Stream area
- Soil pit
- City limit
- Roads

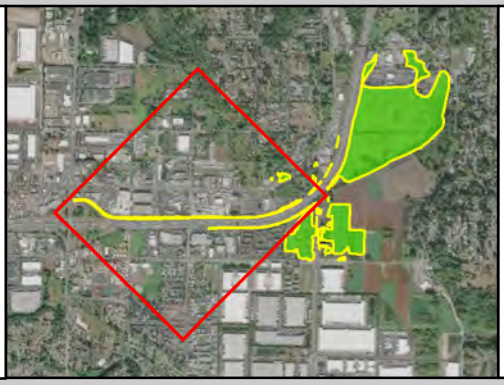


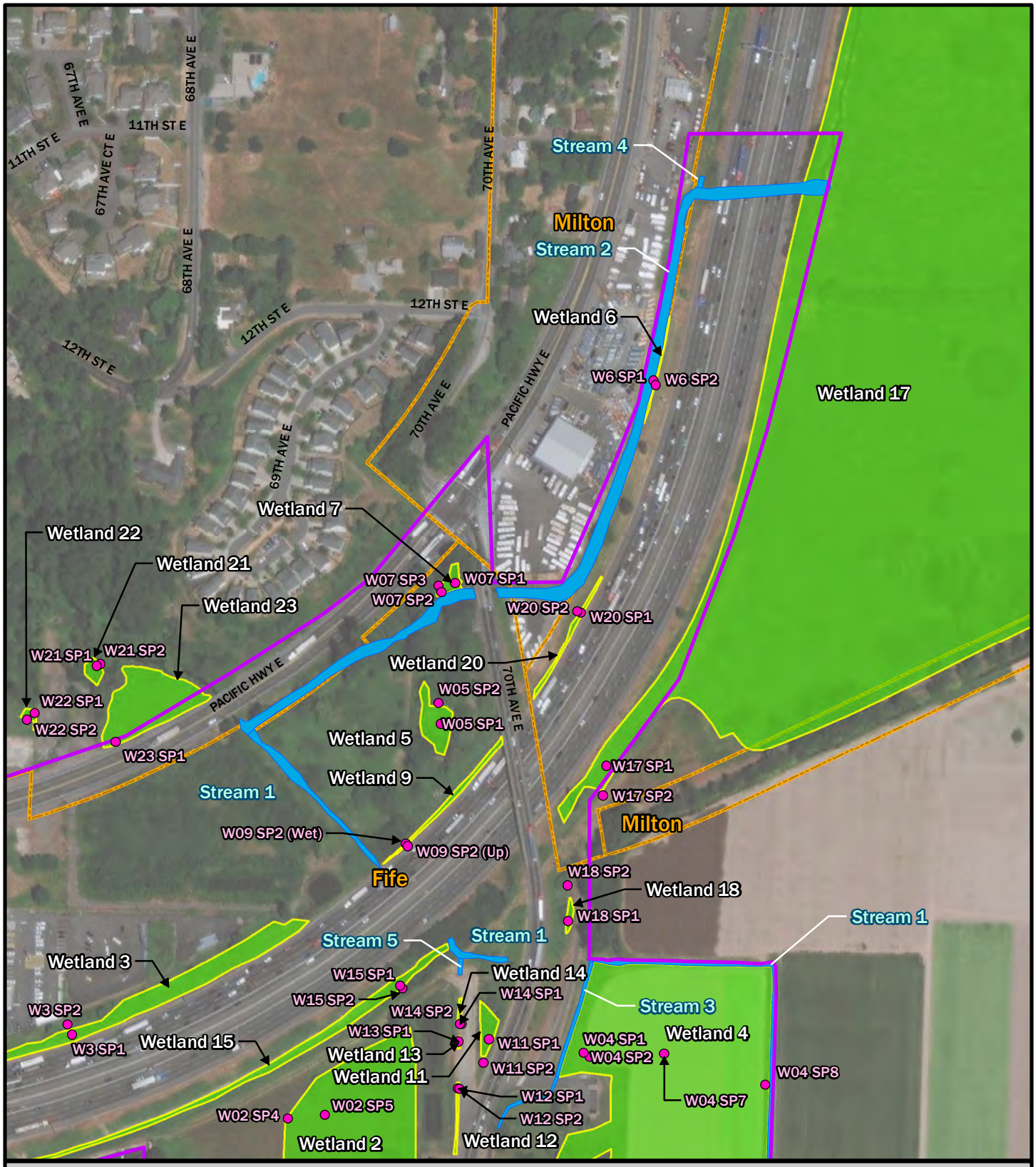
Figure C-1A.
Wetlands and Streams in the SR 167 Completion Project, Stage IA.

0 250 500 1,000 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\AppC_PlanSheets\FigC1_A_PlanSheet_ProjectCorridor_letter.mxd



Legend

- Study area
- Wetland boundary
- Wetland area
- Stream area
- Soil pit
- City limit
- Roads

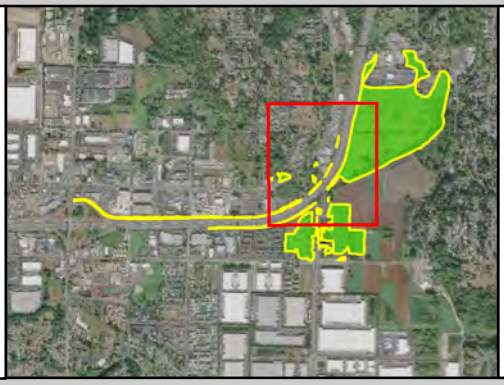


Figure C-1B.
Wetlands and Streams in the SR 167 Completion Project, Stage IA.

N

0 150 300 600 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\AppxC_PlanSheets\FigC1_B_PlanSheet_ProjectCorridor_letter.mxd

Legend

- Study area
- Wetland boundary
- Wetland area
- Stream area
- Soil pit
- City limit
- Roads

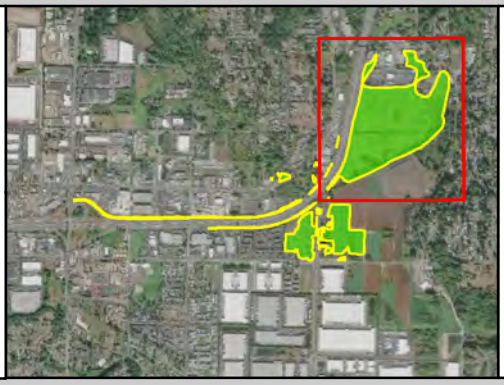


Figure C-1C.
Wetlands and Streams in the SR 167 Completion Project, Stage IA.

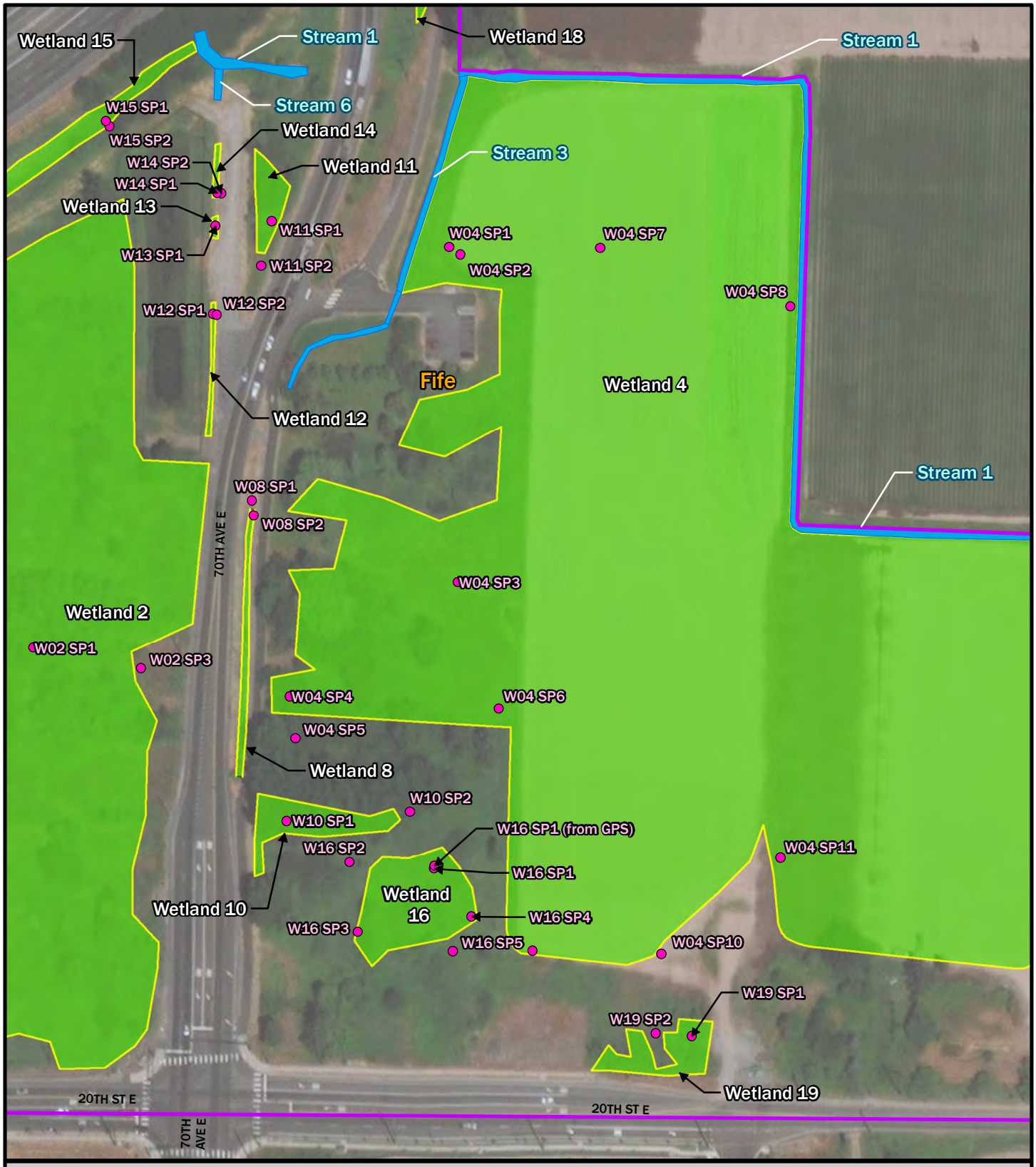
N

0 200 400 800 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\AppxC_PlanSheets\FigC1_C_PlanSheet_ProjectCorridor_letter.mxd



Legend

- Study area
- Wetland boundary
- Wetland area
- Stream area
- Soil pit
- City limit
- Roads

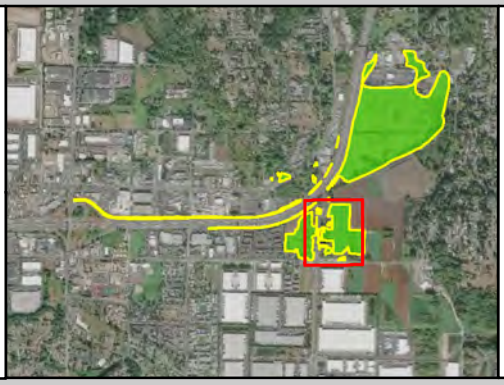


Figure C-1D.
Wetlands and Streams in the SR 167 Completion Project, Stage IA.

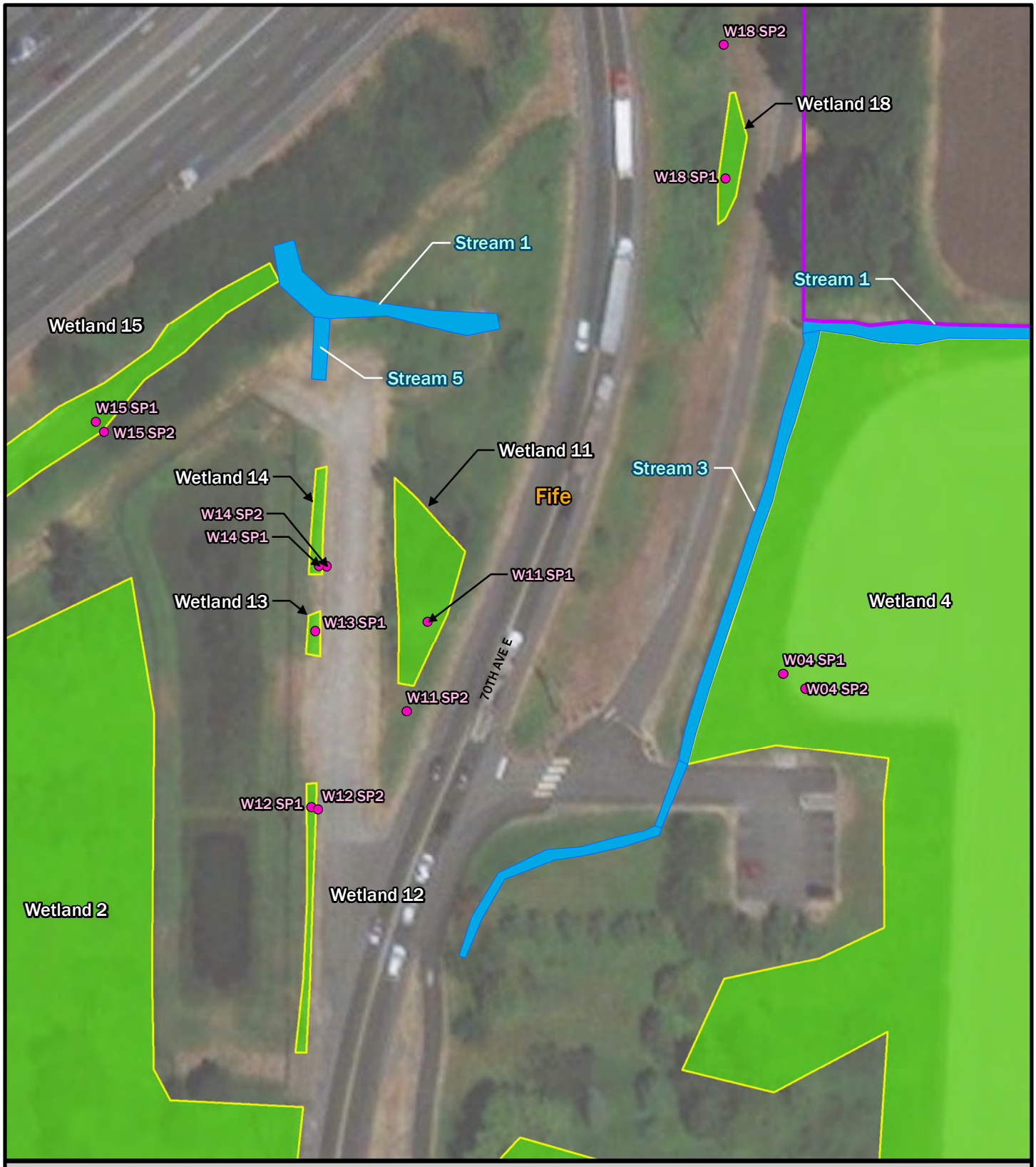
N

0 80 160 320 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\AppxC_PlanSheets\FigC1_D_PlanSheet_ProjectCorridor_letter.mxd



Legend

- Study area
- Wetland boundary
- Wetland area
- Stream area
- Soil pit
- City limit
- Roads

Figure C-1E.
Wetlands and Streams in the SR 167 Completion Project, Stage IA.

N

0 40 80 160 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\AppC_PlanSheets\FigC1_E_PlanSheet_ProjectCorridor_letter.mxd

Legend

- Study area
- Wetland boundary
- Wetland area
- Stream area
- Soil pit
- City limit

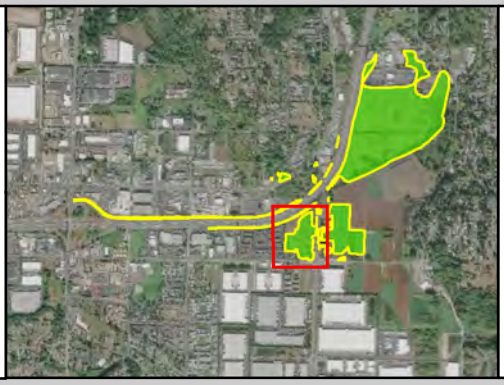


Figure C-1F.
Wetlands and Streams in the SR 167 Completion Project, Stage IA.

N

0 75 150 300 Feet

HERRERA

Digital Globe, Aerial (2017)

K:\Projects\Y2016\16-06277-000\Project\GISWorking\Wetland_Delineation2018\Report_Figures\AppC_PlanSheets\FigC1_F_PlanSheet_ProjectCorridor_letter.mxd

Appendix D — Wetland Delineation Data Sheets

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 7/13/18

Applicant/Owner: WSDOT State: WA Sampling Point: W1-SP1

Investigator(s): D.Miller, M.Hagedorn, E.Henrichsen Section, Township, Range: Sec.7, T.20N, R.4E

Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): A Lat: 47.241446 Long: -122.345927 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: PEM

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

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

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

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

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

Remarks: A portion of the area that we delineated was mowed, thus disturbed. Some tire tracks from mowing, but not a "significant disturbance." Point is in Pierce County, although the western portion of Wetland 1 is in Fife.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 M)			
1. *Phalaris arundinacea*	89%	yes	FACW
2. *Ranunculus acriformis*	1%	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 45, 20% = 18	90%	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 10%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks: Vegetative cover would likely be 100% if not for tire tracks.

Project Site: SR 167 Completion, Stage 1A

SOIL Sampling Point: W1-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1.5	10YR 2/2	100					silt loam	
1.5-10.5	10YR 3/1	95	10YR 3/6	5	C	M	sandy silt loam	
10.5-15.5	Gley1 3/N	100					loamy sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	14"
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 7/13/18

Applicant/Owner: WSDOT State: WA Sampling Point: W1-SP2

Investigator(s): D.Miller, M.Hagedorn, E.Henrichsen Section, Township, Range: Sec.7, T.20N, R.4E

Landform (hillslope, terrace, etc.): roadside Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): A Lat: 47.241516 Long: -122.345874 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: UPL

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

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

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

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

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

Remarks: Near Flag W1-30, a portion of the area that we delineated was mowed, thus disturbed. Some tire tracks from mowing, but not a "significant disturbance." Point is in Pierce County, although the western portion of Wetland 1 is in Fife.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 M)			
1. *Phalaris arundinacea*	38	yes	FACW
2. *Ranunculus repens*	35	yes	FAC
3. *Plantago lanceolata*	2	no	FACU
4. *Poa sp.*	5	no	
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 40, 20% = 16	80	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 20

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks: Dead grass by fence about 20% of plot. (R.V. lot may spray herbicide.)

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W1-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					silt loam	small gravel, likely from adjacent R.V. lot
4-16	7.5YR 3/2	100					silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No indicators observed.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 17-Jul-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W02-SP1**

Investigator(s): G. Richotte, C. Merten **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 **°**

Subregion (LRR): LRR A **Lat.:** 47.24049 **Long.:** -122.337198 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
Under weeping willow; SP for PFO vegetation class; no rain last 48 hours

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 10m^2)			
1. Salix babylonica	90	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m^2)			
1. Malus fusca	5	☑ 33.3%	FACW
2. Crataegus douglasii	5	☑ 33.3%	FAC
3. Corylus cornuta	5	☑ 33.3%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	15	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Ranunculus repens	95	☑ 43.2%	FAC
2. Epilobium ciliatum	10	☐ 4.5%	FACW
3. Rubus armeniacus	20	☐ 9.1%	FAC
4. Phalaris arundinacea	5	☐ 2.3%	FACW
5. Agrostis capillaris	90	☑ 40.9%	FAC
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	220	= Total Cover	
Woody Vine Stratum (Plot size: 1 m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	110	**x 2 =**	220
FAC species	210	**x 3 =**	630
FACU species	5	**x 4 =**	20
UPL species	0	**x 5 =**	0
Column Totals:	325	**(A)**	870 **(B)**

Prevalence Index = B/A = 2.677

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W02-SP1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-20	7.5YR	5/2	70	7.5YR	5/8	30	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

good light for color

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 17-Jul-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W02-SP2**

Investigator(s): G. Richotte, C. Merten **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** concave **Slope:** 1.0 **% /** 0.6 **°**

Subregion (LRR): LRR A **Lat.:** 47.240496 **Long.:** -122.33764 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
SP represent PEM vegetation class

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	30	☑ 21.4%	FACW
2. Juncus effusus	50	☑ 35.7%	FACW
3. Epilobium ciliatum	15	☐ 10.7%	FACW
4. Agrostis gigantea	20	☐ 14.3%	FAC
5. Sonchus oleraceus	5	☐ 3.6%	UPL
6. Agrostis capillaris	20	☐ 14.3%	FAC
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	140	**= Total Cover**	
Woody Vine Stratum (Plot size: 1 m)			
1. Solanum dulcamara	5	☐ 100.0%	FAC
2.	0	☐ 0.0%	
	5	**= Total Cover**	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	95	**x 2 =**	190
FAC species	45	**x 3 =**	135
FACU species	0	**x 4 =**	0
UPL species	5	**x 5 =**	25
Column Totals:	145	**(A)**	350 **(B)**

Prevalence Index = B/A = 2.414

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W02-SP2

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	4/2	98	10YR	5/6	20	C	M	Silty Clay Loam	
6-20	10YR	4/2	60	10YR	5/6	40	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 17-Jul-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W02-SP3**

Investigator(s): G. Richotte, C. Merten **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.240434 **Long.:** -122.336688 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
Only one of the three wetland parameters present.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1 m^2)			
1. Agrostis capillaris	95	☑ 67.4%	FAC
2. Juncus effusus	20	☐ 14.2%	FACW
3. Phalaris arundinacea	10	☐ 7.1%	FACW
4. Alopecurus pratensis	10	☐ 7.1%	FAC
5. Vicia americana	5	☐ 3.5%	FAC
6. Ranunculus repens	1	☐ 0.7%	FAC
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	141	**= Total Cover**	
Woody Vine Stratum (Plot size: 1 m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	30	**x 2 =**	60
FAC species	111	**x 3 =**	333
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	141 **(A)**		393 **(B)**

Prevalence Index = B/A = 2.787

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W02-SP3

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR	3/3	100						Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 18-Jul-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W02-SP4**

Investigator(s): G. Richotte, E. Henrichsen **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.241369 **Long.:** -122.337877 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
All three wetland parameters are met. PEM vegetation class.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Agrostis gigantea	80	☑ 80.0%	FAC
2. Holcus lanatus	10	☐ 10.0%	FAC
3. Cirsium arvense	2	☐ 2.0%	FAC
4. Vicia americana	5	☐ 5.0%	FAC
5. Rubus armeniacus	3	☐ 3.0%	FAC
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size: 1 m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	0	**x 2 =**	0
FAC species	100	**x 3 =**	300
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	100 **(A)**		300 **(B)**

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W02-SP4

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	3/3	100						Silt Loam	
10-14	10YR	5/1	60	10YR	5/8	40	C	M	Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

good light for color

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes ○ No ◉ Depth (inches): _____

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Dry season, no saturation present

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W02-SP5**

Investigator(s): G. Ritchotte **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Valley bottom **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.241395 **Long.:** -122.337552 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1. Cornus alba	40	☑ 57.1%	FACW
2. Rubus armeniacus	30	☑ 42.9%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	70	= Total Cover	
Herb Stratum (Plot size: 1 m^2)			
1. Vicia americana	20	☑ 36.4%	FAC
2. Phalaris arundinacea	30	☑ 54.5%	FACW
3. Epilobium ciliatum	5	☐ 9.1%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	55	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 45

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	75	**x 2 =**	150
FAC species	50	**x 3 =**	150
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	125	**(A)**	300 **(B)**

Prevalence Index = B/A = 2.400

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets rapid test for hydrophytic vegetation, dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W02-SP5

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR	4/1	70	7.5YR	4/6	30	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicator F3.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicator C3 is present. Secondary indicator D5 is also present.

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

Project Site: SR 167 Completion, Stage 1A City/County: /Pierce Sampling Date: 7/19/18

Applicant/Owner: WSDOT State: WA Sampling Point: W3-SP1

Investigator(s): D.Miller, E.Henrichsen Section, Township, Range: Sec.7, T.20N, R.4E

Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A Lat: 47.241843 Long: -122.3398 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: PEM

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 M radius)			
1. *Phalaris arundinacea*	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W3-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/1	100					silt loam	organic matter and live roots present
3-9	7.5YR/2.5/1	100					silty clay	loam
9-16	7.5YR 4/1	85	7.5YR 5/8	15	C	M	loamy sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Patches of loamy sand and loam in 9-16" layer.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soil moist at about -7 inches and below.

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

Project Site: SR 167 Completion, Stage 1A City/County: /Pierce Sampling Date: 7/19/18

Applicant/Owner: WSDOT State: WA Sampling Point: W3-SP2

Investigator(s): D.Miller, E.Henrichsen Section, Township, Range: Sec.7, T.20N, R.4E

Landform (hillslope, terrace, etc.): terrace above ditch Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.241904 Long: -122.339841 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: UPL

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 3 M)			
1. *Rubus armeniacus*	10	yes	FAC
2. *Acer sp. (non-native)*	5	yes	NI
3.			
4.			
5.			
50% = 7.5, 20% = 3	15	= Total Cover	
Herb Stratum (Plot size: 1 M)			
1. *Phalaris arundinacea*	70	yes	FACW
2. *Cirsium arvense*	7	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 38.5, 20% = 15.4	77	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66.7	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks: About 30% of the PHAR was dead and not included in percent cover of herb stratum, but there was no bare ground at the sampling point.

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W3-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					silt loam	
7-16	10YR 3/2	100					silty clay	loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No indicators observed.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 01-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** W04-SP1

Investigator(s): C. Merten, E. Spear **Section, Township, Range:** S 7 T 20N R 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.241804 **Long.:** -122.335285 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Climatic conditions are drier than normal (WETS table, Port of Tacoma station); Edge of ag field between ditch and active farmed area. Cloudy, 60 degrees F

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1. Salix sitchensis	25	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	25	= Total Cover	
Herb Stratum (Plot size: 1 m^2)			
1. Phalaris arundinacea	100	☑ 90.9%	FACW
2. Convolvulus arvensis	5	☐ 4.5%	UPL
3. Equisetum arvense	5	☐ 4.5%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	110	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	125	x 2 =	250
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	135	(A)	290 (B)

Prevalence Index = B/A = 2.148

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5YR	4/2	90	7.5YR	4/6	10	C	M	Silty Clay Loam	
16-20	10YR	5/2	85	5YR	5/8	15	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

C3 indicator observed from surface 12" depth.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 01-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** W04-SP2

Investigator(s): C. Merten, E. Spear **Section, Township, Range:** S 7 T 20N R 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.241782 **Long.:** -122.335232 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Climatic conditions are drier than normal (WETS table, Port of Tacoma station); top 6" are tilled soils; Vegetation is significantly disturbed and rooted in tilled soils. Soil is also disturbed by regular tilling.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	90	☑ 100.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 1 m^2)			
1. Solanum dulcamara	85	☑ 54.8%	FAC
2. Amaranthus retroflexus	20	☐ 12.9%	FACU
3. Chenopodium album	20	☐ 12.9%	FACU
4. Portulaca oleracea	15	☐ 9.7%	FAC
5. Persicaria hydropiperoides	10	☐ 6.5%	OBL
6. Matricaria discoidea	5	☐ 3.2%	FACU
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	155	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	155 (A)		490 (B)

Prevalence Index = B/A = 3.161

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ○ No ◉

Remarks:

Vegetation is significantly disturbed and rooted in tilled soils.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP2

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/2	95	10YR	5/8	5	C	M	Silty Clay Loam	
6-20	10YR	3/2	80	7.5YR	5/8	20	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ○ No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○ No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Field is reported to have drain tiles. None observed in area of soil pit. Clear C3 indicators at 6" to 20" depth.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 01-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** W04-SP3

Investigator(s): C. Merten, E. Spear **Section, Township, Range:** S 7 T 20N R 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.240732 **Long.:** -122.335208 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Climatic conditions are drier than normal (WETS table, Port of Tacoma station); bright sun for coloring. All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1 m^2)			
1. Equisetum arvense	85	☑ 45.9%	FAC
2. Agrostis capillaris	75	☑ 40.5%	FAC
3. Holcus lanatus	10	☐ 5.4%	FAC
4. Alopecurus pratensis	15	☐ 8.1%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	185	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	0	**x 2 =**	0
FAC species	185	**x 3 =**	555
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	185	**(A)**	555 **(B)**

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP3

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR	3/2	85	7.5YR	5/8	15	C	M, PL	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

bright sun

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 01-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W04-SP4**

Investigator(s): C. Merten, E. Spear **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 **°**

Subregion (LRR): LRR A **Lat.:** 47.240354 **Long.:** -122.335985 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 10m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m^2)			
1. Salix sitchensis	25	☑ 20.5%	FACW
2. Salix hookeriana	45	☑ 36.9%	FACW
3. Betula papyrifera	10	☐ 8.2%	FAC
4. Salix scouleriana	40	☑ 32.8%	FAC
5. Cornus alba	2	☐ 1.6%	FACW
	122	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Juncus balticus	5	☐ 4.0%	FACW
2. Equisetum arvense	90	☑ 72.0%	FAC
3. Lotus corniculatus	5	☐ 4.0%	FAC
4. Rubus armeniacus	5	☐ 4.0%	FAC
5. Phalaris arundinacea	20	☐ 16.0%	FACW
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	125	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	97	**x 2 =**	194
FAC species	150	**x 3 =**	450
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	247	**(A)**	644 **(B)**

Prevalence Index = B/A = 2.607

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP4

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR	3/3	85	5YR	4/8	15	C	PL	Silty Clay Loam	
8-20	10YR	5/2	65	7.5YR	5/8	35	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

good light for color

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

C3 indicator present from the soil surface to 8 inches below. Secondary indicator D5 is also present.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 01-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W04-SP5**

Investigator(s): C. Merten, E. Spear **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** convex **Slope:** 2.0 % / 1.1 °

Subregion (LRR): LRR A **Lat.:** 47.24022 **Long.:** -122.335955 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

No wetland indicators present. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 10m^2)			
1. Prunus emarginata	40	☑ 38.1%	FACU
2. Pseudotsuga menziesii	50	☑ 47.6%	FACU
3. Populus balsamifera	15	☐ 14.3%	FAC
4.	0	☐ 0.0%	
	105	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m^2)			
1. Rubus armeniacus	95	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	95	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	0	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 60

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0	
FACW species	0	**x 2 =**	0	
FAC species	110	**x 3 =**	330	
FACU species	90	**x 4 =**	360	
UPL species	0	**x 5 =**	0	
Column Totals:	200	**(A)**	690	**(B)**

Prevalence Index = B/A = 3.450

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ○ No ◉

Remarks:

Vegetation does not meet any hydrophytic vegetation criteria.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP5

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	3/4	100						Silt Loam	
10-17	10YR	3/3	85	10YR	4/6	15	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Good light for color. No hydric soil indicators are present.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No hydrology indicators are present.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W04-SP6**

Investigator(s): G. Ritchotte **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Valley bottom **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.24033 **Long.:** -122.335238 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1. Rubus armeniacus	70	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	70	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Equisetum arvense	90	☑ 90.0%	FAC
2. Ranunculus repens	8	☐ 8.0%	FAC
3. Vicia americana	2	☐ 2.0%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	0	**x 2 =**	0
FAC species	170	**x 3 =**	510
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	170	**(A)**	510 **(B)**

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP6

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/6	100						Silty Loam	
4-16	10YR	5/1	60	7.5YR	4/6	40	C	M	Silty Clay Loam	F3 is met

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F3 is met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicator C3 is present.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife/King **Sampling Date:** 28-Nov-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W04-SP7**

Investigator(s): C. Merten, G. Ritchotte **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** flat **Slope:** 0.0 **%** / 0.0 **°**

Subregion (LRR): LRR A **Lat.:** 47.241812 **Long.:** -122.334574 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ○ No ◉

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Test pit in active agricultural crop field. Cabbage harvest occurred within the last 30 days. Hydric soils and wetland hydrology are present.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	**= Total Cover**		
Sapling/Shrub Stratum (Plot size: 2m^2)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	**= Total Cover**		
Herb Stratum (Plot size: 1m^2)				
1. Taraxacum officinale	4	☐	4.4%	FACU
2. Phalaris arundinacea	2	☐	2.2%	FACW
3. Brassica oleracea	84	☑	93.3%	UPL
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	90	**= Total Cover**		
Woody Vine Stratum (Plot size: 1m^2)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	**= Total Cover**		

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	2	**x 2 =**	4
FAC species	0	**x 3 =**	0
FACU species	4	**x 4 =**	16
UPL species	84	**x 5 =**	420
Column Totals:	90	**(A)**	440 **(B)**

Prevalence Index = B/A = 4.889

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation severely disturbed. Active crop agricultural field. Harvest within the last 30 days with soil disturbance. Wetland vegetation assumed based on W04-SP1.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP7

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-9	7.5YR	3/2	100						Silty Clay Loam	
9-16	10YR	3/2	60	7.5YR	6/8	20	C	M	Silty Clay Loam	
				10YR	6/3	20	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Cloudy and rainy, difficult conditions for coloring. Crop harvest within last 30 days. Active agricultural cultivation disturbs top 6-9 inches of soil. Hydric soil indicator F6 is present.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	6
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicators A2 and A3 are present. Surface water 12 inches from pit.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife/King **Sampling Date:** 28-Nov-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W04-SP8**

Investigator(s): C. Merten, G. Ritchotte **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** flat **Slope:** 0.0 **% /** 0.0 **°**

Subregion (LRR): LRR A **Lat.:** 47.24164 **Long.:** -122.333673 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ○ No ◉

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Test pit on outer edge of active agricultural field. Does not appear to have been tilled within last 30 days, vegetation more mature, but disturbed. All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	50	☑ 71.4%	FACW
2. Rubus armeniacus	15	☑ 21.4%	FAC
3. Taraxacum officinale	5	☐ 7.1%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	70	**= Total Cover**	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	50	**x 2 =**	100
FAC species	15	**x 3 =**	45
FACU species	5	**x 4 =**	20
UPL species	0	**x 5 =**	0
Column Totals:	70	**(A)**	165 **(B)**

Prevalence Index = B/A = 2.357

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index. Located in outer edge of active agricultural field

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP8

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR	3/2	100						silty loam	gravel in soil
9-21	5YR	5/1	70	7.5YR	5/9	30	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

partly cloudy. Outer edge of ccropped agricultural field, top 6-9 inches appear to have been disturbed. Hydric soil indicator F3 is met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	10

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Surface water present 2 feet from soil pit. Hydrology indicators A3 and C3 are present. Secondary indicator D5 is also met.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife/King **Sampling Date:** 28-Nov-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** W04-SP9

Investigator(s): C. Merten, G. Ritchotte **Section, Township, Range:** S 7 T 20N R 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.239557 **Long.:** -122.334817 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ○ No ◉

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Pit within active agricultural field. Harvest occurred within the past 60 days.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	90	☑ 91.8%	FACW
2. Taraxacum officinale	5	☐ 5.1%	FACU
3. Stellaria media	1	☐ 1.0%	FACU
4. Amaranthus retroflexus	2	☐ 2.0%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	98	= Total Cover	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 5

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	8	x 4 =	32
UPL species	0	x 5 =	0
Column Totals:	98 (A)		212 (B)

Prevalence Index = B/A = 2.163

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation disturbed within the last 60 days from harvest activities. Vegetation meets rapid test for hydrophytic vegetation, dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP9

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	4/2	100						Silty loam	
6-14	10YR	4/2	95	10YR	5/8	5	C	M	Silty Clay Loam	
14-20	10YR	5/1	70	10YR	5/8	30	C	M	Silty clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

No rain, cloudy. Top 6-9 inches of soil disturbed from crop activities. Hydric soil indicator F3 is met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	10
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicators A2, A3, and C3 are met. Secondary indicator D5 is also met. Surface water is present within 1 foot of pit.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife/King **Sampling Date:** 28-Nov-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W04-SP10**

Investigator(s): C. Merten, G. Ritchotte **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** flat **Slope:** 0.0 **% /** 0.0 **°**

Subregion (LRR): LRR A **Lat.:** 47.239557 **Long.:** -122.334209 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ○ No ◉

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Only two wetland parameters are met. Test pit located just outside of this year's agricultural work.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1m^2)			
1. Rumex crispus	10	☑ 38.5%	FAC
2. Phalaris arundinacea	10	☑ 38.5%	FACW
3. Taraxacum officinale	5	☐ 19.2%	FACU
4. Amaranthus cruentus	1	☐ 3.8%	UPL
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	26	**= Total Cover**	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 85

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	10	**x 2 =**	20
FAC species	10	**x 3 =**	30
FACU species	5	**x 4 =**	20
UPL species	1	**x 5 =**	5
Column Totals:	26	**(A)**	75 **(B)**

Prevalence Index = B/A = 2.885

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation appears to have been disturbed within past year. Evidence of dead, mature curly dock. May also receive herbicide application.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP10

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR	3/3	100						Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

rain and clouds, soil less disturbed than in previous plots. Slight rise in eleveation from agricultural field.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	6

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Surface water within 6 inches of pit. Hydrology indicators A2 and A3 are present. Secondary indicator D5 is also met.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife/King **Sampling Date:** 28-Nov-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W04-SP11**

Investigator(s): C. Merten, G. Ritchotte **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): flat **Local relief (concave, convex, none):** flat **Slope:** 0.0 **% /** 0.0 **°**

Subregion (LRR): LRR A **Lat.:** 47.239874 **Long.:** -122.333661 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ○ No ◉

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

In recently harvested cabbage field, harvest within last 7 days. Cabbage still present. Hydric soils and hydrology are present, hydrophytic vegetation is assumed based on less disturbed sample plots.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1m^2)			
1. Stellaria media	2	☑ 18.2%	FACU
2. Brassica oleracea	5	☑ 45.5%	UPL
3. Phalaris arundinacea	2	☑ 18.2%	FACW
4. Matricaria discoidea	2	☑ 18.2%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	11	**= Total Cover**	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	2	**x 2 =**	4
FAC species	0	**x 3 =**	0
FACU species	4	**x 4 =**	16
UPL species	5	**x 5 =**	25
Column Totals:	11 **(A)**		45 **(B)**

Prevalence Index = B/A = 4.091

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation highly disturbed by harvest and crop activities. Wetland vegetation assumed based on other less disturbed test pits.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W04-SP11

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	3/3	100						Silty loam	
10-18	10YR	5/1	60	10YR	5/8	40	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Cloudy, no rain. Top 6-9 inches of soil disturbed by recent crop activities. Hydric soil indicator A11 is met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	18
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicator A3 is present. Surface water observed 2 feet from pit.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 8/1/18

Applicant/Owner: SWDOT State: WA Sampling Point: W5-SP1

Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.7, T.20N, R.4E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): A Lat: 47.243763 Long: -122.336613 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: PEM

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

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

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

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

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

Remarks: Historically disturbed but not recent or significant.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A - 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A - 3m)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Epilobium ciliatum*	35	yes	FACW
2. *Phalaris arundiancea*	30	yes	FACW
3. *Ranunculus repens*	30	yes	FAC
4. *Cirsium arvense*	3	no	FAC
5. *Equisetum telmateia*	T	no	FACW
6. *Polygonum sp.*	T	no	FACU
7.			
8.			
9.			
10.			
11.			
50% = 49, 20% = 19.6	98	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 2

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL Sampling Point: W5-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	75	7.5YR 4/4	25	C	M	silt loam	Dry
8-16	10YR 3/2	35	7.5YR 4/4	30	C	M	silt loam	Dry
	+ 10YR 5/1	35	N/A					

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Assumed to have wetland hydrology during the early growing season, as evidenced by water-stained leaves and hydric soil.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 8/1/18
Applicant/Owner: SWDOT State: WA Sampling Point: W5-SP2
Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec. 7, T. 20N, R.4E
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: 47.243884 Long: -122.336635 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Historically disturbed but not recent or significant.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 5 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Non-native- Cypress?*	30	yes	FAC
2. *Robinia pseudo-acacia*	20	yes	FACU
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3 m)			
1. *Rubus armeniacus*	15	yes	FAC
2. *Corylus cornuta-saplings*	5	yes	FACU
3.			
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Phalaris arundiancea*	30	yes	FACW
2. *Cirsium arvense*	10	yes	FAC
3. *Equisetum telmateia.*	7	no	FACW
4. *Epilobium ciliatum*	3	no	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 25, 20% = 10	50	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 50

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W5-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12	10YR 3/2	100					silt loam	Dry
16	10YR 5/1	95	10YR 3/3	5	C	M	sandy loam	Fine, Dry

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

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

Project Site: SR 167 Completion, Stage 1A City/County: Pierce County Sampling Date: 8/2/18

Applicant/Owner: WSDOT State: WA Sampling Point: W6-SP1

Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.5, T.20N, R.4E

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): A Lat: 47.245853 Long: -122.334807 Datum: NAD 1983 HARN

Soil Map Unit Name: Tisch silt (Sultan silt loam=south portion of WL) NWI classification: PEM

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

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

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

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

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

Remarks: **To west of I-5 and associated with Hylebos Creek.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Phalaris arundinacea*	80	yes	FACW
2. *Athyrium filix-femina*	10	no	FAC
3. *Iris pseudacorus*	10	no	OBL
4. *Cirsium arvense*	trace	no	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ 1 – Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W6-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	93	10YR 4/4	7	C	M	silt loam	
8-16	10YR 4/1	100					silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

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

Project Site: SR 167 Completion, Stage 1A City/County: Pierce County Sampling Date: 8/2/18

Applicant/Owner: WSDOT State: WA Sampling Point: W6-SP2

Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.5, T.20N, R.4E

Landform (hillslope, terrace, etc.): Gentle slope Local relief (concave, convex, none): convex Slope (%): 3

Subregion (LRR): A Lat: 47.245827 Long: -122.334783 Datum: NAD 1983 HARN

Soil Map Unit Name: Tisch silt (Sultan silt loam=south end of WL) NWI classification: UPL

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

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

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

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

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

Remarks: **Adjacent to fill from I-5 and WSDOT fence.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Phalaris arundinacea*	40	yes	FACW
2. *Ranunculus repens*	35	yes	FAC
3. *Hypochaeris sp.*	20	yes	FACU
4. *Agrostis sp.*	5	no	FAC
5. *Holcus lanatus*	trace	no	FAC
6. *Impatiens capensis*	trace	no	FACW
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66.6	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W6-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	99	10YR 3/3	1 or less	C	M	Silt loam	Very few redox
12-16	7.5YR 5/1	85	7.5 YR 4/4	15	C	M	Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 8/3/18
Applicant/Owner: WSDOT State: WA Sampling Point: W7-SP1
Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.6, T.20N, R.4E
Landform (hillslope, terrace, etc.): river terrace Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR): A Lat: 47.244608 Long: -122.336513 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	90	yes	FAC
2.			
3.			
4.			
50% = 45, 20% = 18	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. *Solanum dulcamara*	10	yes	FAC
2.			
3.			
4.			
5.			
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Urtica dioica*	10	no	FAC
2. *Phalaris arundinacea*	60	yes	FACW
3. *Impatiens capensis*	40	yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 55, 20% = 22	110	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 5

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W7-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1						Sandy loam	no visible redox

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: No redox visible but very wet soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	7"
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 8/3/18

Applicant/Owner: WSDOT State: WA Sampling Point: W7-SP2

Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.7, T.20N, R.4E

Landform (hillslope, terrace, etc.): river terrace Local relief (concave, convex, none): convex Slope (%): 7

Subregion (LRR): A Lat: 47.244552 Long: -122.336635 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: PEM

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. *Solanum dulcamara*	10	yes	FAC
2. *Rubus armeniacus*	10	yes	FAC
3.			
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Phalaris arundinacea*	50	yes	FACW
2. *Impatiens capensis*	35	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 42.5, 20% = 17	85	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 15

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W7-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2		7.5YR 4/4	25	C	M	Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Roots

Depth (inches): 12

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Site visit conducted during normal annual dry season. Due to presence of hydrophytic vegetation, hydric soil and lanscape position, wetland hydrology assumed to be present during period of normal rainfall.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 8/3/18

Applicant/Owner: WSDOT State: WA Sampling Point: W7-SP3

Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.7, T.20N, R.4E

Landform (hillslope, terrace, etc.): above river terrace Local relief (concave, convex, none): convex Slope (%): 5

Subregion (LRR): A Lat: 47.244588 Long: -122.336661 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: UPL

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 3m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 2m)			
1. *Rubus armeniacus*	40	yes	FAC
2.			
3.			
4.			
5.			
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Phalaris arundinacea*	85	yes	FACW
2. *Urtica dioica*	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W7-SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	100					Gravelly	sandy loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: gravel/cobble

Depth (inches): 14

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No indicators observed.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 02-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W08-SP1**

Investigator(s): G. Richotte, A. Hoenig **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** none **Slope:** 7.0 **%** / 4.0 **°**

Subregion (LRR): LRR A **Lat.:** 47.240978 **Long.:** -122.336185 **Datum:** NAD 1981

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Climatic conditions are drier than normal (WETS table, Port of Tacoma station); bright sun for coloring; land between trail and 70th St. Only one wetland parameter is met.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1 m^2)			
1. Phalaris arundinacea	85	☑ 86.7%	FACW
2. Rubus armeniacus	10	☐ 10.2%	FAC
3. Convolvulus arvensis	2	☐ 2.0%	UPL
4. Equisetum arvense	1	☐ 1.0%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	98	**= Total Cover**	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 2

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	85	**x 2 =**	170
FAC species	11	**x 3 =**	33
FACU species	0	**x 4 =**	0
UPL species	2	**x 5 =**	10
Column Totals:	98	**(A)**	213 **(B)**

Prevalence Index = B/A = 2.173

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets rapid test for hydrophytic vegetation, dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W08-SP1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	2/2	100						Silt Loam	
4-8	10YR	3/4	100						Silt Loam	
8-14	10YR	2/2	100						Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: concrete

Depth (inches): 14

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 02-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W08-SP2**

Investigator(s): G. Richotte, A. Hoenig **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): ditch **Local relief (concave, convex, none):** convex **Slope:** 70.0 **%** / 35.0 **°**

Subregion (LRR): LRR A **Lat.:** 47.24093 **Long.:** -122.336175 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Climatic conditions are drier than normal (WETS table, Port of Tacoma station); bright sun for coloring; ditch between Interurban Trail and 70th Street. Soil pit on edge of dich. Ditch is mowed/maintained. All three wetland parameters are met.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	20	☑ 20.0%	FACW
2. Juncus effusus	50	☑ 50.0%	FACW
3. Rubus armeniacus	5	☐ 5.0%	FAC
4. Solanum dulcamara	20	☑ 20.0%	FAC
5. Scirpus microcarpus	2	☐ 2.0%	OBL
6. Equisetum arvense	3	☐ 3.0%	FAC
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	**x 1 =**	2
FACW species	70	**x 2 =**	140
FAC species	28	**x 3 =**	84
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	100	**(A)**	226 **(B)**

Prevalence Index = B/A = 2.260

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W08-SP2

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR	2.5/2	97	10YR	3/3	3	C	M	Clay Loam	
5-18+	10YR	4/1	90	10YR	3/4	10	C	M,PL	Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	5
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 8/3/18

Applicant/Owner: WSDOT State: WA Sampling Point: W9-SP1

Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec. 6, T.20N, R.4E

Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A Lat: 47.243037 Long: -122.336894 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: PEM

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

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

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

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

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

Remarks: Soil pit is in SW portion of wetland, near Surprise Lake Tributary.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 M radius)			
1. *Phalaris arundinacea*	20	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 10, 20% = 4	20	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	**1**	(A)
Total Number of Dominant Species Across All Strata:	**1**	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**100**	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks: RUAR and willow (Salix) sp. provide cover in plot, but are not rooted in plot. These create some shade in plot, which is why it is not densely vegetated.

Project Site: SR 167 Completion, Stage 1A

SOIL Sampling Point: W9-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					loam	with organics
2-5	10YR 3/1	93	10YR 4/6	7	C	M	silt loam	
5-14	10YR 3/2	90	10YR 4/4	10	CS		loamy sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: gravel

Depth (inches): 14

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Wetland hydrology assumed in the early growing season, in addition to Indicators B9, B10, D2, and D5.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 8/3/18

Applicant/Owner: WSDOT State: WA Sampling Point: W9-SP2

Investigator(s): D.Miller, G. Schulz Section, Township, Range: Sec.6, T.20N, R.4E

Landform (hillslope, terrace, etc.): Shoulder of I-5 Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): A Lat: 47.243024 Long: -122.33688 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: UPL

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

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

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

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

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

Remarks: **The sampling plot is located within the roadway prism for I-5 and consists of roadway fill.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 3 M)			
1. *Rubus armeniacus*	30	yes	FAC
2.			
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size: 1 M)			
1. *Phalaris arundinacea*	60	yes	FACW
2. *Holcus lanatus*	30	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks: RUAR growing nearby.

Project Site: SR 167 Completion, Stage 1A

SOIL Sampling Point: W9-SP2

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Gravel road fill

Depth (inches): 7

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No indicators observed.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 08-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W10-SP1**

Investigator(s): C. Merten, A. Hoenig **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 0.0 **%** / 0.0 **°**

Subregion (LRR): LRR A **Lat.:** 47.239955 **Long.:** -122.335987 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 5m)			
1. Populus balsamifera	90	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. Phalaris arundinacea	20	☑ 74.1%	FACW
2. Rubus armeniacus	2	☐ 7.4%	FAC
3. Ranunculus repens	5	☐ 18.5%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	27	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1. Wisteria frutescens	15	☐ 100.0%	FACW
2.	0	☐ 0.0%	
	15	= Total Cover	

% Bare Ground in Herb Stratum: 75

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	35	**x 2 =**	70
FAC species	97	**x 3 =**	291
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	132	**(A)**	361 **(B)**

Prevalence Index = B/A = 2.735

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W10-SP1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	4/2	87	5YR	3/4	10	C	M/PL	Clay Loam	
				7.5YR	5/1	3	D	M		
4-12	7.5YR	4/3	93	5YR	4/6	2	C	M	Clay Loam	
				10YR	5/1	5	D	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicator F3. Soil very dry.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicator C3 is present from 0-4 inches from the soil surface. Hydrology indicator D5 is also present.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 08-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** W10-SP2

Investigator(s): C. Merten, A. Hoenig **Section, Township, Range:** S 7 T 20N R 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.239992 **Long.:** -122.335408 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Climatic conditions are drier than normal (WETS Table, Port of Tacoma station); Only the parameter for dominant hydrophytic vegetation is met. The other two parameters are not met.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 10m)			
1. Populus balsamifera	85	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. Rubus armeniacus	60	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	60	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. Polystichum munitum	5	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	5	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1. Wisteria frutescens	2	☐ 100.0%	FACW
2.	0	☐ 0.0%	
	2	= Total Cover	

% Bare Ground in Herb Stratum: 95

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	2	**x 2 =**	4
FAC species	145	**x 3 =**	435
FACU species	5	**x 4 =**	20
UPL species	0	**x 5 =**	0
Column Totals:	152	**(A)**	459 **(B)**

Prevalence Index = B/A = 3.020

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W10-SP2

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR	3/2	100						Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met. Good light for color.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No hydrology indicators are present.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** W11-SP1

Investigator(s): S. Petro **Section, Township, Range:** S 7 T 20N R 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.241875 **Long.:** -122.336123 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1. Populus balsamifera	10	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	100	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		230 (B)

Prevalence Index = B/A = 2.091

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W11-SP1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	4/2	100						Silt Loam	
4-20	10YR	4/2	95	7.5YR	5/4	5	C	M	Silt Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicator F3. Cobbles from road fill material mixed in pit.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicator C3 is present. Hydrology indicator D5 is also present.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** W11-SP2

Investigator(s): S. Petro **Section, Township, Range:** S 7 T 20N R 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.24173 **Long.:** -122.336168 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
Only one wetland parameter is met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1. Rubus armeniacus	10	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	10	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	15	☐ 15.0%	FACW
2. Agrostis stolonifera	85	☑ 85.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	15	**x 2 =**	30
FAC species	95	**x 3 =**	285
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	110	**(A)**	315 **(B)**

Prevalence Index = B/A = 2.864

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:
Vegetation meets rapid test for hydrophytic vegetation, dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W11-SP2

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Cobble

Depth (inches): 10

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No hydrology indicators are present.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife Sampling Date: 8/7/18
Applicant/Owner: WSDOT State: WA Sampling Point: W12-SP1
Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.8, T.20N, R.4E
Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: 47.241573 Long: -122.336387 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Wetland located to north of W02 and south of W13.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1 m)			
1. *Populus balsamifera*	10	yes	FAC
2.			
3.			
4.			
5.			
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Phalaris arundinacea*	70	yes	FACW
2. *Equisetum arvense*	10	no	FAC
3. *Lotus corniculatus*	5	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 42.5, 20% = 17	85	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 20

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks: POBA seedlings are on edge of plot.

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W12-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Sandy loam	
4-10	10YR 4/1	85	7.5YR 4/3	15	C	M	Silt loam	
10-14	10YR 4/2	90	7.5YR 4/4	10	C	M	Loamy	Fine sand

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: gravel

Depth (inches): 14

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soil is moist (but not considered saturated) at 8" and below. Delineation completed in summer; therefore, wetland hydrology assumed present during early growing season.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/ Sampling Date: 8/7/18
Applicant/Owner: WSDOT State: WA Sampling Point: W12-SP2
Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.8, T.20N, R.4E
Landform (hillslope, terrace, etc.): Ditch slope Local relief (concave, convex, none): concave Slope (%): 30
Subregion (LRR): A Lat: 47.24157 Long: -122.336371 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Soil pit located to side of ditch.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Equisetum telmateia*	15	yes	FACW
2. *Trifolium repens*	10	no	FAC
3. *Holcus lanatus*	10	no	FAC
4. *Lotus corniculatus*	10	no	FAC
5. *Trifolium pratense*	5	no	FACU
6. *Dalea carnea*	5	no	FACU
7. *Phalaris arundinacea*	trace	no	FACW
8. *Poa sp.*	trace	no	
9.			
10.			
11.			
50% = 27.5, 20% = 11	55	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W12-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/3	99	10YR 4/4	10	C	M	Gravelly	Silt loam fill
9-12	10YR 4/2	95	10YR 4/3	5	C	M	Gravelly	Silt loam fill

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Gravel fill

Depth (inches): 12"

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No indicators observed.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife Sampling Date: 8/7/18
Applicant/Owner: WSDOT State: WA Sampling Point: W13-SP1
Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.8, T.20N, R.4E
Landform (hillslope, terrace, etc.): Top of ditch Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: 47.241856 Long: -122.336387 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Upland soil pit is shared by Wetland 13 and Wetland 14, and is called W14-SP2. This is due to proximity of the wetlands, and very similar upland conditions. W13 is located to the north of W12 and south of W14.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Phalaris arundinacea*	90	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	**1**	(A)
Total Number of Dominant Species Across All Strata:	**1**	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**100**	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W13-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	65	7.5YR 4/4	35	C	M	Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soil is very moist at 12" and below. Delineation completed in summer; therefore, wetland hydrology assumed present in early growing season. Hydric soils were also very clear.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife Sampling Date: 8/7/18
Applicant/Owner: WSDOT State: WA Sampling Point: W14-SP1
Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.8, T.20N, R.4E
Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): A Lat: 47.24196 Long: -122.336382 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Located in small wetland just north of W13 and south of Stream 6.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Phalaris arundinacea*	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W14-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					Silt loam	
3-16	10YR 4/1	60	7.5YR 3/4	40	C	M	Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soil is moist (but not saturated) at bottom of soil pit. Delineation completed in summer; therefore, wetland hydrology assumed present in the early growing season, based on soils, plants, and similar nearby wetlands.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife Sampling Date: 8/7/18
Applicant/Owner: WSDOT State: WA Sampling Point: W14-SP2
Investigator(s): D. Miller, G. Schulz Section, Township, Range: Sec.8, T.20N, R.4E
Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concex Slope (%): 15
Subregion (LRR): A Lat: 47.24196 Long: -122.336363 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Soil pit located on side of ditch. Soil pit is shared with Wetland 13.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Phalaris arundinacea*	35	Yes	FACW
2. *Holcus lanatus*	20	Yes	FAC
3. *Daucus carota*	10	No	FACU
4. *Taraxacum officinale*	10	No	FACU
5. *Equisetum arvense*	10	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
50% = 42.5, 20% = 17	85	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	**2**	(A)
Total Number of Dominant Species Across All Strata:	**2**	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**100**	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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 ☒ No ☐**

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W14-SP2

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

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

Project Site: SR167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 8/8/18
Applicant/Owner: SWDOT State: WA Sampling Point: W15-SP1
Investigator(s): D. Miller & G. Schulz Section, Township, Range: Sec. 7, T. 20N, R. 4E
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 25
Subregion (LRR): A Lat: 47.242183 Long: -122.336382 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Wetland extends from Surprise Lake Tributary south to the extent of Stage 1A. Historically disturbed, but not recent or significant.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A (5m))	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A (3m))			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m.)			
1. *Phalaris arundinacea*	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks: Some Himalayan blackberry is located 1 meter away, but it is rooted approx 2m from the plot.

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W15-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2	100					silt loam	Dry
7-14	10YR 4/1	80	7.5YR 4/4	20	C	M	silt loam	Dry

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Indicators were B1 and B9, plus hydric soil and moist soil at 8 inches and below. Much of the wetland is inundated even in summer, but this plot is in a drier portion and closer to the edge.

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

Project Site: SR 167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 8/8/18

Applicant/Owner: WSDOT State: WA Sampling Point: W15-SP2

Investigator(s): D. Miller & G. Schulz Section, Township, Range: Sec. 7, T. 20N, R. 4E

Landform (hillslope, terrace, etc.): Side of Ditch Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LLR-A Lat: 47.242167 Long: -122.336895 Datum: NAD 1983 HARN

Soil Map Unit Name: _____ NWI classification: Upland - shrub

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

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

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

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

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

Remarks: Historically disturbed but not recent or significant.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	n/a*	-
2. _____	_____	n/a*	-
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3 m.)			
1. *Rubus armeniacus*	30	yes	FAC
2. *Corylus cornuta*	20	yes	FACU
3. *Symphoricarpos albus*	10	no	FACU
4. *Physocarpus capitatus*	5	no	FACW
5. _____	_____	_____	_____
50% = 32.5, 20% = 13	65	= Total Cover	
Herb Stratum (Plot size: 1 m.)			
1. *Phalaris arundinacea*	65	yes	FACW
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = 32.5, 20% = 13	65	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	

% Bare Ground in Herb Stratum 35

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W15-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
16	10YR 4/3	100					silt loam	Dry

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No indicators observed.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 02-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W16-SP1**

Investigator(s): C. Merten, E. Spear **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** convex **Slope:** 1.0 % / 0.6 °

Subregion (LRR): LRR A **Lat.:** 47.239813 **Long.:** -122.335289 **Datum:** NAD 1983 H

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m^2)			
1. Cornus alba	25	☑ 45.5%	FACW
2. Rubus armeniacus	30	☑ 54.5%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	55	= Total Cover	
Herb Stratum (Plot size: 1 m^2)			
1. Phalaris arundinacea	100	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size: 1 m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	125	**x 2 =**	250
FAC species	30	**x 3 =**	90
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	155	**(A)**	340 **(B)**

Prevalence Index = B/A = 2.194

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W16-SP1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR	4/1	100	7.5YR	6/8	40	C	M, PL	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

good light for color

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Indicator C3 observed from 6" to 20" depth

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W16-SP2**

Investigator(s): CM, ES **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.239827 **Long.:** -122.335686 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Hydrophytic vegetatation and hydric soils are present, but hydrology indicators are not. Climatic conditions are drier than normal (WETS table, Port of Tacoma station).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 10m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	100	☑ 98.0%	FACW
2. Rubus laciniatus	2	☐ 2.0%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	102	**= Total Cover**	
Woody Vine Stratum (Plot size: 1m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	100	**x 2 =**	200
FAC species	0	**x 3 =**	0
FACU species	2	**x 4 =**	8
UPL species	0	**x 5 =**	0
Column Totals:	102	**(A)**	208 **(B)**

Prevalence Index = B/A = 2.039

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets rapid test for hydrophytic vegetation, dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W16-SP2

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-19	10YR	3/2	90	10YR	4/4	10	C	M/PL	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F6 is met. Good light for color, but red from forest fires in the area.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No evidence of hydrology

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** W16-SP3

Investigator(s): C. Merten, E. Spear **Section, Township, Range:** S 7 T 20N R 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.239604 **Long.:** -122.33564 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 10m^2)			
1. Betula papyrifera	35	☑ 70.0%	FAC
2. Fraxinus latifolia	15	☑ 30.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m^2)			
1. Spiraea douglasii	25	☑ 25.0%	FACW
2. Rubus armeniacus	75	☑ 75.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	100	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	100	☑ 80.0%	FACW
2. Rubus laciniatus	10	☐ 8.0%	FACU
3. Athyrium filix-femina	15	☐ 12.0%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	125	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	140	**x 2 =**	280
FAC species	125	**x 3 =**	375
FACU species	10	**x 4 =**	40
UPL species	0	**x 5 =**	0
Column Totals:	275	**(A)**	695 **(B)**

Prevalence Index = B/A = 2.527

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W16-SP3

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	4/3	75	10YR	4/4	25	C	M/PL	Silty Clay Loam	
7-13	10YR	3/2	70	7.5YR	5/8	30	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F6 is met. Good light for color, but red from forest fires in the area.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicator C3 is present from 0-13 inches. Secondary indicator D5 is also present.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W16-SP4**

Investigator(s): C. Merten, E. Spear **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.239663 **Long.:** -122.335107 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1. Betula papyrifera	15	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1. Rubus armeniacus	25	☑ 83.3%	FAC
2. Cornus alba	2	☐ 6.7%	FACW
3. Fraxinus latifolia	3	☐ 10.0%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	100	☑ 87.7%	FACW
2. Solanum dulcamara	2	☐ 1.8%	FAC
3. Athyrium filix-femina	10	☐ 8.8%	FAC
4. Cirsium arvense	2	☐ 1.8%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	114	= Total Cover	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	105	**x 2 =**	210
FAC species	54	**x 3 =**	162
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	159	**(A)**	372 **(B)**

Prevalence Index = B/A = 2.340

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W16-SP4

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR	4/3	100						Silty Clay Loam	
5-15	10YR	5/2	70	7.5YR	4/6	30	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F3 is met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ○ No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○ No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicator C3 is present from 0-15 inches. Secondary indicator D5 is also present.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W16-SP5**

Investigator(s): C. Merten, G. Ritchotte **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 **%** / 0.0 **°**

Subregion (LRR): LRR A **Lat.:** 47.239551 **Long.:** -122.33519 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Only one wetland parameter is met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 10m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 3m^2)			
1. Rubus armeniacus	100	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	100	**= Total Cover**	
Herb Stratum (Plot size: 1m^2)			
1. Athyrium filix-femina	10	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	10	**= Total Cover**	
Woody Vine Stratum (Plot size: 1m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	0	**x 2 =**	0
FAC species	110	**x 3 =**	330
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	110 **(A)**		330 **(B)**

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Polygonum cuspidatum present south of plot. Vegetation meets dominance test and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W16-SP5

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	4/3	95	10YR	5/8	5	C	M	Silty Clay Loam	
7-13	10YR	5/2	70	10YR	4/4	30	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met. Good light for color.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes ○ No ◉ Depth (inches): _____

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

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No hydrology indicators are present.

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

Project/Site: SR 167, Stage 1a **City/County:** Milton / Pierce County **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W17-SP1**

Investigator(s): G. Ritchotte, A. Hoenig **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.243534 **Long.:** -122.33514 **Datum:** NAD 1983

Soil Map Unit Name: Tisch silt, Semiahmoo muck **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

No wetland indicators present. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	100	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	**= Total Cover**	
Woody Vine Stratum (Plot size: 1m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	100	**x 2 =**	200
FAC species	0	**x 3 =**	0
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	100 **(A)**		200 **(B)**

Prevalence Index = B/A = 2.000

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets rapid test for hydrophytic vegetation, dominance test, and prevalence index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W17-SP1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR	3/2	95	7.5YR	3/4	5	C	M	Silty Loam	
8-14	10YR	4/1	80	7.5YR	3/4	20	C	M, P	Silty Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soil meets hydric soil indicator A12.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicator C3 is present. Secondary indicator D5 is also met.

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

Project/Site: SR 167, Stage 1a **City/County:** Milton / Pierce County **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W17-SP2**

Investigator(s): G. Ritchotte, A. Hoenig **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** concave **Slope:** 8.0 **%** / 4.6 **°**

Subregion (LRR): LRR A **Lat.:** 47.243355 **Long.:** -122.335165 **Datum:** NAD 1983

Soil Map Unit Name: Tisch silt, Semiahmoo muck **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

No wetland indicators present. Climatic conditions are drier than normal (WETS table, Port of Tacoma station). Vegetation is regularly mowed due to Olympic pipeline right of way.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 2 m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 1 m^2)			
1. Tanacetum vulgare	60	☑ 60.0%	FACU
2. Phalaris arundinacea	5	☐ 5.0%	FACW
3. Rubus armeniacus	5	☐ 5.0%	FAC
4. Poa annua	30	☑ 30.0%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	**= Total Cover**	
Woody Vine Stratum (Plot size: 1 m)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	5	**x 2 =**	10
FAC species	35	**x 3 =**	105
FACU species	60	**x 4 =**	240
UPL species	0	**x 5 =**	0
Column Totals:	100 **(A)**		355 **(B)**

Prevalence Index = B/A = 3.550

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ○ No ◉

Remarks:

Vegetation does not meet any hydrophytic vegetation criteria. Vegetation is mowed.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W17-SP2

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR	3/2	100						Sandy Loam	gravel in profile

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Very compact soils in gas pipeline corridor. No hydric soil indicators are present.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No hydrology indicators are present.

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

Project/Site: SR 167, Stage 1a **City/County:** Milton / Pierce County **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W18-SP1**

Investigator(s): A. Hoenig, G. Ritchotte **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.242595 **Long.:** -122.335447 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1. Malus fusca	50	☑ 66.7%	FACW
2. Populus balsamifera	25	☑ 33.3%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1. Rubus armeniacus	30	☑ 26.1%	FAC
2. Malus fusca	60	☑ 52.2%	FACW
3. Corylus cornuta	15	☐ 13.0%	FACU
4. Cornus alba	10	☐ 8.7%	FACW
5.	0	☐ 0.0%	
	115	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	50	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	50	= Total Cover	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 45

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	170	**x 2 =**	340
FAC species	55	**x 3 =**	165
FACU species	15	**x 4 =**	60
UPL species	0	**x 5 =**	0
Column Totals:	240	**(A)**	565 **(B)**

Prevalence Index = B/A = 2.354

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W18-SP1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR	3/3	100						Loam	
5-10	10YR	3/2	70	7.5YR	5/8	30	C	M	Clay Loam	
10-18	10YR	2/2	100						Loamy Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F6 is met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes ○ No ◉ Depth (inches): _____

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Secondary indicators present for B9, D2, and D5.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** W18-SP2

Investigator(s): A. Hoenig, G. Ritchotte **Section, Township, Range:** S 7 T 20N R 4E

Landform (hillslope, terrace, etc.): Slope **Local relief (concave, convex, none):** convex **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.24281 **Long.:** -122.335458 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Climatic conditions are drier than normal (WETS Table, Port of Tacoma station); Only the parameter for dominant hydrophytic vegetation is met. Located on the sloped side of I-5.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 2m^2)			
1. Crataegus monogyna	35	☑ 70.0%	FAC
2. Prunus americana	15	☑ 30.0%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1. Rubus armeniacus	40	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	40	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Polystichum munitum	20	☑ 50.0%	FACU
2. Phalaris arundinacea	5	☐ 12.5%	FACW
3. Hypericum perforatum	5	☐ 12.5%	FACU
4. Poa annua	10	☑ 25.0%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	40	= Total Cover	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	5	**x 2 =**	10
FAC species	85	**x 3 =**	255
FACU species	40	**x 4 =**	160
UPL species	0	**x 5 =**	0
Column Totals:	130	**(A)**	425 **(B)**

Prevalence Index = B/A = 3.269

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

vegetation meets dominance test.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W18-SP2

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR	3/3	100						Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No hydrology indicators are present.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W19-SP1**

Investigator(s): S. Petro **Section, Township, Range:** **S** 7 **T** T20N **R** 4E

Landform (hillslope, terrace, etc.): **Local relief (concave, convex, none):** none **Slope:** 0.0 **%** / 0.0 **°**

Subregion (LRR): LRR A **Lat.:** 47.239295 **Long.:** -122.334058 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

All three wetland parameters are met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1. Populus balsamifera	60	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1. Rubus armeniacus	20	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	20	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Phalaris arundinacea	60	☑ 60.0%	FACW
2. Equisetum telmateia	40	☑ 40.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size: 1m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	100	**x 2 =**	200
FAC species	80	**x 3 =**	240
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	180	**(A)**	440 **(B)**

Prevalence Index = B/A = 2.444

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets the dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W19-SP1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	3/2	100						Loam	
3-20	10YR	4/2	95	7.5YR	4/4	5	C	M	Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soil indicator F3 is met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Hydrology indicator C3 is present. Secondary indicator D5 is also met.

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

Project/Site: SR 167, Stage 1a **City/County:** Fife **Sampling Date:** 13-Aug-18

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** **W19-SP2**

Investigator(s): S. Petro **Section, Township, Range:** **S** 7 **T** 20N **R** 4E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** none **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.239302 **Long.:** -122.334228 **Datum:** NAD 1983

Soil Map Unit Name: Sultan silt loam **NWI classification:** None

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

Only one wetland parameter is met. Climatic conditions are drier than normal (WETS table, Port of Tacoma station)

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 3m^2)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2m^2)			
1. Rubus armeniacus	5	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	5	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Equisetum telmateia	30	☑ 33.7%	FACW
2. Vicia americana	30	☑ 33.7%	FAC
3. Cirsium arvense	0	☐ 0.0%	FAC
4. Lapsana communis	2	☐ 2.2%	FACU
5. Phalaris arundinacea	20	☑ 22.5%	FACW
6. Trifolium repens	5	☐ 5.6%	FAC
7. Agrostis stolonifera	2	☐ 2.2%	FAC
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	89	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 6

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	42	x 3 =	126
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	94	(A)	234 (B)

Prevalence Index = B/A = 2.489

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [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 ◉ No ○

Remarks:

Vegetation meets dominance test and prevalance index.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W19-SP2

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

No hydric soil indicators are met.

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):	

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No hydrology indicators are present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: SR 167 Completion, Stage 1A City/County: Pierce County Sampling Date: 9/7/18

Applicant/Owner: WSDOT State: WA Sampling Point: W20-SP1

Investigator(s): D. Miller, P. Acharya Section, Township, Range: Sec.5, T.20N, R.4E

Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): A Lat: 47.244447 Long: -122.335397 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Wetland located north of 70th Ave. E overpass and east of Hylebos Creek.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Phalaris arundinacea*	85	yes	FACW
2. *Agrostis stolonifera*	10	no	FAC
3. *Juncus effusus*	3	no	FACW
4. *Carex obnupta*	2	no	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ 1 – Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W20-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	98	2.5YR 3/6	2	C	M	Silt loam	
10-12	Gley 1 4/N	100					Silt loam	
12-18	10YR 3/1	100					Silty	fine sand

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☒ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☒ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	11
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: SR 167 Completion, Stage 1A City/County: Milton/Pierce Sampling Date: 9/7/18
Applicant/Owner: WSDOT State: WA Sampling Point: W20-SP2
Investigator(s): D. Miller, P. Acharya Section, Township, Range: Sec.5, T.20N, R.4E
Landform (hillslope, terrace, etc.): above ditch Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): A Lat: 47.244454 Long: -122.335429 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Data plot is located at southwest end of Wetland 20.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Holcus lanataus*	25	yes	FAC
2. *Lotus corniculatus*	20	yes	FAC
3. *Phalaris arundinacea*	20	yes	FACW
4. *Taraxacum officinale*	12	no	FACU
5. *Cirsium arvense*	7	no	FAC
6. *Poa sp.*	5	no	
7. *Ranunculus repens*	1	no	FAC
8.			
9.			
10.			
11.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W20-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/3	99	7.5YR 4/6	1	C	M	silt loam	
9-16	10YR 4/2	80	7.5 YR 4/6	20	C	M	silt loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: This soil is different from that observed within the wetland. It is a chroma 3 on the top layer, and the depleted matrix barely makes the cutoff of starting in the top 10 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators observed. This area is quite a bit higher topographically than the wetland and is assumed to not have wetland hydrology, even in the early growing season.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: SR 176 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 11/28/18

Applicant/Owner: WSDOT State: WA Sampling Point: W21-SP1

Investigator(s): D. Miller & G. Schulz Section, Township, Range: 7, 20N, 4E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): A Lat: 47.244063 Long: -122.339659 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **SP is inside the edge of the emergent, ponded depression. Fill soils are evident and area is generally disturbed. Recent heavy rains. A plot for the scrub-shrub portion of the wetland was not completed, due to the small size of the wetland.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: NA (5m))	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 3 m)			
1. *Populus balsamifera*	Trace	no	FAC
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Phalaris arundiancea*	15	yes	FACW
2. *Ranunculus repens*	15	yes	FAC
3.			
4.			-
5.			-
6.			-
7.			
8.			
9.			
10.			
11.			
50% = 15, 20% = 6	30	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 70

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W21-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
3	10YR 2/2	100					sandy loam	gravelly with roots, saturated
12	10YR 4/1	70	7.5YR 4/4	30	C	M	sandy loam	gravelly, saturated

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel

Depth (inches): 12

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☒ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	4
Water Table Present?	Yes	☒	No	☐	Depth (inches):	N/A
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	N/A

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: SR167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 11/28/18

Applicant/Owner: WSDOT State: WA Sampling Point: W21-SP2

Investigator(s): D. Miller & G. Schulz Section, Township, Range: 7, 20N, 4E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): convex Slope (%): 5

Subregion (LRR): A Lat: 47.244074 Long: -122.339627 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☐	No	☒	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: **SP is outside the edge of ponded depression, on a berm. Fill soils are evident and area is generally disturbed. Recent heavy rains.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 5 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Laurel sp.*	20	yes	NL (UPL)
2.			
3.			
4.			
50% = 10, 20% = 4	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3 m)			
1. *Rubus armeniacus*	35	yes	FAC
2. *Hedera helix*	10	yes	UPL
3.			
4.			
5.			
50% = 22.5, 20% = 9	45	= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Ranunculus repens*	25	yes	FAC
2. *Equyisetum arvense*	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 15, 20% = 6	30	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☐ **No** ☒

Remarks: No indicators met

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W21-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
10	10YR 4/3	100					silt loam	shallow gravels
16	10YR 5/1	65	7.5YR 4/4	35	C	M	silt loam	dry

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Bright color in upper layer. No indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☐	No	☒	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	_____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: SR167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 11/28/18

Applicant/Owner: WSDOT State: WA Sampling Point: W22-SP1

Investigator(s): D. Miller & G. Schulz Section, Township, Range: 7, 20N, 4E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A Lat: 47.243767 Long: -122.340195 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **SP is in small linear wetland area west of paved road. Area is generally disturbed. Recent heavy rains.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A (5m))	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A (3m))			
1.		n/a*	-
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Phalaris arundiancea*	90	yes	FACW
2. *Equisetum arvense*	5	no	FACW
3.			NO
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 47.5, 20% = 19	95	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 5

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks: Blackberry (RUAR) present but not rooted in plot.

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W22-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
8	10YR 3/2	100					silt loam	gravelly
15	10YR 4/1	75	7.5YR 4/3	25	C	M	silt loam	moist to saturated

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☒ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	3
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: SR176 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 11/28/18

Applicant/Owner: WSDOT State: WA Sampling Point: W22-SP2

Investigator(s): D. Miller & G. Schulz Section, Township, Range: 7, 20N, 4E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): A Lat: 47.243729 Long: -122.340264 Datum: NAD 1983 HARN

Soil Map Unit Name: Sultan silt loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: **SP is in a hummocky area. Fill soils are evident and area is generally disturbed. Recent heavy rains.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A-5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 3 m)			
1. *Rubus armeniacus*	15	yes	FAC
2.			
3.			
4.			
5.			
50% = 7.5, 20% = 3	15	= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Phalaris arundinacea*	70	yes	FACW
2. *Equisetum arvense*	10	no	FAC
3. *Cirsium sp.*	5	no	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 42.5, 20% = 17	85	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 5

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks:

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W22-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	100					silt loam	shallow gravels, likely fill

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No indicators observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators observed

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: SR167 Completion, Stage 1A City/County: Fife/Pierce Sampling Date: 11/28/18
Applicant/Owner: WSDOT State: WA Sampling Point: W23-SP1
Investigator(s): D. Miller & G. Schulz Section, Township, Range: 7, 20N, 4E
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: 47.243607 Long: -122.339477 Datum: NAD 1983 HARN
Soil Map Unit Name: Sultan silt loam NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☒, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **SP is in disturbed area north of SR 99. Recent heavy rains. No upland sample point because adjacent area within the project extent is hard fill and pavement.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A-5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A-3m)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 1 m.)			
1. *Phalaris arundiancea*	50	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 25, 20% = 10	50	= Total Cover	
Woody Vine Stratum (Plot size: 1m)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 50

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[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** ☒ **No** ☐

Remarks: Large area of reed canarygrass adjacent to SR 99.

Project Site: SR 167 Completion, Stage 1A

SOIL

Sampling Point: W23-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					sandy loam	gravelly-fill; saturated
4-16	10YR 2/1	100					sandy loam	saturated

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Fill material present. Redox may be present but soil was super-saturated. Strong sulfide odor.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	1
Water Table Present?	Yes	☒	No	☐	Depth (inches):	N/A
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	N/A

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Concave area with pockets of standing water.

Appendix E — Wetland Rating Forms

The contents of this appendix will be provided separately.

Appendix F — Wetland Functional Assessment Forms

Wetland ID: 01 **Project:** SR 167 Completion, Stage 1A **Assessed By:** DM, EH, MH

Date: 7/19/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		2, 7		Wetland is depressional flow-through and may retain high volumes of water during storms. Receives surface flow but lacks woody vegetation and does not receive floodwater from adjacent watercourse.
Sediment removal	X		2, 3, 5, 6	X	Depressional, has slow-moving water, vegetated by dense reed canarygrass, seasonal ponding evident. Sediment deposits present during field visit but wetland lacks sources of excess sediment.
Nutrient and toxicant removal	X		1, 2, 3, 4, 5	X	Depressional, has sources of excess toxicants (highway runoff), is densely vegetated by grasses, and detains stormwater. Silty clay soil and dense vegetation are present.
Erosion control & shoreline stabilization		X			Not associated with a shoreline.
Production of organic matter and its export		X	1, 5		Dominated by herbaceous vegetation and has permanent and seasonal flooding. However, lacks plant community structure and diversity, and outlet is a pipe.
General habitat suitability	X		1, 3, 7		Not fragmented, connects to other habitat (Wetland 3), and signs of wildlife present but located in highly developed area. One Cowardin class and low plant diversity.
Habitat for aquatic invertebrates	X		1, 2, 4, 6		Seasonally- and permanently-inundated with emergent vegetation and varying water depths. Near stream but lacks aquatic vegetation and cover.
Habitat for amphibians	X		1, 2, 6		Seasonally- and permanently-inundated areas with emergent vegetation that may provide some suitable habitat. Other habitat nearby, but surrounding area highly-developed.
Habitat for wetland-associated mammals	X		1, 2, 7		Areas of permanent water and emergent vegetation present. Some evidence of wildlife use, but area highly developed.

Habitat for wetland-associated birds	X		2, 3		Small area of open water present within this wetland. Surrounding area is highly developed, with a few trees in buffer. Several ducks observed during field visit.
General fish habitat		X			Insufficient surface water connection to fish-bearing water body.
Native plant richness		X			The wetland has one Cowardin class (emergent) and is dominated by non-native plant species.
Educational or scientific use		X			Site is publicly-owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 02 **Project:** SR 167 Completion **Assessed By:** CNM

Date: 08-16-2018 **Cowardin Class:** PFO/PS S/PEM **Ecology Category:** II **Local Rating:** II

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	x		2, 3, 6, 7		Wetland does help store water during extreme (100-yr) flood flows. Receives floodwater from ditches and streams at that time. It does not receive floodwater/overbank flow during 2-year events.
Sediment removal		X			See comment in Flood Flow Alteration regarding floodwater. Wetland is depressional, but water is from precipitation/high groundwater versus floodwaters.
Nutrient and toxicant removal	X		1, 3, 4, 5	Y	Wetland is bordered by I-5 to the N, 20th Street E to the S and 70th Avenue E to the E. Wetland is primarily a closed depressional system and is dominated by reed canarygrass and Himalayan blackberry.
Erosion control & shoreline stabilization		X			Wetland is not associated with water course or shoreline
Production of organic matter and its export		X	1, 2		Denser herbaceous layer, but system is predominately closed and flooding appears to be with larger events only, not annually.
General habitat suitability		X	1, 4, 5, 6, 7		Wetland is surrounded on all sides by development, no corridor connection. Provides habitat within its area, observed red-tailed hawk and possible deer bed down/trails.
Habitat for aquatic invertebrates		X			No permanent or seasonal inundation is provided by this wetland.
Habitat for amphibians		X			No permanent or seasonal inundation is provided by this wetland.
Habitat for wetland-associated mammals		X			No permanent water is present within or adjacent to this wetland.
Habitat for wetland-associated birds		X	2, 3, 4, 8		Provides snags for raptors, but no open water in wetland. Is near (<1 km) to green belt and Surprise Lake Tributary/Hylebos.
General fish habitat		X			No surface water connection.

Native plant richness		X	2, 3, 4		Most plant richness comes from ornamentals associated with former home sites.
Educational or scientific use		X	2		Site is not easily accessible.
Uniqueness & heritage		X			No unique or heritage features are part of this wetland.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 03 **Project:** SR 167 Completion, Stage 1A **Assessed By:** DM, EH, MH

Date: 7/19/18 **Cowardin Class:** PEM **Ecology Category:** II **Local Rating:** II

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		4, 7		Depressional wetland. Outlet area ponds and has some algae, although it is not especially constricted. Receives surface flow and helps to reduce flooding in downstream areas, but lacks woody veg and does not receive stream floodwaters.
Sediment removal	X		3, 5, 6	X	Depressional, vegetated by dense reed canarygrass, seasonal ponding evident. Sediment deposits present during field visit but wetland lacks sources of excess sediment.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Depressional, has sources of excess toxicants (highway runoff), is densely vegetated by grasses. Silty clay soil and dense vegetation are present.
Erosion control & shoreline stabilization		X			Not associated with a shoreline.
Production of organic matter and its export	X		1, 5, 6		Dominated by herbaceous vegetation, has surface water outlet and seasonal flooding, but lacks plant community structure and diversity.
General habitat suitability	X		1, 3, 7		Not fragmented, connects to other habitats and signs of wildlife present but located in highly developed area. One Cowardin class and low plant diversity.
Habitat for aquatic invertebrates	X		1, 4, 6		Seasonally-inundated with emergent vegetation. Near stream but lacks aquatic vegetation, varying water depths, and cover.
Habitat for amphibians	X		1, 2, 6		Seasonally-inundated with emergent vegetation that may provide some amphibian habitat. Other habitat nearby, but surrounding area highly-developed.
Habitat for wetland-associated mammals		X			No permanent water is present within wetland.

Habitat for wetland-associated birds		X	2, 3		No permanent water is present within this wetland, although the adjacent floodplain mitigation has it. Forest/shrub areas in portion of buffer. Surrounding area is highly developed.
General fish habitat		X			Insufficient surface water connection to fish-bearing water body.
Native plant richness		X			The wetland has one Cowardin class (emergent) and is dominated by non-native plant species.
Educational or scientific use		X			Site is publicly-owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 04 **Project:** SR 167 Completion **Assessed By:** CNM/ES

Date: 8/17/18 **Cowardin Class:** PEM,PSS, PFO **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration		X	2, 3, 7		Wetland is depressional, but floodwater/overbank flow is not the dominant source of hydrology.
Sediment removal	X		1, 3, 5		Wetland is depressional, includes and is bordered by active agricultural fields, and is vegetated by reed canarygrass.
Nutrient and toxicant removal	X		1, 2, 3, 4, 5	X	Wetland is depressional, dominated by silt clay loam soils, and borders active conventional agriculture fields where pesticide spray was observed during field work.
Erosion control & shoreline stabilization		X			Wetland not associated with a shoreline.
Production of organic matter and its export		X	1, 2, 3		Wetland does not export material.
General habitat suitability	X		1, 3, 4, 5, 6, 7		Wetland has 3 Cowardin classes and connectivity to other wetlands.
Habitat for aquatic invertebrates		X	6		No permanent and insufficient seasonal inundation is provided by this wetland.
Habitat for amphibians		X	4, 6		No permanent and insufficient seasonal inundation is provided by this wetland.
Habitat for wetland-associated mammals		X	3, 4		No permanent water is present within or adjacent to this wetland.
Habitat for wetland-associated birds		X	2, 3, 4		No permanent water is present within or adjacent to this wetland, and the surrounding area is highly developed.
General fish habitat		X	4		Insufficient surface water connection.
Native plant richness		X	2, 3, 4		The wetland is dominated by nonnatives. Plant richness provided by ornamentals associated with former homes.

Educational or scientific use	X		2, 3		Site is easily accessible and publicly owned.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 05 **Project:** SR 167 Completion - Stage 1A **Assessed By:** DM & GS

Date: 8/1/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		2, 3		WL is depressional but floodwater/overbank flow is not the dominant source of hydrology. WL may be capable of retaining water during storm events.
Sediment removal	X		1, 3, 5		WL has no "excess" sediment sources, unless some erosion on the 70th Ave E overpass slope occurs. Dense herbaceous veg and seasonal ponding present.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Toxicant source may be stormwater from nearby roads. WL has seasonal flooding, at least 30% cover of dense herb vegetation, and fine-grained soils are present.
Erosion control & shoreline stabilization		X	2		Not associated with stream or shoreline.
Production of organic matter and its export		X	1, 5		WL may produce organic matter and has seasonal flooding, but has no outlet or export of material.
General habitat suitability	X		2, 3		WL has one Cowardin class and is located in an urban area with disturbed habitat. However, immediate upland is not developed, & is connected by veg to WL 09 (although a fence is present).
Habitat for aquatic invertebrates		X	4, 6		Nearby Hylebos Creek but has limited habitat, but hydrology is unlikely to connect to WL.
Habitat for amphibians		X	1, 6		WL has seasonal hydrology and nearby wetlands/stream, but not appropriate vegetation.
Habitat for wetland-associated mammals		X			No permanent water. Surrounding area is very urbanized with disturbed connections.
Habitat for wetland-associated birds		X	2, 7		WL has an emergent Cowardin class and a small amount of undisturbed buffer, but limited seasonal hydrology.
General fish habitat		X	4		No surface water connection to Hylebos Cr.

Native plant richness		X			One Cowardin class, low plant diversity and structure, non-native species present.
Educational or scientific use		X			Site is publicly-owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			Not unique, sensitive, or documented critical, high quality habitat or species present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 06 **Project:** SR 167 Completion **Assessed By:** DM/MH

Date: 8/2/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		6		Wetland receives floodwater from Hylebos Creek but otherwise lacks attributes to provide flood flow alteration.
Sediment removal	X		3		Wetland contains dense herbaceous vegetation but lacks sources of excess sediment, and lacks slow moving water or ponding.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Wetland receives stormwater runoff, has dense vegetation and silt loam soil but does not detain water for long periods of time.
Erosion control & shoreline stabilization	X		1, 2	X	Wetland borders Hylebos Creek with reed canarygrass and no evidence of erosion present, but lacks trees and shrubs.
Production of organic matter and its export	X		1, 5, 6		Wetland is dominated by herbaceous vegetation, is flooded seasonally, and has surface water outlet, but lacks vegetation structure and density.
General habitat suitability	X		3		Wetland has connectivity with Hylebos Creek but otherwise lacks attributes necessary.
Habitat for aquatic invertebrates	X		1, 6		Wetland has seasonal inundation from stream, but sustained ponding, aquatic bed, and cover are not present.
Habitat for amphibians		X	1, 6		Wetland has seasonal inundation from stream, but sustained ponding, appropriate vegetation and undeveloped lands are not present.
Habitat for wetland-associated mammals		X			Wetland lacks necessary permanent water.
Habitat for wetland-associated birds		X	2		Wetland lacks necessary open water or snags, and the surrounding area is highly developed.
General fish habitat		X	1, 4		Wetland borders fish-bearing Hylebos Creek but wetland is only accessible to fish during flood events. Wetland does not possess attributes to provide spawning, rearing or refuge.

Native plant richness		X			The wetland is dominated by non-native herbaceous species.
Educational or scientific use		X			Site is not publicly owned, lacks parking, and does not offer educational or scientific value.
Uniqueness & heritage		X			Wetland is adjacent to WDFW riparian/instream priority habitat (Hylebos Creek) but no unique or sensitive species or habitat is present within wetland.

Wetland ID: 07 **Project:** SR 167 Completion, Stage 1A **Assessed By:** DM/MH

Date: 8/3/18 **Cowardin Class:** PFO/PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		4, 6		Wetland has intermittent outlet that is present during storm events. WL receives flood water both as channel flow from Hylebos Creek (only during high flood events, likely less than every 2 years).
Sediment removal	X		3, 5, 6	X	Some sediment deposits were present during field visit and wetland detains water for long duration, but lacks significant sources of excess sediment.
Nutrient and toxicant removal	X		1, 2, 3, 4, 5	X	Wetland receives stormwater runoff high in toxicants, provides long duration for water detention, contains dense herbaceous vegetation and fine-grained mineral soil (loam) present.
Erosion control & shoreline stabilization	X		1, 2, 3	X	Wetland borders Hylebos Creek with reed canarygrass and trees. No evidence of erosion.
Production of organic matter and its export	X		1, 2, 5		Wetland produces organic matter from deciduous vegetation but outlet only present during storm events.
General habitat suitability	X		1, 3, 5		Wetland is not fragmented, connects to other habitats and is PFO/PEM but located in highly developed area, moderate plant diversity and no evidence of wildlife use.
Habitat for aquatic invertebrates	X		1, 2, 5, 6		Wetland has permanent and seasonal inundation, water depths vary between 0-6", adjacent to Hylebos Creek but lacks aquatic bed vegetation and emergent vegetation in permanently ponded area.
Habitat for amphibians	X		1, 4, 6		Wetland has permanent & seasonal inundation and woody debris and other habitat nearby; but surrounding area highly-developed and very little thin-stemmed veg present in ponded areas.
Habitat for wetland-associated mammals	X		1, 3		Wetland has areas of permanent water as well as shrubs and trees, but lacks suitable denning banks and has highly-developed buffer.

Habitat for wetland-associated birds		X	2, 3		Wetland lacks necessary open water and the surrounding area is highly-developed.
General fish habitat		X	1, 4		Wetland borders fish-bearing Hylebos Creek but only has surface water connection during storm events. Wetland does not possess attributes to provide spawning, rearing or refuge.
Native plant richness	X		2, 3, 4		The wetland contains mix of native and non-native plants, is PFO/PEM, has three veg strata and mature POBA trees.
Educational or scientific use		X			Site is not publicly owned, lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X	2		Wetland is adjacent to WDFW riparian/instream priority habitat, Hylebos Creek, and contains priority logs. No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 08 **Project:** SR 167 Completion **Assessed By:** GLR

Date: 11/10/18 **Cowardin Class:** PSS **Ecology Category:** IV **Local Rating:** IV

Function/Value	Occurrence		Rationale (qualifiers and attributes present)	Principal Function	Comments
	Y	N			
Flood flow alteration		X	4		This is a small wetland low in the watershed. The wetland receives high flows during rain events and is connected via a culvert to a tributary of Surprise Lake Tributary, but has limited potential to store flood waters.
Sediment removal	X		1, 2, 3, 5, 6	X	Wetland is adjacent to 70th Ave S. and receives road runoff as well as runoff from upstream development. Water moves slowly through the wetland, and the wetland is covered with dense herbaceous vegetation. Silty sediment is present throughout the wetland.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Upstream development and road runoff drain to the wetland, which contains dense emergent vegetation and newly deposited sediments.
Erosion control & shoreline stabilization		X			The wetland is upstream of a small tributary to Surprise Lake Tributary but vegetation within the wetland has limited potential to reduce flow velocities.
Production of organic matter and its export	X		1, 5, 6		The wetland has high cover of herbaceous vegetation and a surface water connection to a tributary to Surprise lake Tributary during high flows.
General habitat suitability		X			This is a small depressional wetland between 70th Ave S and the Interurban Trail. Connectivity is limited, plant diversity and Cowardin class interspersion is low, and there was no evidence of wildlife use during multiple site visits.
Habitat for aquatic invertebrates	X		1, 3, 4, 6		The wetland contained standing water late in the season, near total vegetation coverage, and is immediately upstream of a tributary to Surprise Lake Tributary. However, poor water quality likely limits the number and diversity of aquatic invertebrates.

Habitat for amphibians		X	1		The wetland contained standing water during a late-season site visit but lacked adequate thin-stemmed emergent vegetation and woody debris, and is within a highly developed area.
Habitat for wetland-associated mammals		X	1, 2		Standing water with emergent vegetation was present during late-season site visits but this is a small wetland with little habitat diversity in a highly developed/disturbed area. Banks are riprap/cobble road and trail prism. No wildlife use was observed during multiple site visits.
Habitat for wetland-associated birds		X	1, 2		Standing water with emergent vegetation was present during late-season site visits but the wetland has little habitat diversity and does not provide adequate habitat for prey species.
General fish habitat		X	1		Wetland has a perennial connection to a tributary to Surprise Lake Tributary, which is a fish-bearing water body. Low water levels and poor water quality likely preclude fish use.
Native plant richness		X			Wetland has only one Cowardin class and no mature trees.
Educational or scientific use		X	2, 3		Wetland is near Interurban Trail and trailhead parking, but is small with steep sides and adjacent to a busy road.
Uniqueness & heritage		X			The wetland has no documented special status species or other significant features.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 09 **Project:** SR 167 Completion, Stage 1A **Assessed By:** DM, MH

Date: 8/3/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		2, 6, 7		Wetland is depressional (and slope) and relatively flat, but not a closed system. It receives flood flow from Surprise Lake Trib but only as channel flow, and lacks dense woody vegetation.
Sediment removal	X		3, 5, 6	X	Wetland is depressional, vegetated by reed canarygrass. Sediment deposits and evidence of minor ponding were present, but wetland lacks significant sources of excess sediment.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Wetland is depressional, silt loam soil and dense vegetation present, and receives stormwater runoff.
Erosion control & shoreline stabilization	X		1, 2		Wetland outlets to Surprise Lake Trib along small portion of southwest wetland boundary. This area is vegetated by reed canarygrass with no evidence of erosion.
Production of organic matter and its export	X		1, 5, 6		Wetland dominated by herbaceous vegetation and has surface water outlet, but lacks plant community structure, density, and species richness.
General habitat suitability	X		3, 7		Wetland connects to other habitats, has songbirds, but has only one Coward class and low plant diversity. Located in highly developed area, may be fragmented to the north by overpass.
Habitat for aquatic invertebrates	X		1, 4, 6		Wetland is seasonally inundated with emergent veg. It is near stream but lacks aquatic vegetation, varying water depths, and cover.
Habitat for amphibians	X		1, 2, 6		Wetland is seasonally inundated and has emergent vegetation that likely does not provide amphibian habitat. Some other habitat nearby, but the surrounding area is highly developed.
Habitat for wetland-associated mammals		X			No permanent water is present within wetland.

Habitat for wetland-associated birds		X	2, 3		No permanent water is present within this wetland, although standing water is present in the adjacent floodplain mitigation, and the surrounding area is highly developed.
General fish habitat	X				Wetland borders fish-bearing Surprise Lake Tributary, but only has surface water connection during storm events. Wetland does not possess attributes to provide spawning, rearing or refuge.
Native plant richness		X			The wetland is dominated by non-native species.
Educational or scientific use		X			Site is publicly owned but lacks parking, and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Wetland ID: W10 **Project:** SR 167 Completion **Assessed By:** CNM

Date: 08/20/2018 **Cowardin Class:** PFO **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration		x	2, 3, 5,		Wetland receives flood flow from ditch adjacent to Interurban Trail and does likely prevent some flooding of the trail. This attenuation would be very localized and therefore a low function in the watershed.
Sediment removal		x	5, 6		See comment above re: receiving flood flow adjacent to Interurban Trail. Likely very localized function and low overall in watershed. No flowing water or tillage adjacent to wetland.
Nutrient and toxicant removal	x		1, 2, 3, 5		Wetland immediately adjacent to Interurban Trail, likely to have pet waste, not adjacent to agricultural fields.
Erosion control & shoreline stabilization		x			Wetland not associated with a watercourse. Ditch does not appear to connect with any water source other than when sub-basin is flooded.
Production of organic matter and its export	x		2, 5, 6		Wetland has signs of seasonal ponding and woody vegetation is predominately black cottonwood and wisteria. Ditch outlet does appear to receive organic matter, but only very localized as ditch is not connected to a water course.
General habitat suitability		x	3		Wetland is bordered to the S by Interurban Trail and 70th Ave E. Wetland is surrounded by other habitat types. Only consists of PFO Cowardin Class.
Habitat for aquatic invertebrates	x		1, 4, 5		Wetland does appear to have short seasonal inundation with sparse cover of reed canarygrass. Leaf litter is present in wetland. No permanent inundation.
Habitat for amphibians	x		1, 2, 3, 4, 5, 6		Wetland does appear to have short seasonal inundation with sparse cover of reed canarygrass. Due to apparent short inundation period a sparse herbaceous cover function is not likely primary.
Habitat for wetland-associated mammals		x			No permanent water present within wetland.

Habitat for wetland-associated birds		x	2, 3, 6, 7, 8		Reed canarygrass is present, but sparse. 25% of buffer is Interurban Trail and 70th Ave E. Remainder of buffer undisturbed. No open water present within wetland.
General fish habitat		x			Wetland not associated with fish bearing water.
Native plant richness		x	2, 3, 4		Wetland dominated by native black cottonwood and non-native wisteria and English ivy.
Educational or scientific use		x	2, 3		Site is accessible by school bus with short walk on Interurban Trail. Wetland is low functioning overall and therefore not valuable for education/scientific research.
Uniqueness & heritage		x			No unique habitats or occurrence of T&E species.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 11 **Project:** SR 167 Completion **Assessed By:** ES

Date: 8/20/18 **Cowardin Class:** PFO **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration		X	2, 3, 7		Wetland is depressional, but floodwater/overbank flow is not the dominant source of hydrology.
Sediment removal		X	3, 5		Wetland is depressional, but no sources of excess sediment border the wetland.
Nutrient and toxicant removal	X		1, 2, 3, 4, 5	X	Wetland is depressional, dominated by silt loam soils, and borders roadways which contribute heavy metals during surface flow events.
Erosion control & shoreline stabilization		X			Wetland not associated with a shoreline.
Production of organic matter and its export		X	1, 2, 5		Wetland does not export material.
General habitat suitability		X	1, 3		Wetland has low richness of plant species, one Cowardin class, and no habitat interspersion.
Habitat for aquatic invertebrates		X	1, 6		No permanent and insufficient seasonal inundation is provided by this wetland.
Habitat for amphibians		X	1, 4, 6		No permanent and insufficient seasonal inundation is provided by this wetland.
Habitat for wetland-associated mammals		X	1, 3		No permanent water is present within or adjacent to this wetland.
Habitat for wetland-associated birds		X	2, 3		No permanent water is present within or adjacent to this wetland, and the surrounding area is highly developed.
General fish habitat		X	4		Insufficient surface water connection.
Native plant richness		X	4		The wetland is dominated by nonnatives and one Cowardin class.
Educational or scientific use	X		2, 3		Site is easily accessible and publicly owned.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 12 **Project:** SR 167 Completion, Stage 1A **Assessed By:** DM, MH

Date: 8/7/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		2, 4		Wetland is depressional with constricted outlet (culvert) but does not have algal mats, etc. Does not receive floodwater from watercourse and lacks dense woody vegetation.
Sediment removal	X		3, 5, 6	X	Depressional, vegetated by dense reed canarygrass, seasonal ponding evident. Sediment deposits likely present but not observed during field visit. Some sediment sources present.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Depressional, has sources of excess toxicants (road runoff), is seasonally inundated, and is densely vegetated by grasses with sandy and silt loam soil.
Erosion control & shoreline stabilization		X			Not associated with a shoreline.
Production of organic matter and its export	X		1, 5, 6		Dominated by herbaceous vegetation, has outlet via culvert and seasonal flooding, but lacks plant community structure and diversity.
General habitat suitability	X		3, 7		Wetland connects to other habitats and signs of wildlife are present (songbirds and small rodents), but the wetland is fragmented by 70th Ave, stormwater ponds and access road. Wetland is located in highly-developed area, with one Cowardin class and low plant diversity.
Habitat for aquatic invertebrates	X		1, 4, 6		Seasonally-inundated with emergent vegetation. Near tributary to Surprise Lake but lacks aquatic vegetation, varying water depths, and cover.
Habitat for amphibians	X		1, 6		Seasonally-inundated with emergent vegetation that likely does not provide amphibian habitat. Other habitat exists nearby, but surrounding area highly-developed. Wetland lacks woody debris.
Habitat for wetland-associated mammals		X			Wetland lacks required permanent water.

Habitat for wetland-associated birds		X	2, 4		Wetland lacks required open water and/or aquatic bed. Emergent vegetation and nearby snags present, but the area is highly-developed.
General fish habitat		X			Wetland is not associated with fish-bearing water.
Native plant richness		X			The wetland has one Cowardin class (emergent) and is dominated by a non-native plant species.
Educational or scientific use		X			Site is publicly owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 13 **Project:** SR 167 Completion, Stage 1A **Assessed By:** DM, MH

Date: 8/7/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		3, 6	X	Wetland is a closed depressional system, but it does not receive floodwater from a watercourse and lacks dense woody vegetation.
Sediment removal	X		2, 3, 5, 6	X	Depressional with no outlet/flow, has dense herbaceous species, seasonal ponding evident. Sediment deposits likely present but not observed during field visit. Wetland has some sources of excess sediment.
Nutrient and toxicant removal	X		1, 2, 3, 4, 5	X	Depressional with no outlet, has sources of excess toxicants (road runoff), is seasonally inundated and densely vegetated by grasses with silt loam soil.
Erosion control & shoreline stabilization		X			Not associated with a shoreline.
Production of organic matter and its export		X	1, 5		Dominated by herbaceous vegetation, has seasonal flooding, but lacks outlet, plant community structure and diversity.
General habitat suitability	X		3, 7		Wetland connects to other habitats and signs of wildlife present (songbirds and small rodents), but the wetland is fragmented by 70th Ave, stormwater ponds and access road. Wetland located in highly-developed area, with one Cowardin class and low plant diversity.
Habitat for aquatic invertebrates	X		1, 4, 6		Seasonally inundated with emergent vegetation. Near tributary to Surprise Lake but lacks aquatic vegetation, varying water depths, and cover.
Habitat for amphibians	X		1, 2, 6		Seasonally inundated with emergent vegetation that likely does not provide amphibian habitat. Other habitat is nearby, but surrounding area is highly-developed. Wetland lacks woody debris.
Habitat for wetland-associated mammals		X			Wetland lacks required permanent water.

Habitat for wetland-associated birds		X			Wetland lacks required open water and/or aquatic bed. Emergent vegetation and nearby snags present, but highly-developed area.
General fish habitat		X			Wetland is not associated with fish-bearing water.
Native plant richness		X			The wetland has one Cowardin class (emergent) and is dominated by a non-native plant species.
Educational or scientific use		X			Site is publicly owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 14 **Project:** SR 167 Completion, Stage 1A **Assessed By:** DM, MH

Date: 8/7/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence		Rationale (qualifiers and attributes present)	Principal Function	Comments
	Y	N			
Flood flow alteration	X		2, 4		Wetland is depressional with constricted outlet (culvert) but does not have algal mats, etc. Does not receive floodwater from watercourse and lacks dense woody vegetation.
Sediment removal	X		3, 5, 6	X	Depressional, vegetated by dense reed canarygrass, seasonal ponding evident. Sediment deposits likely present but not observed during field visit. Some sediment sources present.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Depressional, has sources of excess toxicants (road runoff), seasonally inundated, and is densely vegetated by grasses with sandy and silt loam soil.
Erosion control & shoreline stabilization		X			Not associated with a shoreline.
Production of organic matter and its export	X		1, 5, 6		Dominated by herbaceous vegetation, has outlet via culvert and seasonal flooding, but lacks plant community structure and diversity.
General habitat suitability	X		3, 7		Wetland connects to other habitats and signs of wildlife present (songbirds and small rodents), but is fragmented by 70th Ave, stormwater ponds and access road. Wetland is located in highly-developed area, with one Cowardin class and low plant diversity.
Habitat for aquatic invertebrates	X		1, 4, 6		Seasonally-inundated with emergent vegetation. Near tributary to Surprise Lake but lacks aquatic vegetation, varying water depths, and cover.
Habitat for amphibians	X		1, 6		Seasonally-inundated with emergent vegetation that likely does not provide amphibian habitat. Other habitat nearby, but the surrounding area is highly-developed. Wetland lacks woody debris.
Habitat for wetland-associated mammals		X			Wetland lacks required permanent water.

Habitat for wetland-associated birds		X	2, 4		Wetland lacks required open water and/or aquatic bed. Emergent vegetation and nearby snags present, but highly-developed area.
General fish habitat		X			Wetland is not associated with fish-bearing water.
Native plant richness		X			The wetland has one Cowardin class (emergent) and is dominated by a non-native plant species.
Educational or scientific use		X			Site is publicly-owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 15 **Project:** SR 167 – Stage 1A **Assessed By:** DM & GS

Date: 8/8/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence		Rationale (qualifiers and attributes present)	Principal Function	Comments
	Y	N			
Flood flow alteration	X		2, 4, 6, 7	X	Wetland is depressional (although flow-through) and receives both sheet flow (from I-5) and channel flow from Surprise Lake Tributary.
Sediment removal	X		1, 2, 3, 5, 6	X	Wetland is depressional, borders some agricultural fields and roads, and has herbaceous vegetation.
Nutrient and toxicant removal	X		1, 2, 3, 4, 5	X	Wetland receives stormwater runoff from urbanized area and has permanent and seasonal inundation. Dense herbaceous vegetation and fine-grained or organic soils are present.
Erosion control & shoreline stabilization	X		2		Downstream (eastern) portion and outlet are associated with Surprise Lake Trib. Wetland has low energy flows and steep side slopes dominated by herbaceous vegetation (and less than 10% shrub in the east end).
Production of organic matter and its export	X		1, 2, 5, 6		Dense herbaceous vegetation present, with a small area of deciduous shrub in east end. Inundation and flooding occur during the growing season. Has an outlet from which organic matter can be flushed.
General habitat suitability		X	1, 3, 7		Wetland connects to other habitats and signs of wildlife present (songbirds and small rodents), but is in a highly-developed area. Has one Cowardin class and low plant diversity.
Habitat for aquatic invertebrates	X		1, 2, 4, 6	X	Has seasonal and permanent inundation with varying depths of water. Emergent vegetation present but not cover. Connected to stream. Wetlands nearby.
Habitat for amphibians	X		1, 2, 3, 6	X	Seasonal/permanent water zones present with thin-stemmed vegetation. Connected to stream. Wetlands are nearby, but area is highly developed.

Habitat for wetland-associated mammals	X		1, 2, 7		Permanent water present with emergent vegetation and a small area of shrub (only Cowardin class is PEM). Some evidence of use by small rodents. Very narrow areas of mowed grass and highly developed area.
Habitat for wetland-associated birds	X		2, 6		Emergent vegetation and permanent ponding present. Wetland likely contains invertebrates and amphibians. Very narrow areas of mowed grass and highly developed area.
General fish habitat	X		1, 2		Connected to fish-bearing Surprise Lake Tributary. Waters are probably polluted with low oxygen and high water temperatures present in the wetland. Vegetation does not provide shade/cover, no spawning areas observed.
Native plant richness		X			One Cowardin class present. Vegetation has low vegetation structure and diversity.
Educational or scientific use		X	2		Site is publicly owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 16 **Project:** SR 167 Completion **Assessed By:** CNM/ES

Date: 8/20/18 **Cowardin Class:** PSS, PFO **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence		Rationale (qualifiers and attributes present)	Principal Function	Comments
	Y	N			
Flood flow alteration		X	2, 3, 7		Wetland is depressional, but floodwater/overbank flow is not the dominant source of hydrology.
Sediment removal	X		1, 3, 5		Wetland is depressional, borders active agricultural fields, and is vegetated by reed canarygrass.
Nutrient and toxicant removal	X		1, 3, 4, 5		Wetland is depressional, dominated by silt clay loam soils, and borders active conventional agriculture fields where pesticide spray was observed during field work.
Erosion control & shoreline stabilization		X			Wetland not associated with a shoreline.
Production of organic matter and its export		X	1, 2, 3		Wetland does not export material.
General habitat suitability	X		1, 3, 5, 6, 7		Wetland has two interspersed Cowardin classes and connectivity to other wetlands.
Habitat for aquatic invertebrates		X	6		No permanent and insufficient seasonal inundation is provided by this wetland.
Habitat for amphibians		X	4, 6		Insufficient inundation occurs in this wetland.
Habitat for wetland-associated mammals		X	3, 4		No permanent water is present within or adjacent to this wetland.
Habitat for wetland-associated birds		X	2, 3		No permanent water is present within or adjacent to this wetland, and the surrounding area is highly developed.
General fish habitat		X	4		No surface water connection.
Native plant richness		X	2, 3, 4		The wetland is dominated by nonnatives. Plant richness provided by ornamentals associated with former homes.
Educational or scientific use	X		2, 3		Site is easily accessible and publicly owned.

Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 17 **Project:** SR 167 Completion **Assessed By:** GLR

Date: 11/10/18 **Cowardin Class:** PEM/PFO **Ecology Category:** II **Local Rating:** II

Function/Value	Occurrence		Rationale (qualifiers and attributes present)	Principal Function	Comments
	Y	N			
Flood flow alteration	X		1, 2, 5, 6	X	Wetland is adjacent to Hylebos Creek in the upper portion of the watershed. The wetland is flat, contains dense woody vegetation, and regularly receives floodwater from the creek.
Sediment removal	X		1, 2, 3, 4, 5, 6	X	Roads and development are prevalent around wetland. Wetlands contains dense herbaceous vegetation. Interspersion of vegetation and water is high, and water ponds in wetland after high flows. Sediment deposits evident during site visits.
Nutrient and toxicant removal	X		1, 2, 3, 4, 5	X	Roads and development are prevalent around wetland. Wetlands contains high cover of live dense herbaceous vegetation. Wetland is regularly inundated during heavy rains and contains numerous depressions that provide water detention. Sediment deposits evident during site visits.
Erosion control & shoreline stabilization	X		1, 2, 3	X	Wetland borders Hylebos Creek, which experiences regular overbank flooding. Herbaceous and woody vegetation are prevalent throughout wetland.
Production of organic matter and its export	X		1, 2, 5, 6	X	Herbaceous cover throughout wetland; woody plants consist primarily of willows and cottonwoods. Flooding occurs regularly during heavy rains, flushing organic matter into Hylebos Creek.
General habitat suitability	X		1, 3, 4, 5, 6, 7	X	This is a large wetland with high plant species diversity and interspersed Cowardin classes. Several bird and mammal species were observed during site visits.
Habitat for aquatic invertebrates	X		1, 2, 4, 5, 6		Wetland is regularly inundated with overbank flows. Numerous depressions provide ponded areas well into dry season. Hylebos Creek flows through the wetland.

Habitat for amphibians	X		1, 2		Wetland contains areas of seasonal standing water and thin-stemmed emergent vegetation in those areas. Woody debris is present in wetland, and there are several other wetlands within 1 km. Bullfrog tadpoles observed during site visits.
Habitat for wetland-associated mammals	X		1, 2, 3, 4, 5, 6, 7		Hylebos Creek flows through the wetland. High levels of interspersion between various vegetation classes. Creek banks are suitable for denning, and wildlife tracks (likely nutria) observed during site visits.
Habitat for wetland-associated birds	X		2, 3, 4, 6		Emergent, scrub-shrub, forested vegetation, and snags present in wetland. Wetland provides habitat for prey species. Great blue heron observed during site visits.
General fish habitat	X		1, 2		Hylebos Creek provides fish habitat. Salmonids and stickleback observed during site visits.
Native plant richness	X		2, 3, 4		Wetland is dominated by reed canarygrass but contains several Cowardin classes, vegetation strata, and mature trees.
Educational or scientific use	X		2, 3		Wetland is in public ownership, adjacent to Interurban Trail, and near the trail parking lot.
Uniqueness & heritage	X		1		Chinook salmon, federally listed as threatened, have been documented in Hylebos Creek.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 18 **Project:** SR 167 Completion **Assessed By:** GLR

Date: 11/10/2018 **Cowardin Class:** PFO **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence		Rationale (qualifiers and attributes present)	Principal Function	Comments
	Y	N			
Flood flow alteration		X	2, 5		This wetland is too low in the watershed and too small to attenuate flood flows, and likely only receives floodwater during extremely high flood events.
Sediment removal		X	1, 3		The wetland is depressional, and located between 70th Ave S and the Interurban Trail, but it does not convey water and ponding does not occur in the wetland. There was no evidence of recent sediment deposits during site visits.
Nutrient and toxicant removal		X	1, 4		70th Ave S is upgradient of the wetland, but above a steep slope that likely intercepts road runoff. There was no evidence of flooding or fine-grained soils during site visits.
Erosion control & shoreline stabilization		X			The wetland is not associated with a water course.
Production of organic matter and its export		X	1, 2		The wetland has high cover of herbaceous and deciduous woody plants, but does not flood seasonally and has no outlet from which organic material could be flushed.
General habitat suitability		X			The wetland is small and surrounded by developed areas, with low interspersion of Cowardin classes. There was no evidence of wildlife use during site visits.
Habitat for aquatic invertebrates		X			There is no evidence of seasonal inundation.
Habitat for amphibians		X			There are no areas of seasonal and/or permanent standing water.
Habitat for wetland-associated mammals		X			No permanent water present in the wetland.
Habitat for wetland-associated birds		X			Wetland has no open water or aquatic bed classes.
General fish habitat		X			Wetland is not associated with a fish-bearing water.

Native plant richness		X			Wetland has only one Cowardin class and is dominated by nonnative vegetation.
Educational or scientific use		X	2, 3		The wetland is in public ownership and near the Interurban Trail parking lot, but is very small and provides little educational or scientific value.
Uniqueness & heritage		X			No special status species or habitat is present, and the wetland has not been determined significant by federal, state or local jurisdictions.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 19 **Project:** SR 167 Completion **Assessed By:** ES

Date: 9/7/2018 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration		X	2, 3, 7		Wetland is depressional, but floodwater/overbank flow is not the dominant source of hydrology.
Sediment removal	X		1, 3, 5		Wetland is depressional, borders traditional agriculture which contributes sediment, and ponds water.
Nutrient and toxicant removal	X		1, 3, 4, 5	X	Wetland is depressional, dominated by silt loam soils, and borders roadways which contribute heavy metals during surface flow events.
Erosion control & shoreline stabilization		X			Wetland not associated with a shoreline.
Production of organic matter and its export		X	1, 2		Wetland does not export material.
General habitat suitability		X	1, 3		Wetland has low richness of plant species, one Cowardin class, and no habitat interspersion.
Habitat for aquatic invertebrates		X	4, 6		No permanent and insufficient seasonal inundation is provided by this wetland.
Habitat for amphibians		X	4, 6		No permanent and insufficient seasonal inundation is provided by this wetland.
Habitat for wetland-associated mammals		X	4		No permanent water is present within or adjacent to this wetland.
Habitat for wetland-associated birds		X	2, 3		No permanent water is present within or adjacent to this wetland, and the surrounding area is highly developed.
General fish habitat		X	4		Insufficient surface water connection.
Native plant richness		X	4		The wetland is dominated by nonnatives and one Cowardin class.
Educational or scientific use	X		2, 3		Site is easily accessible and publicly owned.

Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 20 **Project:** SR 167 Completion, Stage 1A **Assessed By:** DM, MH

Date: 9/7/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		2, 4, 6	X	Wetland is depressional but not closed and is in a flat area. May receive flood flow from Hylebos Creek but only as channel flow (via a culvert). Lacks dense woody vegetation.
Sediment removal	X		3, 5, 6	X	Depressional, vegetated by dense reed canarygrass, seasonal ponding evident. Sediment deposits likely present, but wetland lacks sources of significant sediment.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Depressional, has sources of excess toxicants (highway runoff), is densely vegetated by grasses. Silt loam soil and dense vegetation are present.
Erosion control & shoreline stabilization		X			Not associated with a shoreline.
Production of organic matter and its export	X		1, 5, 6		Dominated by herbaceous vegetation, has surface water outlet and seasonal flooding, but lacks plant community structure and diversity.
General habitat suitability	X		3, 7		Wetland connects to other habitats and signs of wildlife present (songbirds and small rodents) but likely fragmented by 70th Ave overpass. Located in highly developed area. One Cowardin class and low plant diversity.
Habitat for aquatic invertebrates	X		1, 4, 6		Seasonally-inundated with emergent vegetation. Near Hylebos Creek but lacks aquatic vegetation, varying water depths, and cover.
Habitat for amphibians	X		1, 2, 4, 6		Seasonally inundated with emergent vegetation that likely does not provide amphibian habitat. However, most of wetland is mowed. Other habitat nearby, but surrounding area highly developed.
Habitat for wetland-associated mammals		X			Permanent water not present in wetland.
Habitat for wetland-associated birds	X		2, 6		Wetland lacks open water and/or aquatic bed, but has emergent class and potentially invertebrates and amphibians.

General fish habitat		X	1		Wetland has surface water connection via culvert to fish-bearing Hylebos Creek but only has surface water connection during storm events. Wetland does not possess attributes to provide spawning, rearing or refuge.
Native plant richness		X			The wetland has one Cowardin class (emergent) and is dominated by non-native plant species.
Educational or scientific use		X	2		Site is publicly owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 21 **Project:** SR 167 Completion – Stage 1A **Assessed By:** DM & GS

Date: 11/28/18 **Cowardin Class:** PSS/PEM **Ecology Category:** II **Local Rating:** II

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		2, 3, 6	X	Small, closed depression that may be supported by shallow groundwater. Primary hydrology appears to be rainfall/runoff that comes as sheet flow.
Sediment removal	X		1, 5		Small, closed depression that ponds but does not have dense herbaceous vegetation. Possible sediment input from nearby construction, otherwise very limited input and few sediments observed.
Nutrient and toxicant removal	X		1, 2, 3, 5		Receives some toxicants from roads and paved areas to the south. W21 has inundation, long duration for water detention, and fine-grained mineral soils.
Erosion control & shoreline stabilization		X			Not associated with watercourse, although it is approximately 70 feet SW of Hylebos Creek.
Production of organic matter and its export		X	2, 5		Vegetative cover is deciduous but moderate, and wetland has no outlet.
General habitat suitability		X	3, 5		Surrounding area is mostly developed or disturbed. Wetland has two Cowardin classes and is in close proximity to Hylebos Creek, but has limited diversity.
Habitat for aquatic invertebrates	X		1, 2, 4, 5, 6	X	Limited by small area / size but has criteria to provide this habitat.
Habitat for amphibians	X		1, 4, 6		Not likely to provide this habitat because the vegetation is not suitable for egg-laying. However, it is possible due to the proximity of the Hylebos Creek corridor 70 feet to the NE.
Habitat for wetland-associated mammals		X			Permanent water is not present within the wetland.

Habitat for wetland-associated birds		X	2, 3, 6		Wetland lacks open water and/or aquatic bed, but has emergent class and potentially invertebrates and amphibians. Function not likely due to small size, seasonal ponding, and low vegetation cover.
General fish habitat		X			No connection with a water course.
Native plant richness		X	2		Wetland has low diversity that includes non-natives such as reed canarygrass and Himalayan blackberry.
Educational or scientific use		X			Site is publicly-owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 22 **Project:** SR 167 Completion – Stage 1A **Assessed By:** DM & GS

Date: 11/28/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		2, 6	X	Small depression that may be supported by shallow groundwater. Very little ponding so does not appear to retain high volumes of water during storm events.
Sediment removal	X		1, 3, 5		Very seasonal and minimal seasonal ponding, although has dense herbaceous vegetation. Possible sediment input from nearby construction, otherwise very limited input and few sediments observed.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Receives some toxicants from roads and paved areas to the south. W22 has some inundation and long duration for water detention, and has fine-grained mineral soils.
Erosion control & shoreline stabilization		X			Not associated with a water course.
Production of organic matter and its export		X	1, 5		Vegetative cover, structure, and density is low, with only an herbaceous class. Wetland does not export organic matter to benefit other habitats.
General habitat suitability		X			Surrounding area includes urban development or is disturbed. WL does not connect directly to other habitat areas, is small, and has one Cowardin class dominated by reed canarygrass.
Habitat for aquatic invertebrates	X		1, 4, 6		Limited by small size and small occasionally ponded area, but has emergent vegetation and other streams/wetlands nearby.
Habitat for amphibians		X	1, 6		Not likely to provide this habitat, as limited ponding appears to be only occasional and vegetation is not suitable for egg-laying. Much of the adjacent upland is pavement.
Habitat for wetland-associated mammals		X			Permanent water is not present within the wetland.

Habitat for wetland-associated birds		X	2, 6		Wetland lacks open water and/or aquatic bed, but has emergent class and potentially invertebrates and amphibians. Function not likely due to small size and occasional ponding.
General fish habitat		X			No connection with a water course.
Native plant richness		X	2		Wetland has single dominant species of reed canarygrass.
Educational or scientific use		X			Site is publicly-owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.

Wetland ID: 23 **Project:** SR 167 Completion – Stage 1A **Assessed By:** DM & GS

Date: 11/28/18 **Cowardin Class:** PEM **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale (qualifiers and attributes present)	Principal Function	Comments
Flood flow alteration	X		2, 6, 7	X	Depressional/slope wetland may be supported by shallow groundwater and some flooding of Hylebos in the far east portion. Very little ponding, so does not appear to retain high volumes of water during storm events.
Sediment removal	X		1, 3, 5		Very seasonal and minimal seasonal ponding, although has dense herbaceous vegetation. Possible sediment input from nearby construction, otherwise limited input and few sediments observed.
Nutrient and toxicant removal	X		1, 2, 4, 5	X	Receives some toxicants from roads and paved areas to the south and west. W23 has some inundation and long duration potential for water detention, and has fine-grained mineral soils.
Erosion control & shoreline stabilization	X		2		The only part of W23 adjacent to Hylebos Creek is the narrow outlet. Some vegetation borders the watercourse, with some evidence of erosion.
Production of organic matter and its export	X		1, 5, 6		Vegetative structure and species richness are low, as it has only an herbaceous Cowardin class. Minimal organic matter (grass) would be flushed into Hylebos Creek.
General habitat suitability		X	1, 3		Surrounding area includes roads, urban development, and other disturbance. WL has one Cowardin class dominated by reed canarygrass but is connected to Hylebos Creek.
Habitat for aquatic invertebrates	X		1, 4, 6		Small, infrequent ponded area with emergent vegetation, but has other streams and wetlands nearby.
Habitat for amphibians		X	1, 6		Not likely to provide this habitat, as limited ponding appears to be very shallow, and vegetation is not suitable for egg-laying. Much of the adjacent upland is a paved road.

Habitat for wetland-associated mammals		X			Permanent water is not present within the wetland.
Habitat for wetland-associated birds		X	2, 4, 6		Wetland lacks open water and/or aquatic bed, but has emergent class and potentially invertebrates. Function not likely due to small size, shallow ponding, and developed surroundings.
General fish habitat		X	1, 4		The wetland outlets to Hylebos Creek, but wetland is located at a far higher elevation; therefore, fish could not travel into the majority of the wetland.
Native plant richness		X	2		Wetland has single dominant species: reed canarygrass.
Educational or scientific use		X			Site is publicly-owned but lacks parking and does not offer education or scientific value.
Uniqueness & heritage		X			No unique or sensitive species or habitat present.

Source: Null, W.S.; G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia.