Draft - Lake to Sound Trail - Segment C Wetland and Stream Discipline Report

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ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
BMC	Burien Municipal Code
Corps	U.S. Army Corps of Engineers
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FAC	Facultative
FACW	Facultative Wetland
FGDC	Federal Geographic Data Committee
FHWA	Federal Highway Administration
HPA	Hydraulic Project Approval
HGM	hydrogeomorphic classification
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate
OHWM	ordinary high water mark
RM	River Mile
Sea-Tac	Seattle-Tacoma
SMC	SeaTac Municipal Code
SMP	Shoreline Master Program
SR	State Route
USFWS	U.S. Fish and Wildlife Service
USDA	U.S. Department of Agriculture
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

1. INTRODUCTION

This Wetland and Stream Discipline Report is intended to provide information in support of an environmental checklist pursuant to the State Environmental Policy Act. The report will also assist with project planning and facilitate regulatory approvals and permitting for the Lake to Sound Trail–Segment C.

This report describes wetlands and streams in the study area for the Lake to Sound Trail—Segment C project, which extends from the northern terminus of the proposed trail alignment at the intersection of Des Moines Memorial Drive S and S Normandy Road to the southern terminus of Segment C, located at Des Moines Creek Trail Park.

The study area comprises two components: a core area and a peripheral area. The core area includes all land within 100 feet of the trail alignment centerline, within which on-the-ground field investigations were conducted. The peripheral area is a zone between 100 and 300 feet from the centerline, within which wetland and stream locations were estimated based on aerial photography or vantages from public rights-of-way and/or the core study area.

In addition, this report evaluates potential impacts on wetlands, streams, and their buffers that may result from the proposed project. Fish and wildlife habitat conservation areas, frequently flooded areas, geological hazards, and critical aquifer recharge areas were not evaluated as part of this investigation.

A total of eight wetlands (Wetlands A, B, C, D, E, F, G, and H) were identified in the study area. One stream (Des Moines Creek) and one tributary stream (West Branch of Des Moines Creek) were identified within the study area. Biologists identified four ditches (Ditch A, B, C, and D) in the study area, none of which were determined to be jurisdictional (Parametrix 2017).

A high priority was placed on designing the project to include measures and features that avoid and minimize adverse effects on wetlands, streams, and their buffers. The wetlands and streams in the study area have been avoided to the greatest extent feasible while still achieving the project's purpose and need. Nonetheless, project-related construction activities will directly impact Wetland A, B, E, G, and H, and the West Branch of Des Moines Creek. In addition, project-related construction activities will impact the associated buffer of Wetland A, B, C, E, F, G, and H, and the West Branch of Des Moines Creek. Conceptual restorative or compensatory mitigation actions for unavoidable impacts are discussed.

1.1 Project Overview

King County, together with the Cities of Burien and SeaTac, and WSDOT are proposing to develop an approximately 3.1-mile (16,500 linear feet) segment (Segment C) of what will ultimately be part of the 16-mile Lake to Sound Trail. Segment C would connect the southern terminus of Lake to Sound Trail—Segment B (located near the southwest corner of the Seattle-Tacoma [Sea-Tac] International Airport) with the Des Moines Creek Trail, located at S 200th Street. Segment C would be built with county and state funding.

Lake to Sound Trail—Segment C is part of a Regional Trail System that provides non-motorized, alternative transportation and a recreational corridor for multiple trail users, including bicyclists, pedestrians, skaters, and others. A goal of the Lake to Sound Trail is to provide non-motorized transportation facilities to economically disadvantaged communities in southwest King County that have been historically underserved by such facilities. Once complete, Segment C would become part of a larger planned system that would serve employment and residential centers in South King County and connect to regional trails in Seattle and the greater Regional Trail System network.

1.2 Project Features

Segment C will have a typical width of approximately 12 feet of asphalt pavement bounded by two 2-foot-wide shoulders and 1-foot-wide clear zones, in accordance with American Association of State Highway and Transportation Officials (AASHTO) guidelines. The project includes:

- Constructing a 12-foot-wide asphalt pavement trail with soft-surface (gravel) shoulders
- Performing minor grading to construct the trail
- Constructing a boardwalk for the trail through Wetland A to minimize the impact to streams and wetlands
- Vacating S 196th Street and 18th Avenue S
- Installing pedestrian-actuated signal crossings
- Installing drainage improvements
- Installing split-rail fencing and plantings to minimize the potential for disturbance to sensitive areas and wildlife

1.3 Study Area and Setting

The Segment C study area is a linear corridor that occurs mostly within the existing road rights-of-way for State Route (SR) 509 and Des Moines Memorial Drive. Segment C is located in Sections 4 and 5, Township 22 North, Range 4 East, and Section 32, Township 23, Range 4 East Willamette Meridian. To the northwest of SR 509, the proposed trail alignment will be within the city of Burien; to the southeast of SR 509, the proposed trail alignment is within the city of SeaTac. The study area is described from north to south below.

The northern terminus of the proposed trail alignment would connect to the Lake to Sound Trail—Segment B southern terminus at the intersection of Des Moines Memorial Drive S and S Normandy Road. Here, the trail would parallel Des Moines Memorial Drive S in Burien for approximately 2,400 linear feet before entering SeaTac at the SR 509 WSDOT right-of-way near Des Moines Memorial Drive S and 8th Avenue S. This section of the trail will be constructed in the road right-of-way over roadside fill, roadway shoulders, and roadside ditches. Areas immediately adjacent to the existing roadside that would be affected consist of paved and gravel shoulders, non-native grasses, Japanese knotweed and Himalayan blackberry, and small areas of native shrubs.

Within the city of SeaTac, the proposed trail alignment enters the WSDOT undeveloped right-of-way for the proposed SR 509 highway extension and heads south before reconnecting to the Des Moines Memorial Drive right-of-way, north of the intersection with S 190th Street. This approximately 0.75-mile (4,000 linear feet) section of the proposed trail alignment is undeveloped and contains wetlands and streams, as well as uplands.

Continuing south along the west shoulder of Des Moines Memorial Drive, the proposed trail alignment runs adjacent to an industrial zone for approximately 0.66 mile (3,500 linear feet) before turning east onto S 196th Street. The route then travels approximately 1.1 miles (6,000 linear feet) along 18th Avenue S before reentering the SR 509 right-of-way, crossing the vacated Tyee Valley Golf Course and S 200th Street to reach the southern terminus of the proposed trail alignment at Des Moines Creek Trail Park trailhead.

1.4 Project Purpose and Need

The purpose of the Lake to Sound Trail—Segment C project is to design and construct a non-motorized transportation corridor and multi-use recreational trail from the southern terminus of the Lake to Sound Trail—Segment B, located at the intersection of Des Moines Memorial Drive S and S Normandy Road, to Des Moines Creek Trail Park, in the cities of Burien and SeaTac.

The multi-use Lake to Sound Trail—Segment C would provide non-motorized access to recreation and employment centers and complete a link in the Regional Trail System network. The trail is intended to safely accommodate a variety of user groups such as bicyclists, pedestrians, runners, wheelchair users, and skaters. Trail design standards will safely accommodate different ages and skill levels within those groups.

The Lake to Sound Trail—Segment C would:

- Serve local and regional non-motorized transportation needs and provide access to the trail for local communities
- Help satisfy the regional need for recreational trails and provide safe recreational opportunities to a wide variety of trail users
- Provide a critical link in the Regional Trail System
- Provide economic and health benefits to communities along the trail

1.5 Regulatory Setting

Critical areas (i.e., wetlands and streams) in Burien (northwest of SR 509) are regulated under Burien Municipal Code (BMC) 19.40, and critical areas in SeaTac (southeast of SR 509) are regulated under SeaTac Municipal Code (SMC) 15.700. Wetlands, streams, and other sensitive resources in the project vicinity are also subject to federal and state regulations. At the federal level, wetlands and streams are regulated by the Clean Water Act, Section 404, which regulates placement of fill in waters of the United States. The U.S. Army Corps of Engineers (Corps) is responsible for issuing permits for approved activities under Section 404. Activities that affect wetlands and streams may also require a water quality certification (Section 401 of the Clean Water Act), which is administered at the federal level by the U.S. Environmental Protection Agency (EPA) and implemented at the state level by Washington State Department of Ecology (Ecology). Ecology reviews projects for compliance with state water quality standards and makes permitting and mitigation decisions based on the nature and extent of impacts, as well as the type and quality of wetlands or streams being affected. Activities that use, divert, obstruct, or change the flow of a Water of the State, including some wetlands, typically require a Hydraulic Project Approval (HPA) permit. The Washington Department of Fish and Wildlife (WDFW) is responsible for implementing HPAs under the State Hydraulic Code.

2. METHODOLOGY

This report is based on a review of existing information and field investigations. The goal of these efforts is to document existing information and collect new information to characterize current site conditions.

2.1 Review of Existing Information

Prior to conducting fieldwork, biologists reviewed maps and materials including, but not limited to:

- Natural Resources Conservation Service (NRCS) Web Soil Survey (U.S. Department of Agriculture [USDA], NRCS 2016a)
- National Wetlands Inventory (NWI), online interactive mapper (U.S. Fish and Wildlife Service [USFWS] 2016)
- City of Burien Critical Areas Map (City of Burien 2016a)
- City of SeaTac Wetland, Stream, and Shoreline Classification Map (City of SeaTac 2010)
- King County iMap (King County 2016)
- Washington State Department of Natural Resources (DNR) Forest Practices Application Mapping Tool (DNR 2016)
- WDFW Priority Habitats and Species database (WDFW 2016a)
- WDFW SalmonScape fish database and mapping application (WDFW 2016b)
- Wetland Delineation Report, Master Plan Update Improvements, Seattle-Tacoma International Airport (Parametrix 2000)
- SR 509 Extension Environmental Impact Statement (WSDOT 2003), Wetland Mitigation Report (WSDOT 2006), and permit documents (WSDOT 2007)

2.2 Field Investigations

The following sections describe the technical criteria used in the field to identify and characterize potential wetlands and streams within the study area (Figure 2-1).

Field investigations were conducted by two field biologists, Josh Wozniak (Professional Wetland Scientist #1478) and Trey Parry (Wetland Professional in Training), during multiple site visits in September, October, and November. The majority of work was conducted during September 12 to 15, with additional site visits on October 18, November 11, and November 14, 2016. This schedule allowed field biologists to examine the critical areas under various seasonal climatic conditions, including the dry season (September) and wet season (November).

Weather during the dry season field investigation consisted of clear skies and partially overcast skies with daytime average temperatures near 63 degrees Fahrenheit (°F). According to NRCS Climate Analysis for Wetlands Tables (WETS tables) and climate data recorded at Sea-Tac Airport, periods prior to the September field investigation were determined to be drier than normal (ACIS 2016). Wet season field investigations were conducted after rainfall events, with partially overcast skies and daytime average temperatures near 55°F. Periods immediately prior to the October and November field visits were described as normal, using a WETS table and climate data from Sea-Tac Airport (ACIS 2016).

2.2.1 Wetland Identification and Delineation

The methods specified in the *Corps of Engineers Wetlands Delineation Manual* (Corps 1987) and indicators specified in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps 2010) were used by project biologists to delineate on-site wetlands.

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. An area must have at least one positive indicator of wetland vegetation, soils, and hydrology to be considered a wetland. The delineated wetlands were instrument-surveyed by professional land surveyors. Wetland determination data forms from the Regional Supplement (Corps 2010) were completed for each wetland (Appendix A).

2.2.1.1 Vegetation

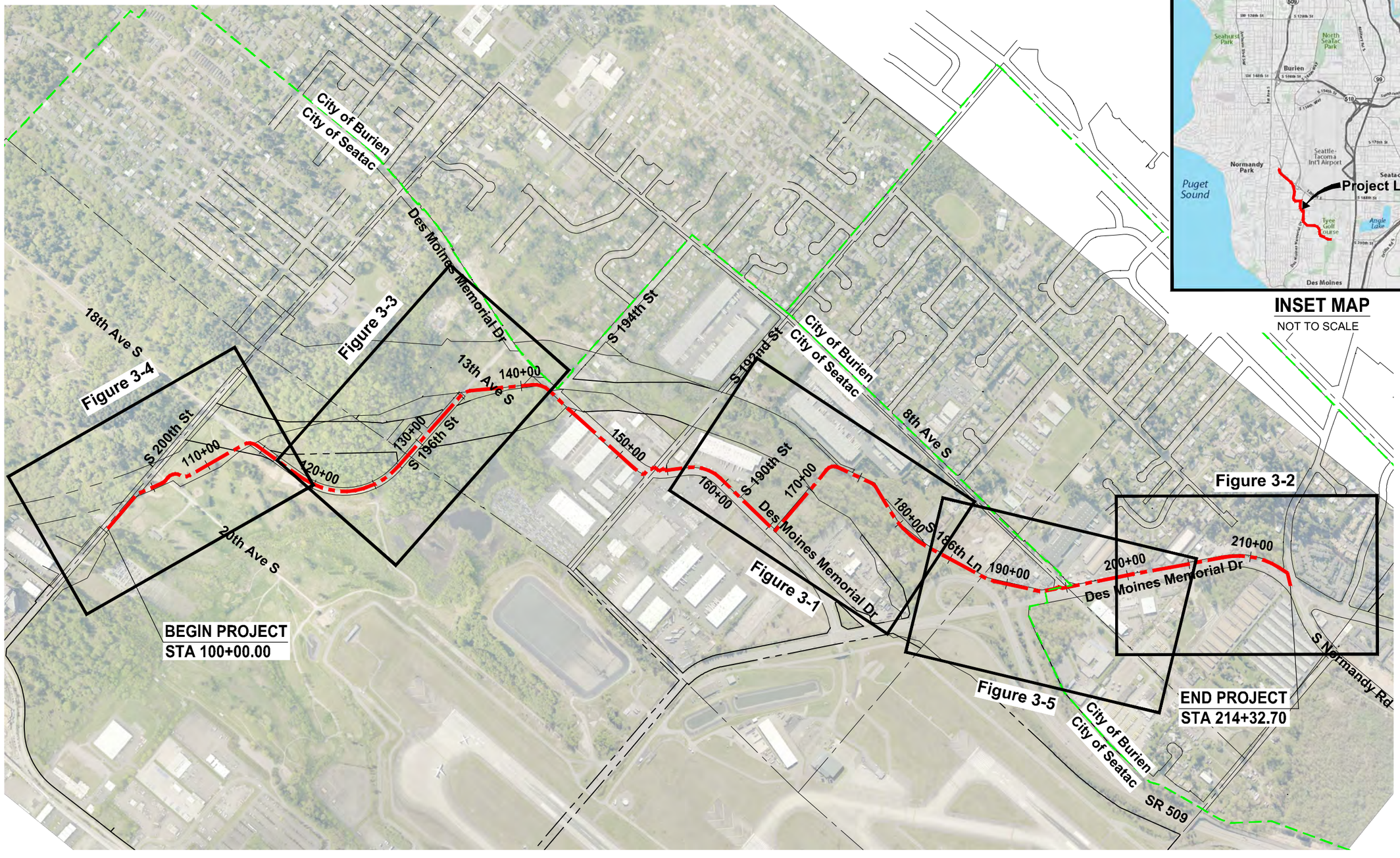
The dominant plants and their wetland indicator status were evaluated to determine if the vegetation was hydrophytic. Hydrophytic vegetation is generally defined as vegetation adapted to prolonged saturated soil conditions. To meet the hydrophytic vegetation criterion, more than 50 percent of the dominant plants must be Facultative (FAC), Facultative Wetland (FACW), or Obligate (OBL), based on the plant indicator status category assigned to each plant species by the USFWS (Reed 1988, 1993). Table 2-1 lists the definitions of the indicator status categories.

Scientific and common plant names follow currently accepted nomenclature. Most names are consistent with the PLANTS Database (USDA, NRCS 2016b), and the National Wetland Plant List (Lichvar et al. 2016). During the field investigations, dominant plant species were observed and recorded on data forms for each sampling point (see Appendix A).

Table 2-1. Key to Plant Indicator Status Categories

Plant Indicator Status Category	Symbol	Definition
Obligate Wetland Plants	OBL	Plants that almost always (> 99% of the time) occur in wetlands, but which may rarely (< 1% of the time) occur in non-wetlands.
Facultative Wetland Plants	FACW	Plants that often (67% to 99% of the time) occur in wetlands, but sometimes (1% to 33% of the time) occur in non-wetlands.
Facultative Plants	FAC	Plants with a similar likelihood (33% to 66% of the time) of occurring in both wetlands and non-wetlands.
Facultative Upland Plants	FACU	Plants that sometimes (1% to 33% of the time) occur in wetlands, but occur more often (67% to 99% of the time) in non-wetlands.
Upland Plants	UPL	Plants that rarely (< 1% of the time) occur in wetlands, and almost always (> 99% of the time) occur in non-wetlands.

Source: Corps 1987



INSET MAP
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Figure 2-1
Wetlands and Streams
Lake to Sound Trail Segment C

2.2.1.2 Soils

Generally, an area must have hydric soils to be a wetland. Hydric soil forms when soils are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions. Biological activities in saturated soil deplete oxygen concentrations that result in a preponderance of organisms using anaerobic processes for metabolism. Over time, anaerobic biological processes result in certain soil color patterns, which are used as indicators of hydric soil (Corps 2010). Typically, low-chroma colors and concentrations of brightly-colored redoximorphic features are common indicators in mineral soils. Other important hydric soil indicators include organic matter accumulations in the surface horizon, reduced sulfur odors, and organic matter staining in the subsurface. Soils were examined by excavating sample plots to a depth of 18 inches or more to observe soil profiles, colors, and textures. The depths of the sample plots ranged between 18 and 20 inches deep. Munsell color charts (Munsell Color 2015) are used as objective standards to describe soil colors.

2.2.1.3 Hydrology

The study area was examined for evidence of wetland hydrology. An area is considered to have wetland hydrology when soils are ponded or saturated consecutively 12.5 percent (sometimes 5 to 12.5 percent) of the growing season. In King County (Sea-Tac Airport station), the growing season generally lasts from early March (March 9) to mid-November (November 17) (ACIS 2016); therefore, ponding or saturation must be present for approximately 32 consecutive days. Wetland hydrology field indicators include the observation of surface water, a water table near the surface, and/or saturated soils, as well as evidence of current or recent inundation and soil saturation, and evidence from other site conditions or hydrologic data (Corps 2010).

2.2.2 Wetland Classification and Rating

Delineated wetlands were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee [FGDC] 2013). Hydrogeomorphic classifications were assigned to wetlands using Corps methods established in a *Hydrogeomorphic Classification for Wetlands* (Brinson 1993). Wetlands were rated according to SMC 15.700.275, BMC 19.40.300, and the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Hruby 2014). Table 2-2 summarizes the state and local jurisdiction wetland rating criteria for each wetland category. Buffer widths assigned to wetlands in the study area reflect requirements of the City of SeaTac (SMC 15.700.285(B)) and the City of Burien (BMC 19.40.310(2)(B)).

Table 2-2. Criteria for Wetland Rating Categories as Specified by Ecology[a] and adopted by the Cities of Burien[b] and SeaTac[c]

	Ecology [a]
Category I	Wetlands of exceptional value in terms of protecting water quality, storing flood water and stormwater, and/or providing habitat for wildlife as indicated by a rating system score of 23 points or more. These are wetland communities of infrequent occurrence that often provide documented habitat for sensitive, threatened, or endangered species, and/or have other attributes that are very difficult or impossible to replace if altered.
Category II	Wetlands that have very important resources as indicated by a rating system score of between 20 and 22 points. These wetlands occur more commonly than Category 1 wetlands but still require a high level of protection.
Category III	Wetlands that have important resource value as indicated by a rating system score of between 16 and 19 points.
Category IV	Wetlands that are of limited resource value as indicated by a rating system score of 9 to 15 points. They typically have vegetation of similar age and class, lack special habitat features, and/or are isolated or disconnected from other aquatic systems or high-quality upland habitats.

[a] Hruby 2014
[b] BMC 19.40.300
[c] SMC 15.700.275

2.2.3 Wetland Functional Assessment

Functions of individual wetlands were assessed using *Washington State Wetland Rating System for Western Washington: 2014 Update* (Hruby 2014). This method evaluates three key functions that wetlands perform—water quality, hydrologic, and habitat functions. Each function is assessed in three environmental contexts: 1) if the wetland has the potential to perform a function, 2) landscape factors that influence the functions in the wetland, and 3) whether the wetland performs functions valuable to society.

The rating system uses a series of questions to score the various functions, resulting in a high, moderate, and low rating for each function. Thus, a total of nine scores is used to produce an overall rating for the wetlands. These function scores are useful to qualitatively compare functions across the study area wetlands. These function scores also can be used as a basis for estimating wetland function impacts as well as the adequacy of proposed wetland mitigation (Hruby 2012).

2.2.4 Stream Identification

The City of Burien critical areas ordinance (BMC 19.40.340) defines streams as follows:

> *"Streams" means those areas where water is contained within a channel, either perennial or intermittent, and classified according to WAC 222-16-030 or WAC 222-16-031 and as listed under "water typing system." Streams also include natural watercourses modified by man. Streams do not include irrigation ditches, waste ways, drains, outfalls, operational spillways, channels, storm water runoff facilities or other wholly artificial watercourses, except those that directly result from the modification to a natural watercourse*.

The City of SeaTac critical areas ordinance (SMC 15.700.015) defines streams as follows:

> *"Streams" means a course or route, formed by nature, including those modified by man, generally consisting of a channel with a bed, banks, or sides substantially throughout its length, along which surface waters naturally and normally flow in draining from higher to lower lands.*

Study area streams were identified and classified using the applicable jurisdiction's definitions. Streams were also classified according to the DNR water typing system (DNR 2016; Washington Administrative Code [WAC] 222-16-030). The classifications were applied to the stream reaches located within the study area.

The ordinary high water mark (OHWM) of waterbodies in the study area were identified in the field following the definitions and standards established in WAC 220-110-020(31).The code defines OHWM as follows:

> *"Ordinary high water line" means the mark on the shores of all waters 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 ordinary years, as to mark upon the soil or vegetation a character distinct from that of the abutting upland…"*

As provided in SMC 15.700.330(A), stream buffers shall be established and measured landward horizontally from the OHWM.

3. RESULTS

This section describes the existing conditions of wetlands and streams within the study area based on background research of existing information and field investigations. For a detailed description of jurisdictional ditches within the study area, refer to the *Lake to Sound Trail—Segment C Jurisdictional Ditch Analysis* (Parametrix 2017).

3.1 Review of Existing Information

Characteristics of the study area based on a review of existing information, including the watershed, land use, topography, soils, vegetation, and fish and wildlife, are described below.

3.1.1 Watershed

The study area is in the Des Moines Creek Basin, within the Duwamish-Green Water Resource Inventory Area (WRIA) 09. Des Moines Basin is 5.8 square miles and has two branches, the West and East Branches of Des Moines Creek, and three distinct reaches. Both branches of Des Moines Creek flow approximately 1.3 miles before converging at River Mile (RM) 2.5 within the vacated Tyee Valley Golf Course (King County 1997). From here, Des Moines Creek travels approximately 2.3 miles west before draining into Puget Sound.

The three distinct reaches are characterized as plateau, ravine, and lower (King County 2003). The study area (West Fork of Des Moines Creek) is located in the plateau reach. According to King County (2003), the plateau reach contains an existing wetland system, including multiple, large (20 acres or more) headwater wetlands within the study area. Downstream of the study area, Des Moines Creek becomes much more incised and simplified, with limited pools, associated wetlands, and wood debris in the ravine reach. Additional problems include downstream flooding, reduced summer base flow, degraded water quality, and impaired fish habitat (King County 2003).

3.1.2 Land Use

At the north end of the study area, the primary land uses in the areas surrounding the project are industrial and commercial (City of Burien 2016b). Within SeaTac, land use includes commercial, industrial, and airport facilities (King County 2016). The airport facilities along S 196th Street and 18th Avenue S were once zoned for residential housing, but have since been vacated to accommodate the development of Sea-Tac Airport. Overall, King County (2001) maps the study area as urban/high density and mixed urban/low density using land cover classification.

In contrast to adjacent developed areas and regional trends, much of the proposed project footprint is dominated by native trees (north), dense thickets of shrubby wetland (middle), and open grass fields (south).

3.1.3 Topography

The terrain in the study area generally slopes from the north to the south. This trend is interrupted south of S 186th Lane where a steep eastward slope borders the trail alignment, and east of 18th Avenue S where the study area slopes eastward toward Des Moines Creek. Elevations along the proposed trail alignment range from approximately 260 feet at the northern terminus to 240 feet at the southern terminus.

3.1.4 Soils

The dominant soil types mapped in the south end of the study area are *urban soils* and *Indianola loamy sand*. *Indianola loamy sand* is made up of somewhat excessively drained soils formed under conifers in sandy, recessional, stratified glacial drift and located on 5 to 15 percent slopes. The permeability is rapid and runoff is slow to medium (USDA 1973). *Urban soils* include heavily disturbed and impacted soils, including imported fill material. *Indianola loamy sand* and *urban soils* are listed as non-hydric (USDA, NRCS 2015).

Soils in the north end of the study area (north of S 192nd Street) have not been previously mapped by the NRCS (USDA, NRCS 2016a). Based on mapped adjacent areas in similar geomorphic positions, soils in the northern study area are assumed to be *Bellingham silt loam, Alderwood gravelly sandy loam*, and *Everett gravelly sandy loam*. *Bellingham silt loam* is made up of poorly drained soils that formed in alluvium, under grass and sedges. These soils are nearly level and are mostly in depressions on the upland glacial till plain. Permeability is slow. *Alderwood gravelly sandy loam* is made up of moderately well drained soils that have a weakly consolidated to strongly consolidated substratum at a depth of 24 to 30 inches. Permeability is moderately rapid to moderately slow. The series formed under conifers in glacial deposits (USDA 1973). *Everett gravelly sandy loam* is made up of somewhat excessively drained soils that are underlain by very gravelly sand at a depth of 18 to 36 inches. Permeability is rapid and runoff is slow. These soils are formed in very gravelly glacial outwash deposits and under conifers (USDA 1973). *Bellingham silt loam* is characterized as hydric while *Alderwood gravelly sandy loam* and *Everett gravelly sandy loam* are characterized as non-hydric (USDA, NRCS 2015). NRCS soil mapping for the study area is presented in Figure B-1 and Figure B-2, Appendix B.

Information on soils observed during field investigations is provided in Section 3.2.1.

3.1.5 Wetlands

No wetlands have been previously mapped within the Burien study area (City of Burien 2016a; King County 2016 USFWS 2016). Four wetlands (Wetlands A, C, D, and E) were previously mapped and characterized within the SeaTac study area. Previously mapped wetlands in the study area are presented in Figures B-3, B-4, and B-5 in Appendix B.

The City of SeaTac's (2010) Wetland, Stream, and Shoreline Classifications map identifies two Category I wetlands (hereafter referred to as Wetland A and Wetland C for comparison to field results). Wetland A is positioned south of S 186th Lane, and between 8th Avenue S and Des Moines Memorial Drive. WDFW (2016a) and USFWS (2016) characterize this wetland as a freshwater forested/shrub wetland. Aerial imagery indicates dense vegetation throughout the extent of the wetland and areas of ponded water (King County 2015). The SR 509 Environmental Impact Statement (WSDOT 2003) characterizes this wetland as a 6.6-acre Category II (SMC 15.700) depressional wetland (Brinson 1993) with palustrine forested, palustrine scrub-shrub, and palustrine emergent habitats (FGDC 2013).

Wetland C is positioned in an area informally referred to as the Northwest Ponds. The Northwest Ponds are positioned north of S 196th Street and east of Des Moines Memorial Drive. WDFW (2016a) and USFWS (2016) characterize this wetland as freshwater forested/shrub wetland and freshwater ponds. The SR 509 Environmental Impact Statement (WSDOT 2003) characterizes the Northwest Ponds wetland system as a 28.8-acre Category II wetland associated with the West Branch of Des Moines Creek. It contains palustrine forested, palustrine scrub-shrub, palustrine emergent, and palustrine open water habitats (FGDC 2013; WSDOT 2003). A 54-inch culvert installed under a service road to the east of the

wetland separates this wetland system from the downstream riverine wetland associated with Des Moines Creek (WSDOT 2003; Brinson 1993).

The Environmental Impact Statement identified two additional wetlands, referred to as Wetland H and Wetland S, within and adjacent to the study area (see Figure B-4, Appendix B) (WSDOT 2003). Wetland H, identified as Wetland E in this report, is an isolated 0.09-acre Category IV depressional wetland positioned north of S 200th Street and adjacent to Des Moines Creek (WSDOT 2003). The wetland has palustrine open water and palustrine emergent habitats (FGDC 2013). Wetland S, identified as Wetland F in this report, is an isolated 0.5-acre Category IV slope wetland positioned between S 200th Street and 20th Avenue S (WSDOT 2003). The wetland contains palustrine emergent habitat (FGDC 2013).

Wetlands H and S were delineated by WSDOT project personnel while the Tyee Golf Course was still in operation. Since then, Tyee Golf Course has been vacated and is now managed by the Port of Seattle.

3.1.6 Streams

No streams were previously identified along the proposed trail alignment in the city of Burien (City of Burien 2016a; King County 2016; USFWS 2016).

The City of SeaTac's (2010) Wetland, Stream, and Shoreline Classifications map identifies one stream (Des Moines Creek) and one tributary stream (West Branch of Des Moines Creek) within the study area (see Figure B-5, Appendix B).

Des Moines Creek is a perennial stream that flows over a low-gradient plateau adjacent to the southern end of the study area before descending steeply through a ravine (City of SeaTac 2010; King County 1997). The creek has two main tributaries, known as the West Branch and the East Branch, that converge at RM 2.5, approximately 3,000 linear feet (0.57 mile) downstream of the point of discharge in Wetland C (King County 1997). WDFW (2016a) identifies the presence of resident coastal cutthroat trout (*Oncorhynchus clarki clarki*) downstream of Wetland C (see Figure B-6, Appendix B).

Des Moines Creek and the segment of the West Branch have four Category 5—303(d) listings (temperature, pH, bacteria, and dissolved oxygen) according to Ecology (2016); see Figure B-7, Appendix B. DNR (2016) classifies Des Moines Creek as a "Type F Water" according to WAC 222-16-031 – Interim Water Typing System.

The West Branch, as mapped by the City of SeaTac, is a Class 3 intermittent stream that flows from the source at 8th Avenue S and S 186th Lane approximately 400 linear feet to the east before taking a 90-degree turn and heading south, approximately 200 linear feet, before flowing into Wetland A (City of SeaTac 2010); see Figure B-5, Appendix B.

King County (2015) extends the mapped length of the West Branch south through Wetland A before entering one approximately 54-inch culvert below Des Moines Memorial Drive, which is piped approximately 0.3 mile (1,800 linear feet) to the Northwest Ponds. King County (1997) describes this upper watershed and stream system as greatly altered with little evidence of a stream system. The West Branch is not likely to contain fish due to intermittent flow and the presence of fish barriers (WDFW 2016a, 2016b).

3.1.7 Fish and Wildlife

Data from WDFW (2016a, 2016b) indicate that no priority species are present within the study area. Resident coastal cutthroat trout are mapped (WDFW 2016a) in Des Moines Creek, 300 feet east of the southern terminus of the Lake to Sound Trail—Segment C (see Figure B-6, Appendix B). Historically, coho

salmon (*Oncorhynchus kisutch*), chum salmon (*O. keta*), and rainbow trout (*O.* mykiss) had access to Des Moines Creek, but fish access was limited by the culvert crossing under Marine View Drive (1.9 miles downstream of the study area) and weirs at the treatment plant (1.25 miles downstream) (King County 2003). Extensive habitat restoration has been completed throughout Des Moines Creek in an attempt to restore fish populations, but salmonid use upstream of S 200th Street remains undetermined (City of SeaTac 2010).

3.2 Field Investigation

Characteristics of the study area wetlands and streams are described below. Photographs of wetlands, streams, and the adjacent uplands are included in Appendix B.

3.2.1 Wetlands

Biologists identified and delineated Wetlands D, F, G, and H in their entirety and delineated the portions of four larger wetlands (Wetland A, B, C, and E) that occur within the core study area (Figures B-2 through B-6 in Appendix B). Outside the core study area, the boundaries and characteristics of Wetlands A, B, C, and D were estimated and mapped using field observations, aerial imagery (King County 2016), and information from the SR 509 Environmental Impact Statement (WSDOT 2003), associated permit documents (WSDOT 2007), and wetland mitigation plan (WSDOT 2006). The locations and extents of wetlands delineated in the field roughly match previous mapping of aquatic resources. One exception is the site of the former Tyee Golf Course where there has been a long history of hydrologic alterations, including extensive subsurface drains. Wetland extents in this area appear to have changed over time, as evidenced by the failure of large restoration areas planted with hydrophytic plants (primarily willow stakes). Mortality was over 95% in these areas. Classifications of the delineated wetlands are provided in Table 3-1, and wetland functions are summarized in Table 3-2. General wetland characteristics are discussed below. Also included is specific information for each of the sample plots as recorded on the wetland delineation data forms (Appendix A), site photographs (Appendix C), and wetland rating forms (Appendix D).

Vegetation within the study area consists of both wetland and upland species. Wetlands in the study area contain herbaceous, shrub, and forested habitats. Dominant wetland-associated vegetation in the herbaceous stratum includes reed canarygrass (*Phalaris arundinacea*), great horsetail (*Equisetum telmateia*), yellow skunk cabbage (*Lysichiton americanus*), hedge bindweed (*Calystegia sepium*), bittersweet nightshade (*Solanum dulcamara*), fowl mannagrass (*Glyceria elata*), Kentucky bluegrass (*Poa pratensis*), creeping bentgrass (*Agrostis stolonifera*), common velvetgrass (*Holcus lanatus*), perennial ryegrass (*Lolium perenne*), quackgrass (*Elymus repens*), spotted lady's thumb (*Polygonum persicaria*), and creeping buttercup (*Ranunculus repens*).

In the scrub-shrub stratum, dominant vegetation includes salmonberry (*Rubus spectabilis*), red-osier dogwood (*Cornus sericea = C. alba*), Himalayan blackberry (*Rubus armeniacus*), Pacific willow (*Salix lucida*), and Scouler's willow (*Salix scouleriana*). The tree stratum includes black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), Scouler's willow, and Pacific willow.

Upland plant communities within the study area consist primarily of upland forest and herbaceous vegetation. Vegetation includes red alder, beaked hazel (*Corylus cornuta*), Indian plum (*Oemleria cerasiformis*), salmonberry (*Rubus spectabilis*), reed canarygrass, Himalayan blackberry, hedge bindweed, Japanese knotweed (*Polygonum cuspidatum*), black cottonwood, western sword fern (*Polystichum munitum*), bigleaf maple (*Acer macrophyllum*), Kentucky bluegrass, common velvetgrass,

hairy cat's ear (*Hypochaeris radicata*), cherry laurel (*Prunus laurocerasus*), and red elderberry (*Sambucus racemosa*).

Table 3-1. Summary of Wetlands in the Lake to Sound Trail—Segment C Study area

Wetland	Area (acres)	City Category	Standard Buffer Width (feet)	Ecology Rating[c]	USFWS Classification[d]	HGM Classification
A	10.46	II[a]	225[c]	II	PFO	Depressional
B	0.22	IV[b]	50[d]	IV	PFO	Slope
C	30.06	I[a]	165[c]	I	PFO	Depressional/Slope
D	0.50	III[a]	60[c]	III	PEM	Depressional/Slope
E	0.76	II[a]	165[c]	II	PFO	Depressional
F	0.01	IV[a]	40[c]	IV	PFO	Slope
G	0.06	IV[a]	40[c]	IV	PSS	Slope
H	0.13	IV[a]	40[c]	IV	PSS	Slope

[a] SMC 15.700.275(B)

[b] BMC 19.40.300(3)

[c] SMC 15.700.285(B)

[d] BMC 19.40.310(2)

[e] Hruby 2014

[f] FGDC 2013

PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub

Table 3-2. Summary of Wetland Functions for Wetlands in the Lake to Sound Trail—Segment C Study area

	Water Quality			Hydrologic			Habitat		
Wetland	Site Potential	Landscape Potential	Value	Site Potential	Landscape Potential	Value	Site Potential	Landscape Potential	Value
A	Moderate	Moderate	Moderate	Moderate	High	High	High	Moderate	High
B	Low	Moderate	High	Low	Moderate	High	Low	Low	Low
C	Moderate	Moderate	High	High	High	High	High	Low	High
D	Moderate	Moderate	High	Low	Moderate	High	Low	Moderate	Low
E	Moderate	Moderate	High	Moderate	Moderate	High	Moderate	Moderate	High
F	Low	Low	Moderate	Low	Low	Moderate	Low	Moderate	Low
G	Low	Medium	High	Medium	Medium	Medium	Low	Low	Low
H	Low	Medium	High	Medium	Medium	Medium	Low	Low	Low

Note: Functions assessed using Ecology Wetland Rating System (Hruby 2014)

3.2.1.1 Wetland A

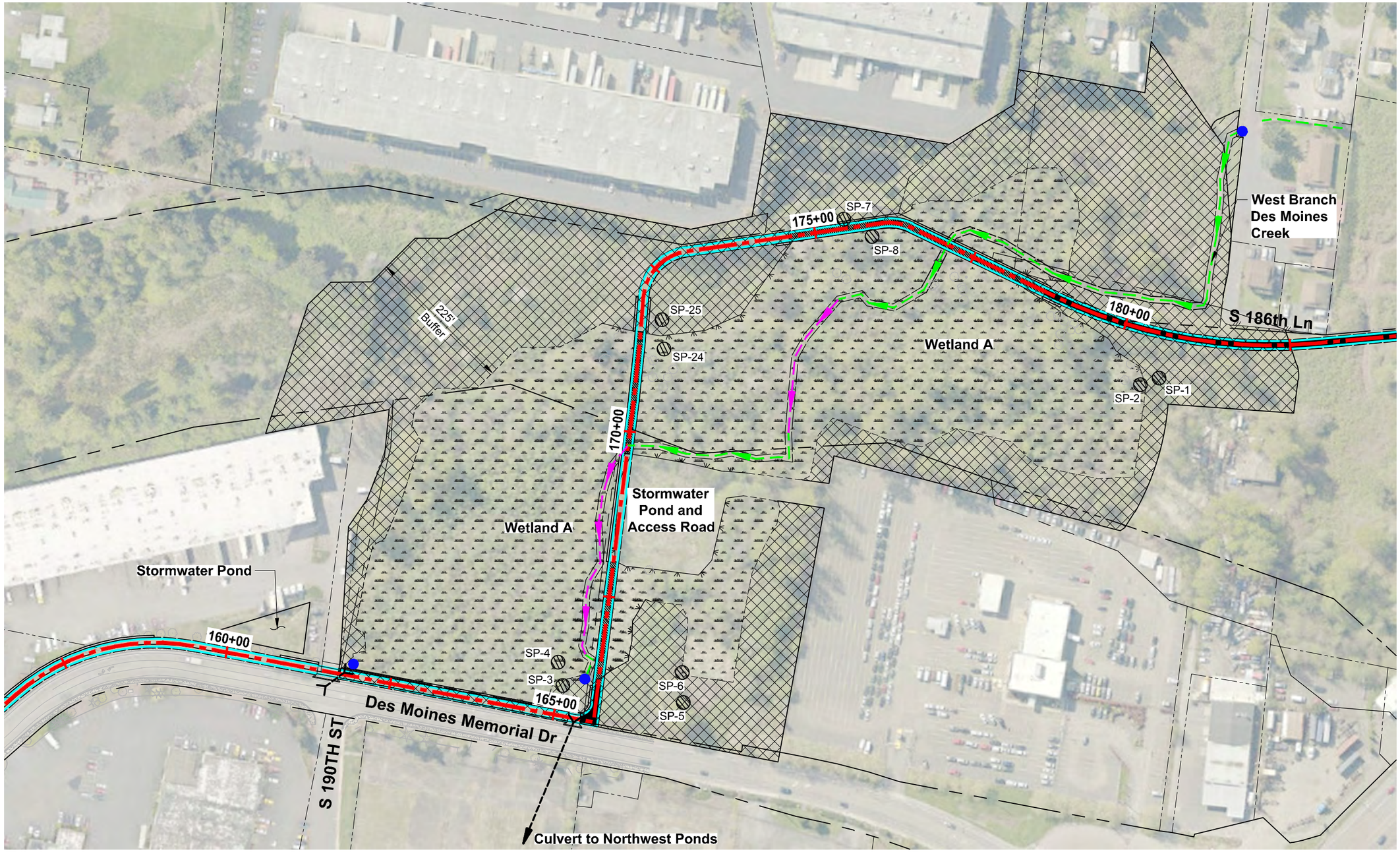
Size: 10.46 acres
City of SeaTac Rating: Category II
Ecology Rating: Category II
Buffer: 225 feet
USFWS Classification: Palustrine Forested
HGM Classification: Depressional with Sloped and Riverine Features
Wetland Sample Plots: SP-2, SP-4, SP-6, SP-8, SP-24
Associated Upland Sample Plots: SP-1, SP-3, SP-5, SP-7, SP-25

Wetland A is an approximately 10.46-acre wetland that is hydrologically connected to Wetland C and Des Moines Creek (Figure 3-1). This large, wetland is generally a depressional wetland, according to the HGM classification system (Brinson 1993), positioned in a slight depression. Additional slope components occur with gentle (1 to 5 percent) slopes along the east edge, and steeper (5 to 10 percent) slopes along the west edge. Narrow riverine classes occur along the banks of the West Branch of Des Moines Creek (hereafter referred to as the West Branch) from annual overflow.

Wetland A contains palustrine forested, scrub-shrub, and emergent habitats (FGDC 2013). The site includes large black cottonwood trees, but no patches large enough to qualify as a special characteristics Category I (mature forested) wetland. Wetland vegetation is dominated by black cottonwood, red alder, Pacific willow, red-osier dogwood, red elderberry, salmonberry, Himalayan blackberry, reed canarygrass, giant horsetail, western sword fern, and Japanese knotweed.

Soil was sampled near the north (SP-2), west (SP-8), and east (SP-4 and SP-6) edges of Wetland A. The wetland soils on the north end had three horizons. The top horizon (0 to 8 inches) was a black (10YR 2/1) loam layer with light gray (10YR 7/1) depletions throughout the matrix. The middle horizon (8 to 14 inches) was dark grayish brown (10YR 4/2) loam with yellowish brown (10YR 5/6) concentrations and light gray (10YR 7/1) depletions throughout the matrix. The bottom horizon (14 to 20 inches) was light brownish gray (10YR 6/2) clay loam with yellowish brown concentrations throughout the matrix. On the west side of Wetland A, soils are black (10YR 2/1) clay loam with varying yellowish brown (10YR 5/6) depletions and light gray (10YR 7/1) concentrations throughout the matrix. On the south end of Wetland A, surface soils (0 to 10 inches) are very dark gray (10YR 3/1) silt loam with dark yellowish brown (10YR 4/4) concentrations and grayish brown (10YR 5/2) depletions throughout the matrix. This surface layer overlays gray (10YR 6/1) clay with brownish yellow (10YR 6/6) concentrations and grayish brown (10YR 5/2) depletions throughout the matrix (Munsell Color 2015). These soils met the hydric soil criteria for these indicators: F3 (Depleted Matrix), F6 (Redox Dark Surface), F7 (Depleted Dark Surface), and A11 (Depleted Below Dark Surface).

Wetland hydrology is supported by groundwater discharge, precipitation, and in some areas along the banks of the West Branch, overbank flooding of the intermittent West Branch. On all site visits, biologists observed standing water in the central portions, a high water table, and saturation throughout the remainder of the wetland. Geomorphic position, oxidized rhizospheres along living roots, and the FAC-neutral test were also used as wetland hydrology indicators.



Parametrix DATE: January 19, 2017 FILE: PS1521151P2CT2T2F-02

0 N 150
SCALE IN FEET

Legend:

- Lake to Sound Trail
- Delineated Wetland Boundary
- Estimated Wetland Boundary
- Concentration of Flow (Undefined Channel)
- West Branch of Des Moines Creek Channel
- Culvert Outlet
- Sample Plot
- Wetland Area
- Stream Buffer
- Wetland Buffer

Figure 3-1 (Wetland A)
Wetlands and Streams
Lake to Sound Trail Segment C

Within Wetland A, water in the wetland system moves from the north to the south; in some areas, flow is concentrated into the stream course of the West Branch. During the wet season and following rainfall events, Wetland A drains at the southern end, below Des Moines Memorial Drive, through one approximately 54-inch-diameter culvert and one highly constricted 12-inch culvert positioned approximately 330 feet to the south (see Figure 3-1). During the dry season, there was no evidence of recent discharge through the 54-inch-diameter and 12-inch-diameter culverts. In fact, the 54-inch culvert was perched approximately 18 inches above the surface of the standing water. The West Branch is then piped approximately 0.3 mile (1,800 linear feet) before discharging into ponds within Wetland C.

Wetland A has likely been previously filled in several locations for industrial land uses and these fill pads form the wetland boundary in multiple locations. The surrounding upland areas include disturbed vegetation on fill or in clearings. Disturbed areas are dominated by Himalayan blackberry and contain Japanese knotweed, English ivy (*Hedera helix*), red alder, Douglas-fir, and western red cedar.

Wetland A was rated according to the 2014 Washington State Wetland Rating System for Western Washington (Hruby 2014), as specified in SMC 15.700.275(B). The wetland scored 22 points using the Ecology 2014 method (6 points for water quality functions, 8 points for hydrologic functions, and 8 points for habitat functions), thereby qualifying as a Category II wetland (see Appendix D). The SMC requires a standard wetland buffer width of 225 feet for Category II wetlands with a habitat score of 8 to 9 points.

3.2.1.2 Wetland B

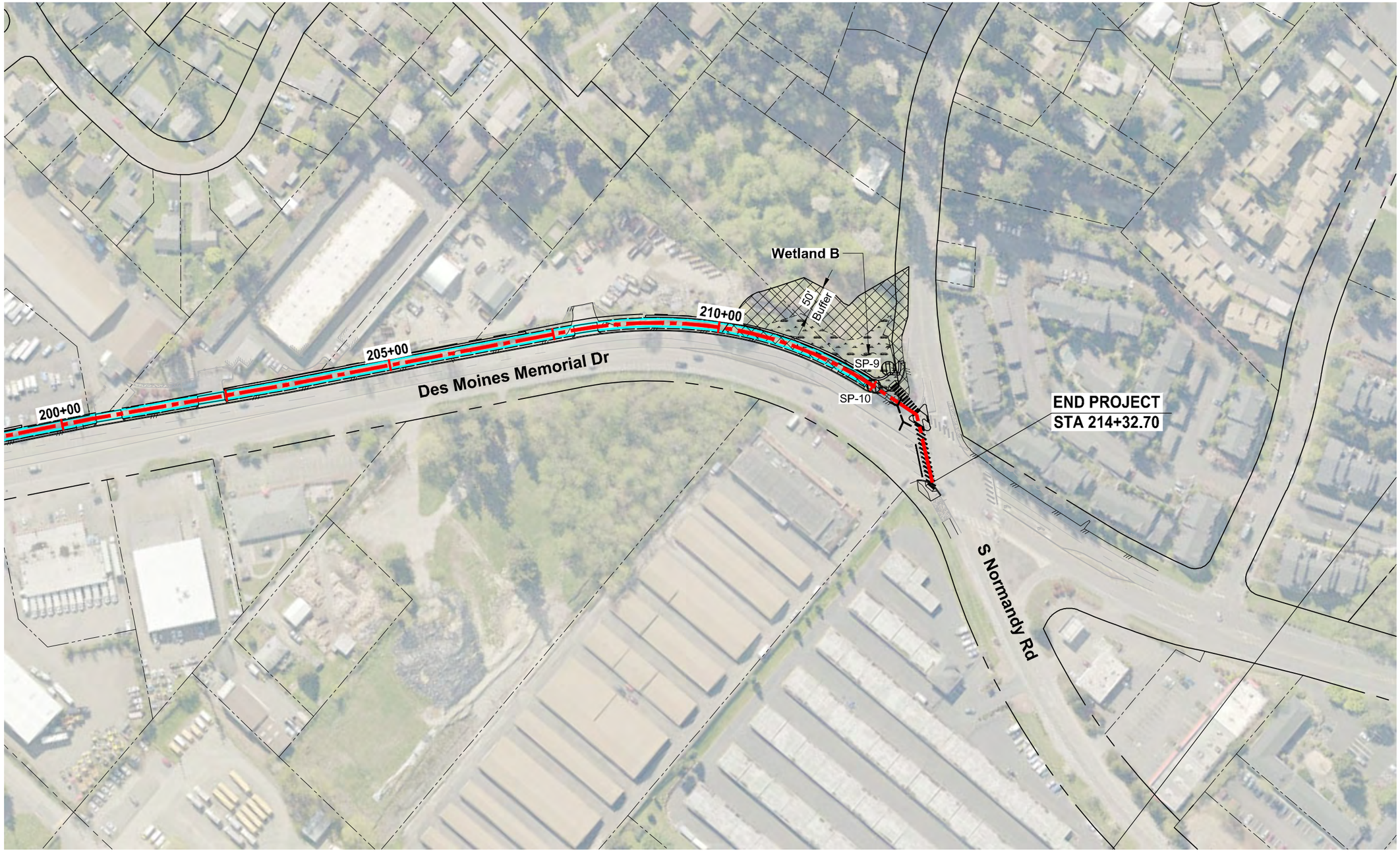
Size: 0.22 acre
City of Burien Rating: Category IV
Ecology Rating: Category IV
Buffer: 50 feet
USFWS Classification: Palustrine Forested
HGM Classification: Slope
Wetland Sample Plot: SP-9
Associated Upland Sample Plot: SP-10

Wetland B is a 0.22-acre wetland positioned near the intersection of Des Moines Memorial Drive S and S Normandy Road (Figure 3-2). This wetland is sloped, according to the HGM classification system (Brinson 1993), and angled from west to east.

Wetland B contains palustrine forested habitat (FGDC 2013). The wetland is dominated by red alder, Pacific willow, Himalayan blackberry, creeping buttercup, fowl mannagrass, and reed canarygrass.

Surface soils (0 to 5 inches) are black (10YR 2/1) silt loam over very dark gray (10YR 3/1) silt loam with strong brown (7.5YR 4/6) concentrations and gray (2.5Y 6/1) depletions in the matrix. From 8 to 16 inches, soils are dark gray (7.5YR 4/1) silt loam with yellowish red concentrations and gray (2.5Y 6/1) depletions throughout the matrix (Munsell Color 2015). These soils met the hydric soil criteria for these indicators: F3 (Depleted Matrix) and A11 (Depleted Below Dark Surface).

Wetland hydrology is supported by groundwater, precipitation, and overland flow. Primary hydrology indicators were observed during the dry season (September) and wet season (November). Saturation was observed at a depth of 5 inches below the soil surface during the dry season while surface water was observed during the wet season. Drainage patterns, geomorphic position, and the FAC-neutral test provide secondary wetland hydrology indicators. The sloped nature of Wetland B directs water within the wetland system from the south to north before draining through an approximately 24-inch culvert under the intersection of Des Moines Memorial Drive S and S Normandy Road.



FILE: PS1521151P2CT2T2F-02 LAYOUT: F3-2 PATH: U:\PSO\Projects\Clients\1521-KingCo\554-1521-151 L2ST-Segc\99scs\CAD0\Phase 2C\Task 21200C\Figures\Wetland PLOTTED BY: purgabut DATE: Thursday, January 19, 2017 10:10:05 AM

Parametrix DATE: January 19, 2017 FILE: PS1521151P2CT2T2F-02

0 N 150
SCALE IN FEET

Legend:

- Lake to Sound Trail
- Delineated Wetland Boundary
- Estimated Wetland Boundary
- Sample Plot
- Wetland Area
- Stream Buffer
- Wetland Buffer

Figure 3-2 (Wetland B)
Wetlands and Streams
Lake to Sound Trail Segment C

Surrounding upland areas include roadside fill, mowed ditches, and areas of disturbed vegetation. Disturbed vegetation includes red alder, Pacific willow, Himalayan blackberry, creeping buttercup, and dense thickets of Japanese knotweed. Some upland areas contain greater than 50 percent hydrophytic plants; however, these areas do not have hydric soils or wetland hydrology and are therefore not wetland.

Wetland B was rated according to Hruby (2014), as specified in BMC 19.40.300(3)(A). The wetland scored 15 points using the Ecology 2014 method (6 points for water quality functions, 6 points for hydrologic functions, and 3 points for habitat functions), thereby qualifying as a Category IV wetland. The BMC requires a standard wetland buffer width of 50 feet for Category IV wetlands with a habitat score of 3 to 4 points.

3.2.1.3 Wetland C

Size: 30.05 acres
City of SeaTac Rating: Category I
Ecology Rating: Category I
Buffer: 165 feet
USFWS Classification: Palustrine Forested, Scrub-Shrub, Emergent, and Open Water
HGM Classification: Depressional with Sloped and Riverine Features
Wetland Sample Plots: SP-11
Associated Sample Plots: SP-12

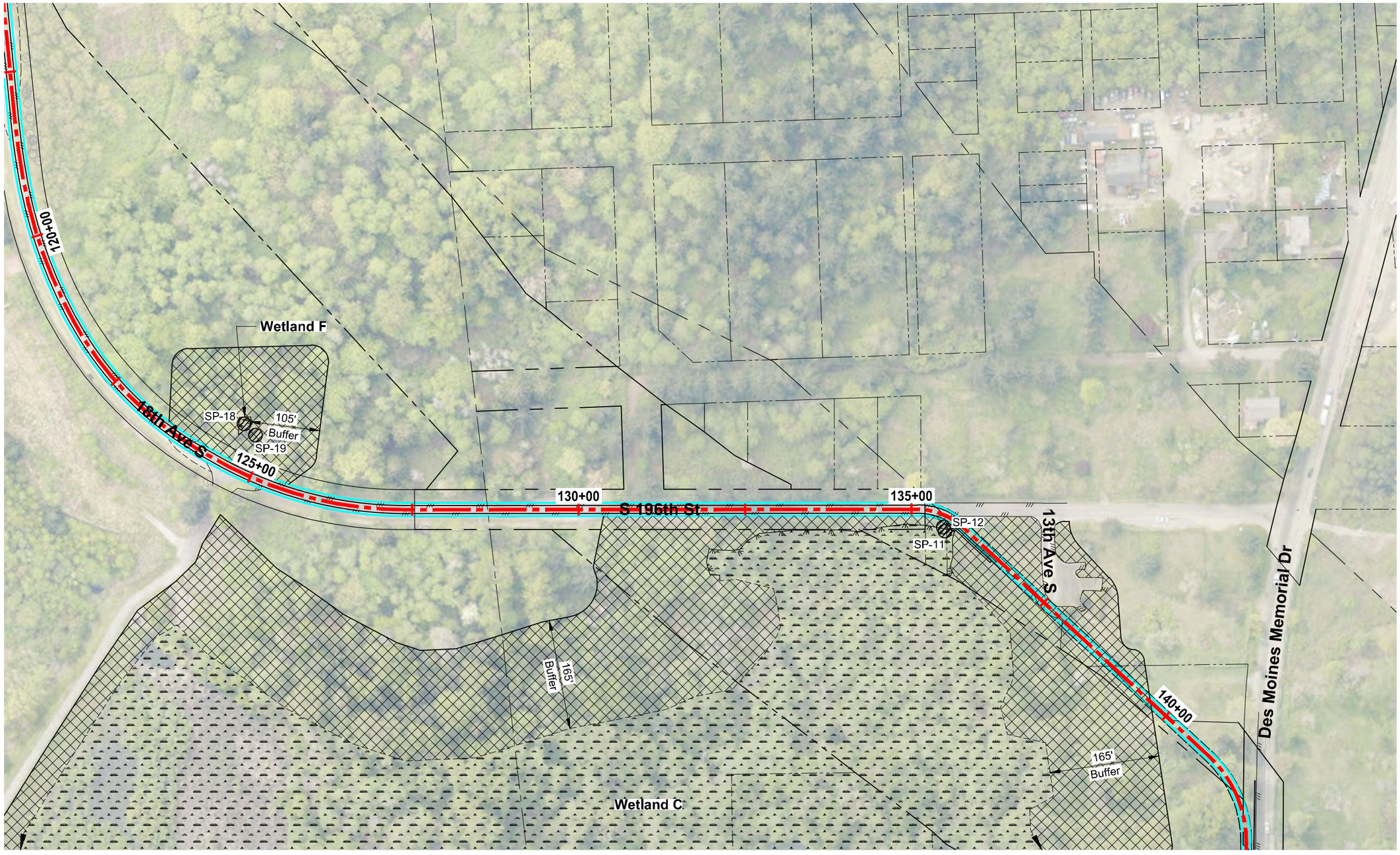
Wetland C is an approximately 30-acre wetland system to the north of S 196th Street and to the east of Des Moines Memorial Drive (Figure 3-3). Because of the limited study area of Segment C, only a portion of this wetland was investigated. To complement the investigation, information from the Environmental Impact Statement (WSDOT 2003) was used.

Wetland C is depressional, according to the HGM classification system, with some sloped and riverine components (Brinson 1993).

Wetland C contains palustrine forested, scrub-shrub, emergent, and open water habitat (FGDC 2013). The forested component is dominated by red alder and black cottonwood. Scouler's willow, Himalayan blackberry, hedge bindweed, and yellow skunk cabbage occur in the shrub stratum. Emergent areas are dominated by creeping buttercup, bittersweet nightshade, giant horsetail, and non-native golf course grass (WSDOT 2003).

The wetland soils had four horizons. The surface soils are very dark brown (10YR 2/2) loamy sand with yellowish red (5YR 4/6) concentrations in the matrix from 5 to 9 inches. Below 9 inches, the soil is very dark grayish brown (10YR 3/2) loamy sand with dark reddish gray (5YR 4/2) concentrations above dark gray (10YR 4/2) loamy sand with strong brown (7.5YR 4/6) concentrations throughout the matrix (Munsell Color 2015). These soils met the hydric soil criteria for indicator F6 (Redox Dark Surface).

Wetland hydrology is supported by a culvert entering from the northwest (discharging from Wetland A) carrying the flow from the West Branch, groundwater, precipitation, and overland flow. Inundation is visible on aerial imagery along the north side of Wetland C and water-stained leaves were present throughout the wetland. Geomorphic position and the FAC-neutral test further support the presence of wetland hydrology.



Parametrix

DATE: January 19, 2017 FILE: PS1521151P2CT2T2F-02

N

0 150

SCALE IN FEET

Legend:

- Lake to Sound Trail
- Delineated Wetland Boundary
- Estimated Wetland Boundary
- Sample Plot
- Wetland Area
- Stream Buffer
- Wetland Buffer

Figure 3-3 (Wetlands C and F)
Wetlands and Streams
Lake to Sound Trail Segment C

Surrounding upland areas include vacated neighborhoods, commercial lots, roadside fill, and vegetated buffers. Neighborhoods were vacated to accommodate the expansion of Sea-Tac Airport and have since been demolished and removed. In their place, ornamental and invasive species, including, but not limited to, English Ivy, Himalayan blackberry, and Japanese knotweed, have established. More intact buffers are dominated by red alder, cherry laurel, and bigleaf maple.

Wetland C was rated according to Hruby (2014), as specified in SMC 15.700.275(B). The wetland scored 23 points based on functions using the Ecology 2014 method (7 points for water quality functions, 9 points for hydrologic functions, and 7 points for habitat functions) and met the mature forest special characteristic of a wetland, thereby qualifying as a Category I wetland (see Appendix D). The SMC requires a standard wetland buffer width of 165 feet for Category I wetlands with a habitat score of 6 to 7 points.

3.2.1.4 Wetland D

Size: 0.50 acre
City of SeaTac Rating: Category III
Ecology Rating: Category III
Buffer: 60 feet
USFWS Classification: Palustrine Emergent
HGM Classification: Depressional/Slope
Wetland Sample Plots: SP-13
Associated Sample Plots: SP-14, SP-15

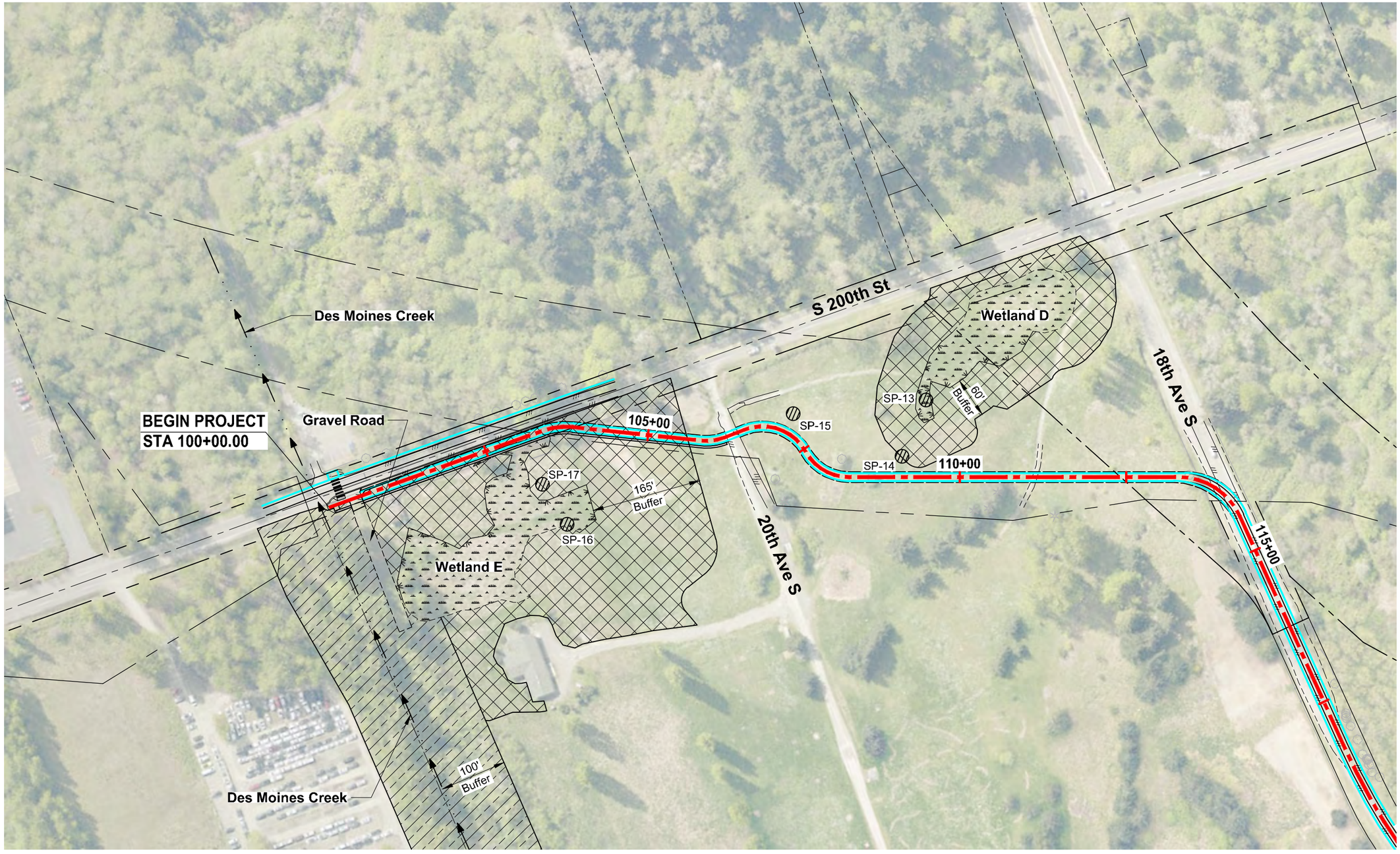
Wetland D is a 0.50-acre wetland located at the southern end of the study area in the vacated Tyee Valley Golf Course, north of S 200th Street and west of 20th Avenue S (Figure 3-4). The wetland has slope and depressional components, as characterized using the HGM classification system (Brinson 1993).

This wetland contains palustrine emergent habitat (FGDC 2013). Dominant vegetation includes Kentucky bluegrass with scattered Scouler's willow and Scotch broom.

The wetland soils have two horizons. The surface horizon (0 to 6 inches) is dark brown (7.5YR 3/2) sandy loam with brown (7.5YR 5/2) depletions and strong brown (7.5YR 4/6) concentrations throughout the matrix. The bottom horizon is very dark grayish brown (10YR 3/2) sandy loam with strong brown (7.5YR 4/6) concentrations throughout the matrix and redoximorphic concretions at a depth of 6 to 16 inches (Munsell Color 2015). These soils met the hydric soil criteria for indicator F6 (Redox Dark Surface).

Wetland hydrology is supported by groundwater seeps. Additional hydrologic inputs include precipitation. Downslope of the seep, the water does not pool or run off site. Instead, the water enters the vacated golf course's drainage system (WSDOT 2003). No surface water, high water table, or soil saturation was present on site. However, oxidized rhizospheres along living roots and drainage patterns indicate the presence of wetland hydrology during the early growing season. Hydrology is supported by groundwater expression emerging from the hillside as a seep.

The associated upland areas include non-native grasses that are legacies from the golf course operation, a planted corridor intended to support pollinator habitat, and roadside fill. The soils have been heavily disturbed and/or imported and consist of an approximately 12-inch layer of sandy loam over what appear to be less-disturbed native soils. Plant communities are similar to Wetland D. However, these upland areas lack hydric soils and wetland hydrology and are therefore not considered wetlands.



Parametrix DATE: January 19, 2017 FILE: PS1521151P2CT2T2F-02

0 N 150
SCALE IN FEET

Legend:

- Lake to Sound Trail
- Delineated Wetland Boundary
- Estimated Wetland Boundary
- Sample Plot
- Wetland Area
- Stream Buffer
- Wetland Buffer

Figure 3-4 (Wetlands D and E)
Wetlands and Streams
Lake to Sound Trail Segment C

Wetland D was rated according to Hruby (2014), as specified in SMC 15.700.275(B). The wetland scored 17 points using the Ecology 2014 method (7 points for water quality functions, 6 points for hydrologic functions, and 4 points for habitat functions), thereby qualifying as a Category III wetland. The SMC requires a standard wetland buffer width of 60 feet for Category III wetlands with a habitat score of 3 to 4 points.

3.2.1.5 Wetland E

Size: 0.76 acre
City of SeaTac Rating: Category II
Ecology Rating: Category II
Buffer: 165 feet
USFWS Classification: Palustrine Scrub-Shrub and Emergent
HGM Classification: Slope/Depressional
Wetland Sample Plots: SP-16
Associated Sample Plots: SP-17

Wetland E is a 0.76-acre wetland at the southern end of the study area positioned north of S 200th Street (see Figure 3-4). The wetland has depressional and slope components, as characterized using the HGM classification system (Brinson 1993), and is positioned adjacent to, but hydrologically distinct from, the Des Moines Creek riparian area by fill material and a culvert connection.

This wetland contains palustrine scrub-shrub and emergent habitats (FGDC 2013). Dominant vegetation in Wetland E includes red alder, cattail (*Typha latifolia*), reed canarygrass, and Kentucky bluegrass.

The wetland soils have three horizons. The surface horizon (0 to 4 inches) is very dark brown (10YR 2/2) silt loam above very dark gray (10YR 3/1) clay loam with strong brown concentrations from 4 to 16 inches and gray depletions throughout the matrix. The bottom horizon (16 to 20 inches) is gray (2.5Y 5/1) clay loam with very dark gray (10YR 3/1) and strong brown (7.5YR 4/6) concentrations throughout the matrix (Munsell Color 2015). These soils met the hydric soil criteria for indicator F6 (Redox Dark Surface).

Wetland hydrology in the slope component of Wetland E is supported by precipitation, and the depressional component is supported by groundwater and precipitation. Water collects against a road-like berm and forms an area of standing water. During a major rainfall event, water may exit this wetland system through an approximately 8-inch-diameter PVC pipe positioned 3 to 4 feet above the water surface, draining to the east into Des Moines Creek. Drainage patterns and geomorphic positioning further support the presence of wetland hydrology.

Wetland E was rated according to Hruby (2014), as specified in SMC 15.700.275(B). The wetland scored 21 points using the Ecology 2014 method (7 points for water quality functions, 7 points for hydrologic functions, and 7 points for habitat functions), thereby qualifying as a Category II wetland (see Appendix D). The SMC requires a standard wetland buffer width of 165 feet for Category II wetlands with a habitat score of 6 to 7 points.

3.2.1.6 Wetland F

Size: 0.01 acre
City of SeaTac Rating: Category IV
Ecology Rating: Category IV
Buffer: 40 feet
USFWS Classification: Palustrine Forested
HGM Classification: Slope
Wetland Sample Plots: SP-18
Associated Sample Plots: SP-19

Wetland F is an approximately 0.01-acre wetland located at the south end of the study area, south of S 196th Street and west of 18th Avenue S (see Figure 3-3). The site is a slope wetland, as characterized using the HGM classification system (Brinson 1993).

The wetland contains palustrine forested habitat (FGDC 2013), and the dominant vegetation includes Scouler's willow, salmonberry, and red-twig dogwood.

The wetland soils have two horizons. The surface horizon (0 to 8 inches) is very dark brown (10 YR 2/2) loam with strong brown (7.5 YR 4/6) redoximorphic features. The lower horizon is gray (10 YR 6/1) loam with yellowish brown (10 YR 5/6) redoximorphic concentrations throughout the matrix (Munsell Color 2015). These soils met the hydric soil criteria for these indicators: F3 (Depleted Matrix) and F6 (Redox Dark Surface).

Wetland hydrology is supported by groundwater seeps. Downslope, the water is not impounded and does not pool or run off the site; instead, water infiltrates into adjacent upland areas.

The associated upland is forested with a variety of native and non-native trees. The understory is a mixture of native plants with large populations of invasive species including Himalayan blackberry, English holly, and English ivy.

Wetland F was rated according to Hruby (2014), as specified in SMC 15.700.275(B). The wetland scored 12 points using the Ecology 2014 method (4 points for water quality functions, 4 points for hydrologic functions, and 4 points for habitat functions), thereby qualifying as a Category IV wetland (see Appendix D). The SMC requires a standard wetland buffer width of 40 feet for Category IV wetlands. However, Wetland F is allowed a limited exemption, according to SMC 15.700.280, because it is a Category IV wetland of less than 1,000 square feet.

3.2.1.7 Wetland G

Size: 0.06 acre
City of SeaTac Rating: Category IV
Ecology Rating: Category IV
Buffer: 40 feet
USFWS Classification: Palustrine Emergent
HGM Classification: Depressional
Wetland Sample Plot: SP-20
Associated Sample Plot: SP-21

Wetland G is a 0.06-acre wetland positioned between the SR 509 interchange and 8th Avenue S (Figure 3-5). The wetland is depressional, as characterized by the HGM classification system (Brinson 1993).

The wetland has palustrine scrub-shrub habitat (FGDC 2013). Dominant species include Himalayan blackberry and spotted lady's thumb.

The surface soils (0 to 7 inches) were black (10YR 2/1) sandy loam above very dark brown (10YR 2/2) sandy loam with strong brown (7.5YR 4/6) concentrations and dark grayish brown depletions throughout the matrix (Munsell Color 2015). These soils met the hydric soil criteria for indicator F6 (Redox Dark Surface).

Wetland G occurs in a shallow closed depression that is seasonally inundated in the center and saturated throughout. The wetland hydrology is supported by precipitation and local runoff of the adjacent parking areas and the SR 509 interchange.

Surrounding upland areas include disturbed vegetation on fill and disturbed buffers. In all areas, Himalayan blackberry occurs in dense thickets and bigleaf maple creates an open canopy.

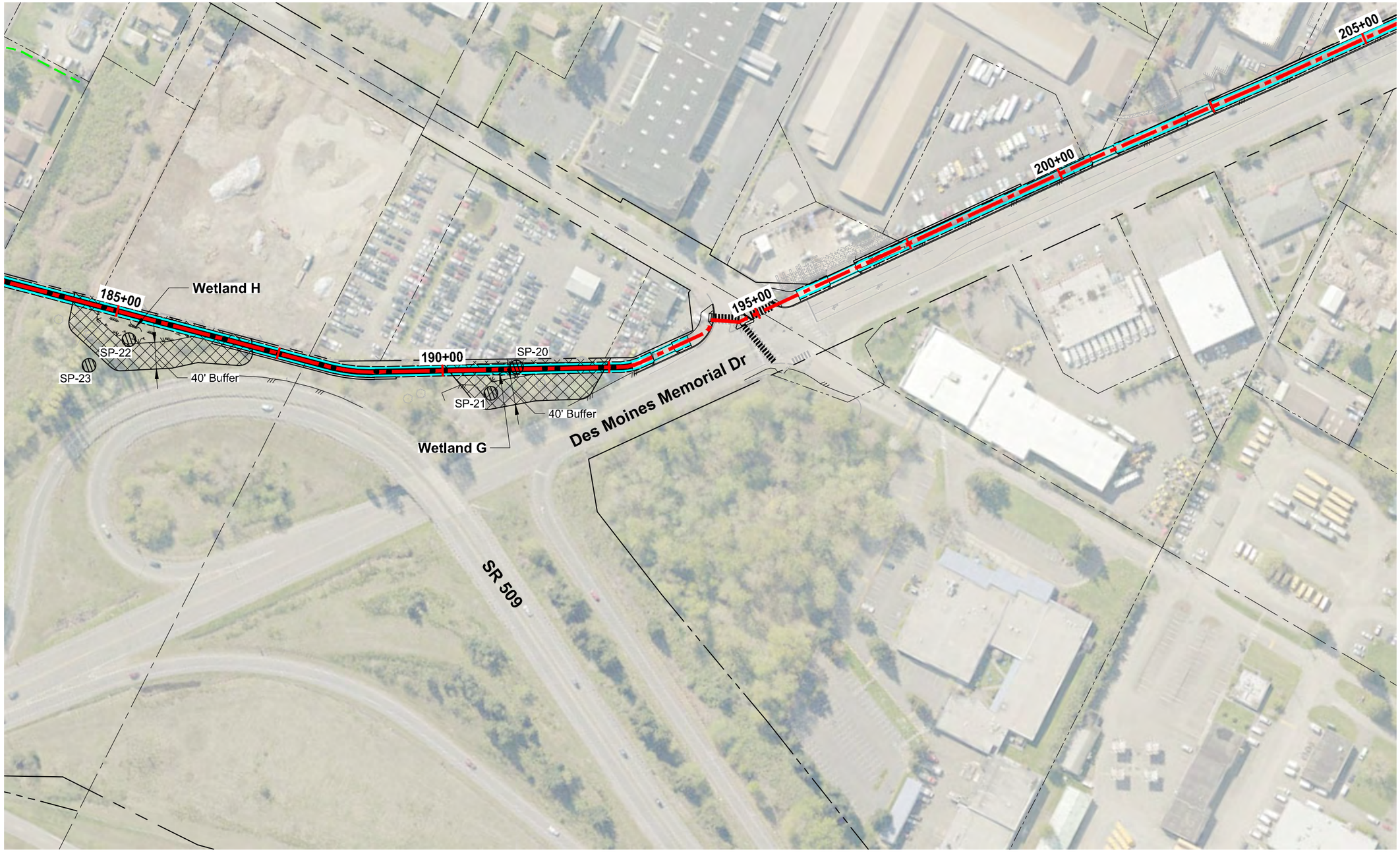
Wetland G was rated according to Hruby (2014), as specified in SMC 15.700.275(B). The wetland scored 15 points using the Ecology 2014 method (6 points for water quality functions, 6 points for hydrologic functions, and 3 points for habitat functions), thereby qualifying as a Category IV wetland (see Appendix D). The SMC requires a standard wetland buffer width of 40 feet for Category IV wetlands.

3.2.1.8 Wetland H

Size: 0.13 acre
City of SeaTac Rating: Category IV
Ecology Rating: Category IV
Buffer: 40 feet
USFWS Classification: Palustrine Scrub-Shrub
HGM Classification: Depressional
Wetland Sample Plot: SP-22
Associated Sample Plot: SP-23

Wetland H is a 0.13-acre wetland approximately 150 feet south of Wetland G, positioned between the SR 509 interchange and 8th Avenue S (see Figure 3-5). The wetland is depressional, as characterized by the HGM classification system (Brinson 1993), and is hydrologically separated from Wetland G by a slight topographic break.

The wetland has palustrine scrub-shrub habitats (FGDC 2013) and dominant species include Himalayan blackberry and spiraea (*Spiraea douglasii*).



FILE: PS1521151P2CT2T2F-02 LAYOUT: F3-5 PATH: U:\PSO\Projects\Clients\1521-KingCo\554-1521-151 L2ST-Segc\995ccs\CAD0\Phase 2C\Task 21200C\Figures\Wetland PLOTTED BY: purgabut DATE: Thursday, January 19, 2017 10:09:45 AM

Parametrix DATE: January 19, 2017 FILE: PS1521151P2CT2T2F-02

0 N 150
SCALE IN FEET

Legend:

- Lake to Sound Trail
- Delineated Wetland Boundary
- Estimated Wetland Boundary
- Sample Plot
- Wetland Area
- Stream Buffer
- Wetland Buffer

Figure 3-5 (Wetlands G and H)
Wetlands and Streams
Lake to Sound Trail Segment C

The wetland soils have two horizons. The surface horizon (0 to 9.5 inches) is black (10YR 2/1) sandy loam. The second horizon (9.5 to 16+ inches) is very dark brown (10YR 2/2) sandy loam with distinctly contrasted dark yellowish brown (10YR 3/4) concentrations throughout the matrix (Munsell Color 2015). These soils met the hydric soil criteria for indicator F6 (Redox Dark Surface).

The associated upland is similar to the upland surrounding Wetland G (see description above).

Wetland H was rated according to Hruby (2014), as specified in SMC 15.700.275(B). The wetland scored 15 points using the Ecology 2014 method (6 points for water quality functions, 6 points for hydrologic functions, and 3 points for habitat functions), thereby qualifying as a Category IV wetland (see Appendix D). The SMC requires a standard wetland buffer width of 40 feet for Category IV wetlands.

3.2.2 Streams

3.2.2.1 West Branch of Des Moines Creek

The West Branch, which originates near 8th Avenue S and S 186th Lane, is a 6- to 8-foot-wide (OHWM) intermittent stream that runs southward along gradual slopes through dense shrubs under a mature forested canopy (see Figure 3-1 and Wetland A description above). The stream channel has been heavily altered and ditched upstream of the intersection of S 186th Lane and the proposed trail. Downstream of this location, the West Branch flows into Wetland A where it loses stream characteristics (according to definitions established in SMC 15.700.015). Those segments lacking a defined channel are mapped as "concentrations of flow" in Figure 3-1.

The defined channel of the West Branch reforms at an outlet of Wetland A before entering an approximately 54-inch culvert below Des Moines Memorial Drive. The West Branch is then piped approximately 0.3 mile (1,800 linear feet) before discharging into the Northwest Ponds, contained within Wetland C. These blockages, and the seasonal nature of the stream, prevent upstream use of the West Branch by fish.

The intermittent section of the West Branch within Wetland A (the only section within the study area) is classified as a "Type Ns Water" according to WAC 222-16-031 – Interim Water Typing System, and meets the definition of a Class 3 stream which, according to SMC 15.700.015, requires a 25-foot buffer.

3.2.2.2 Des Moines Creek

Downstream of the Northwest Ponds and Wetland C, the West Branch meets the East Branch of Des Moines Creek and forms the main stem of Des Moines Creek within the vacated Tyee Valley Golf Course, north of S 200th Street. Here, Des Moines Creek is an approximately 15- to 20-foot-wide (OHWM) perennial stream. Des Moines Creek in the study area is shown on Figure 3-1.

Based on the channel width and gradient, as well as the presence of resident coastal cutthroat trout (salmonid), Des Moines Creek is classified as a "Type F Water" according to WAC 222-16-031 – Interim Water Typing System (see Figure B-8, Appendix B) (DNR 2016). This perennial section of the West Branch of Des Moines Creek meets the definition of a Class 2 stream used by salmonids which, according to SMC 15.700.015, requires a 100-foot buffer.

4. IMPACTS

Impacts on wetlands, streams, and their buffers were avoided through design changes wherever possible. However, design constraints such as safety concerns, trail grades, and property ownership resulted in potential unavoidable impacts on wetlands, streams, and the associated buffers. Project impacts would consist of:

- Grading within wetlands, including the placement of fill
- Permanent removal of wetland and buffer vegetation
- Temporary removal of wetland and buffer vegetation
- Indirect effects on habitat as a result of added lighting, and shading of vegetation under boardwalk areas

Table 4-1 summarizes the impacts anticipated for the project. Table 4-2 aggregates these values into total project impacts.

Table 4-1. Estimated Impacts on Wetlands, Streams, and their Buffers from the Lake to Sound Trail—Segment C Project

Aquatic Resource	Jurisdiction	Rating	Resource Impact Area (acres)		Buffer Impact Area (acres)		Impact Location (Project Station)
			Temporary	Permanent	Temporary	Permanent	
Wetland A	SeaTac	II	0.10	Fill = 0 Veg removal and shading = 0.29	0.08	0.58	161-182
Wetland B	Burien	IV	0.01	0.05	Less than 0.01	0.09	210-213
Wetland C	SeaTac	I	0	0	0.06	0.23	135-140
Wetland D	SeaTac	III	0	0	0	0	110
Wetland E	SeaTac	II	Less than 0.01	0.02	0.03	0.25	100-105
Wetland F	SeaTac	IV	0	0	0	0	125
Wetland G	SeaTac	IV	Less than 0.01	0.06	0.02	0.05	190-192+50
Wetland H	SeaTac	IV	0.01	0.07	0.02	0.05	184-187+50
Total Wetland Impacts			0.12	0.20 (plus 0.29 shading)	0.21	1.25	
West Branch Des Moines Creek	SeaTac		0	0.01 (shading)	N/A (buffer area would be within Wetland A – impacts are calculated for the wetland	N/A	170

Lake to Sound Seg C alternative Impacts Presentation

Table 4-2. Aggregate Impacts on Wetlands, Streams, and Buffers from the Lake to Sound Trail—Segment C Project

Resource Impacted	Jurisdiction	Permanent Impact Area—Grading and Fill (acres)	Permanent Impact Area—Vegetation Removal and Shading (acres)	Temporary Impact Area (acres)
Wetland	SeaTac	0.15 (*0.02 Type II, 0.13 Type IV*)	0.29 (*Type II*)	0.12
	Burien	0.05 (*Type IV*)	0	Less than 0.01
Stream (West Branch Des Moines Creek)	SeaTac	0	0.01	0
Wetland Buffer	SeaTac	1.16	0	0.21
	Burien	0.09	0	Less than 0.01

5. MITIGATION

The project design team has adhered to the preferred mitigation sequence for the cities of SeaTac and Burien, as well as county (King County Title 21A.24.340) and state guidance (Ecology et al. 2006). The preferred mitigation sequence is to avoid impacts; minimize impacts, rectify temporary impacts, reduce project impacts over time through preservation and maintenance, and compensate for unavoidable impacts.

The project team avoided impacts on wetlands in several areas by design changes. Most resources near the project were avoided by designing the trail to occur on already paved or unvegetated surfaces (road shoulders [e.g., Station 195 to 210], roadways to be abandoned [e.g., Station 113 to 135]). In areas where wetlands, streams, or their buffers were located, the project made every attempt to limit impacts on these resources by realignment to avoid impacts (e.g., Wetland D, Station 110), and design upgrades such as elevated boardwalks (Wetland A, Station 166 to 178) to limit impact areas and fill volumes.

All areas where temporary vegetation removal is required for project construction will be restored to their original condition (if native plants), or a suitable native plant community as part of the project. There would be 0.01 acre of temporary impacts on wetlands and 0.21 acre of temporary impacts on wetland and stream buffers. Those areas would be restored as part of the project.

The project will reduce impacts over time by preserving and maintaining areas that are restored.

After completing this mitigation sequencing process, there will still be permanent grading and fill impacts on 0.20 acre of wetlands and stream, permanent shading impacts on 0.29 acre of wetland and stream (in boardwalk areas), and 1.25 acres of wetland and stream buffer. Permanent impacts on wetlands, streams, and their buffers will require compensatory mitigation.

No mitigation bank serves the SeaTac area and is not available for the project. The King County In-Lieu – Fee program may be a potential mitigation option.

The project proposes to construct permittee-responsible compensatory mitigation to create or re-establish 0.20 acre of wetland, enhance 4.02 acres of wetland, and enhance 1.51 acres of wetland and stream buffer in the same watershed for these unavoidable impacts. A summary of the compensatory mitigation obligations for permanent wetland and stream impacts is summarized in Table 5-1. A screening of potential mitigation locations near the study area is summarized in Appendix E.

Table 5-1. Proposed Compensatory Mitigation for Permanent Wetland and Stream Impacts for the Lake to Sound Trail—Segment C Project

Resource Impacted	Jurisdiction	Impact Area (acres)	Impacts	Type	Compensatory Mitigation Approach (ratio)	Compensatory Mitigation Area (acres)
Wetland B	Burien	0.05	Vegetation removal and grading	IV	Enhancement (6:1)	0.30
Wetland E	SeaTac	0.02	Vegetation removal and grading	II	Enhancement (12:1)	0.24
Wetland G	SeaTac	0.06	Vegetation removal and grading	IV	Creation/ Re-establishment (1.5:1)	0.09
Wetland H	SeaTac	0.07	Vegetation removal and grading	IV	Creation/ Re-establishment (1.5:1)	0.11
Wetland A	SeaTac	0.29	Vegetation removal and permanent shading	II	Enhancement (12:1)	3.48
Total Wetland Mitigation Area (acres)						**4.80**
West Branch Des Moines Creek	SeaTac	0.01	Vegetation removal and permanent shading	Non-significant	Riparian enhancement (no prescribed ratio)	0.25
Buffer Areas	SeaTac and Burien	1.26	Vegetation removal and grading	N/A	Buffer enhancement (1:1)	1.26
Total Enhancement Area						**6.31**

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Appendix A

Wetland Data Forms

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/12/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP-1

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23N, 04E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 10-20

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This sample point was positioned on the side-slope of a fill pad. It is the associated upland sample point for SP-2.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30X10 ft. along contour)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15X10 ft. along the contour)			
1. Corylus cornuta	12	Yes	FACU
2. Oemleria cerasiformis	8	Yes	FACU
3. Rubus armeniacus	5	Yes	FAC
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: 5X3 ft. along contour)			
1. Ranunculus repens	8	Yes	FAC
2. Holcus mollis	5	Yes	FACW
3. Calystegia sepium	4	No	FAC
4. Galium aparine	4	No	FACU
5. Cirsium vulgare	2	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	23	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	17	x 3 =	51
FACU species	26	x 4 =	104
UPL species	0	x 5 =	0
Column Totals:	48 (A)		165 (B)

Prevalence Index = B/A = 3.43

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: Neither the Dominance Test or Prevalence Index hydrophytic indicators were met.

SOIL

Sampling Point: SP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	100					Gr Lm 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 Soil Present? Yes ☐ No ☒

Remarks: Sampled during the dry season

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Dry Season. Sample point is perched 2-3 feet above the associated wetland surface on the edge of a fill pad.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/12/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 2

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23N, 04E

Landform (hillslope, terrace, etc.): Shallow depression Local relief (concave, convex, none): Concave Slope (%): 1-2

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: The sample point meets the criterion for hydrophytic vegetation, hydric soil, and wetland hydrology; thus, the site is determined to be a wetland. This sample point is positioned at the toe of a fill pad at the north end of Wetland A. The site is characterized as PFO habitat and is rated as a depressional wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	40	Yes	FAC
2. Alnus rubra	25	Yes	FAC
3.			
4.			
	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft)			
1. Cornus alba	80	Yes	FACW
2. Rubus spectabilis	5	No	FAC
3.			
4.			
5.			
	85	= Total Cover	
Herb Stratum (Plot size: r = 5 ft)			
1. Polystichum munitum	5	Yes	FACU
2. Equisetum telmateia	2	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	7	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Leaf litter and downed branches/trees explains the percentage of bare ground.

SOIL

Sampling Point: SP-2

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 2/1	97	10YR 7/1	3	D	M	Loam	
8-14	10YR 4/2	94	10YR 5/6	3	C	M	Loam	Prominent contrast
			10YR 7/1	3	D	M		Distinct contrast
14-20+	10YR 6/2	95	10YR 5/6	5	C	M	Clay Loam	Prominent contrast

[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 Soil Present? Yes ☒ No ☐

Remarks: Dry Season

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Measured during the dry season. FAC-Neutral Test: 2:1

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/12/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 3

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23N, 04E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1-3

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This sample point is positioned in what appears to be an upland enhancement area. The established vegetation still shows evidence of planting efforts. It is the associated upland for SP-4 and Wetland A.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	80	Yes	FAC
2. Tsuga heterophylla	30	Yes	FACU
3. Thuja plicata	20	No	FAC
4. Pseudotsuga menziesii	10	No	FACU
	140	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. Prunus laurocerasus	70	Yes	N/L
2. Oemleria cerasiformis	15	No	FACU
3. Sambucus racemosa	10	No	FACU
4.			
5.			
	95	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft)			
1. none			
2.			
	0	= 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 100	x 3 = 300
FACU species 65	x 4 = 260
UPL species 70	x 5 = 350
Column Totals: 235 (A)	910 (B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: Vegetation appears to be planted as some form of wetland/stream buffer enhancement/mitigation.

SOIL

Sampling Point: SP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 3/2	90	7.5 YR 3/3	10	C	M	Sandy Loam	Faint contrast
4-16	7.5 YR 3/2	90	7.5 YR 3/3	10	C	M	Sandy Loam	More compacted and less roots

[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 Soil Present? Yes ☐ No ☒

Remarks: Sampled during the dry season.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/12/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 4

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23N, 04E

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 5-10

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This sample point is positioned on a slope at the south end of Wetland A. The top of the hillslope makes up the associated upland for Wetland A. At the base of the slope is a depression that is saturated during the dry season and is likely inundated for long periods during the wet season. The sample plot is characterized as a PFO habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	50	Yes	FAC
2. Populus balsamifera	35	Yes	FAC
3.			
4.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. Salix lucida	20	Yes	FACW
2. Rubus spectabilis	15	Yes	FAC
3. Acer platanoides	5	No	FACU
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Equisetum telmateia	60	Yes	FACW
2. Athyrium cyclosorum	15	No	FAC
3. Polystichum munitum	10	No	FACU
4. Ranunculus repens	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 5

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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: SP-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 2/1	98	10 YR 5/6	2	D	M	Clay loam	Prominent Contrast
6-10	10 YR 2/1	95	10 YR 7/1	3	D	M	Clay loam	Prominent Contrast
			10 YR 5/6	2	D	M		Prominent Contrast
10-16	10YR 2/1	93	10 YR 7/1	3	D	M	Clay Loam	Prominent Contrast
			10 YR 5/6	2	D	M		Prominent Contrast
			7.5 YR 5/6	2	D	M		Prominent Contrast

[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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 11"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 6"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Sampled during the dry season. FAC-Neutral Test: 2:0

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/12/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 5

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23N, 04E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 3-8

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This upland sample point is positioned on the side of a constructed berm surrounding Wetland A. The site is dry and is dominated by non-native species.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 30 along contour)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 X 15 along contour)			
1. Rubus armeniacus	15	Yes	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 X 10 along contour)			
1. Reynoutria x bohemica	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 10 X 15 along contour)			
1. none			
2.			
	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: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 15	x 3 = 45
FACU species 100	x 4 = 400
UPL species	x 5 =
Column Totals: 115 (A)	445 (B)

Prevalence Index = B/A = 3.86

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: SP-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	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 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 Soil Present? Yes ☐ No ☒

Remarks: Sampled during the dry season.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/12/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 6

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23N, 04E

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This sample point is positioned in WL-A at the base of a constructed berm.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	40	Yes	FAC
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. Rubus armeniacus	75	Yes	FAC
2.			
3.			
4.			
5.			
	75 = Total Cover		
Herb Stratum (Plot size: r = 5 ft.)			
1. Reynoutria x bohemica	30	Yes	FACU
2. Phalaris arundinacea	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: SP-6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 3/1	98	10 YR 4/4	2	C	M	Silt loam	Distinct contrast
7-10	10 YR 3/1	75	10 YR 5/2	20	D	M	Silt loam	Faint contrast
			7.5 YR 4/4	5	C	M		Prominent contrast
10-20	10 YR 6/1	80	10 YR 6/6	10	C	M	Clay	Prominent contrast
			10 YR 5/2	10	D	M		Faint contrast

[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 Soil Present? Yes ☒ No ☐

Remarks: Sampled during the dry season.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/13/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 7

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 30-35

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This sample point is positioned to the east of Crane Worldwide. It is the associated upland plot for SP-8 and Wetland A.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20 X 30 ft along contour)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	35	Yes	FAC
2. Pseudotsuga menziesii	20	Yes	FACU
3.			
4.			
	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 X 5 along contour)			
1. Rubus armeniacus	70	Yes	FAC
2. Rosa nutkana	15	No	FAC
3. Alnus rubra (s)	15	No	FAC
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: 3 X 10 along contour)			
1. Ranunculus repens	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 85

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: SP-7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100					Loamy Sand	
2-14	10 YR 5/2	100					Loamy Sand	Gravelly
14-20+	10 YR 5/2	100					Loamy Sand	Not gravelly

[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 Soil Present? Yes ☐ No ☒

Remarks: Sampled during the dry season. The soil test point is positioned under a thick blackberry canopy

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/13/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 8

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This sample point meets the criterion for hydrophytic vegetation, hydric soil, and wetland hydrology; thus, the sample point is determined to be a wetland. The sample point is positioned east of Crane World in Wetland A. The associated upland sample point is SP-7.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	40	Yes	FAC
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. Sambucus racemosa	15	Yes	FACU
2. Rubus armeniacus	5	Yes	FAC
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: r = 5 ft.)			
1. Phalaris arundinacea	50	Yes	FACW
2. Equisetum telmateia	30	Yes	FAC
3. Athyrium cyclosorum	20	No	FAC
4. Solanum dulcamara	10	No	FAC
5. Spiraea douglasii	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
Woody Vine Stratum (Plot size: r= 15 ft.)			
1. none			
2.			
	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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: SP-8

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
0-4.5	7.5 YR 2.5/1	100					Loam	A lot of roots
4.5-8	7.5 YR 2.5/1	93	10 YR 5/3	5	D	M	Loam	Distinct contrast
			7.5 YR 4/6	2	C	M		Prominent contrast
8-20+	10 YR 4/2	75	7.5 YR 4/6	25	C	M	Sandy Loam	Prominent contrast

[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 Soil Present? **Yes** ☒ **No** ☐

Remarks: Underlaid by clay

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 01/11/2017

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 24

Investigator(s): Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2-5

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This sample point is positioned where the proposed trail alignment re-enters Wetland A east of Crane World. It is the associated upland plot for SP-24 and Wetland A. The area appears to have been heavily disturbed at one point in time and is now covered in dense RUAR thickets.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 20 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: r = 10 ft)			
1. Rubus armeniacus	100	Yes	FAC
2.			
3.			
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: r = 5 ft)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0 = 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	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: SP-24

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 2/2	100					Sandy Loam	
5-12	10 YR 3/3	75	10YR 4/6	25	C	M	Sandy Loam	
12-22+	7.5YR 4/6	60	10YR 3/3	40	C	M	Sandy Loam	Bright soil

[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 Soil Present? Yes ☐ No ☒

Remarks: Sampled during the wet season. The soil test point is positioned under a thick blackberry canopy.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the wet season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 01/11/2017

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 25

Investigator(s): Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): Toe-of-slope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This sample point is positioned where the proposed trail alignment re-enters Wetland A east of Crane World. The site satisfies the criterion for hydrophytic vegetation, hydric soils, and wetland hydrology; thus, the sample point is determined to be a wetland. The area surrounding the sample point contains PFO habitat and is considered a depressional wetland with slope components.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 20 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	40	Yes	FAC
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: r = 10 ft)			
1. Rubus armeniacus	8	Yes	FAC
2.			
3.			
4.			
5.			
	8 = Total Cover		
Herb Stratum (Plot size: r = 5 ft)			
1. Phalaris arundinacea	90	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. Hedera helix	2	No	FACU
2.			
	2 = Total Cover		

% Bare Ground in Herb Stratum 50

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	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: HEHE and the woody vine stratum do not meet the 5% total plant cover; thus, it does not qualify as a dominant species.

SOIL

Sampling Point: SP-25

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 2/1	100					Sandy Loam	Lots of small/fine roots
4-9.5	10 YR 2/2	95	10YR 3/3	5	C	M	Sandy Loam	Faint contrast
9.5-18	2.5Y 4/2	65	10YR 3/3	25	C	M	Sandy Loam	Faint Contrast
			7.5YR 4/6	10	C	M+PL		Prominent Contrast

[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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the wet season. The sample point met one primary indicator and two secondary wetland hydrology indicators,

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

Project/Site: L2ST Segment C City/County: Burien/ King Sampling Date: 9/13/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 9

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): Depression at toe of slope Local relief (concave, convex, none): Concave Slope (%): 12-17

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: The sample points meets the criterion for hydrophytic vegetation, hydric soil, and wetland hydrology; thus, the sample point is determined to be a wetland. This sample point is positioned in Wetland B, located adjacent to Des Moines Memorial Drive.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	80	Yes	FAC
2. Salix lucida	20	Yes	FACW
3.			
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. Rubus armeniacus	45	Yes	FAC
2. Alnus rubra (s)	20	Yes	FAC
3.			
4.			
5.			
	65	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Ranunculus repens	60	Yes	FAC
2. Glyceria elata	20	Yes	OBL
3. Phalaris arundinacea	15	No	FACW
4. Carex obnupta	5	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: SP-9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 2/1	100					Silt Loam	Roots
5-8	10 YR 3/1	78	7.5 YR 4/6	20	C	M	Silt Loam	Prominent contrast. Few roots.
			2.5 Y 5/1	2	D	M		Distinct contrast
8-16	7.5 YR 4/1	75	5 YR 4/6	15	C	M		Prominent contrast
			2.5 Y 6/1	10	D	M	Silt Loam	Prominent contrast

[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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 5"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Saturation was present at a depth of 5 inches during the dry season.

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

Project/Site: L2ST Segment C City/County: Burien/ King Sampling Date: 9/13/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 10

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 80

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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

Are Vegetation yes, 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: This sample point is the associated upland for SP-9 and Wetland B. Vegetation is significantly disturbed seeing as the edge of the WL is marked by the edge of road-side fill, which is frequently maintained and mowed.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lucida	40	Yes	FACW
2. Alnus rubra	35	Yes	FAC
3.			
4.			
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. Rubus armeniacus	35	Yes	FAC
2. Salix lucida (s)	15	Yes	FACW
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Ranunculus repens	60	Yes	FAC
2. Phalaris arundinacea	20	Yes	FACW
3. Taraxacum officinale	8	No	FACU
4. Convolvulus arvensis	3	No	N/L
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	91	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: herbacious and roadside ditch vegetation is mown/maintained frequently.

SOIL

Sampling Point: SP-10

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	10 YR 3.2	100					VG SL	roadside fill (very gravelly)l

[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 Soil Present? Yes ☐ No ☒

Remarks: Roadside fill

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/13/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 11

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 05, 23 N, 04 E

Landform (hillslope, terrace, etc.): Toe of slope/depression Local relief (concave, convex, none): none Slope (%): 5-10

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Indianola loamy sand, 5 to 15 percent slopes NWI classification: Unmapped

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: The sample points meets the criterion for hydrophytic vegetation, hydric soil, and wetland hydrology; thus, the sample point is determined to be a wetland. The sample point is positioned at the toe of slope within Wetland C. NWI has freshwater ponds and freshwater forested/shrub wetlands mapped nearby. In addition, an EIS from 2003 identified this site as a WL.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 30 ft. along contour)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix scouleriana	60	yes	FAC
2.			
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 X 15 ft. along contour)			
1. Salix scouleriana	35	Yes	FAC
2. Rubus armeniacus	30	Yes	FAC
3.			
4.			
5.			
	65 = Total Cover		
Herb Stratum (Plot size: r = 5 ft.)			
1. Lysichiton americanus	15	Yes	OBL
2. Calystegia sepium	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 65

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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: SP-11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 2/2	100					Loamy Sand	Large pieces of gravel
5-9	10 YR 2/2	95	5 YR 4/6	5	C	M	Loamy Sand	Prominent contrast
9-11.5	10 YR 3/2	98	5 YR 4/2	2	C	M	Loamy Sand	Distinct contrast
11.5-19	10 YR 4/2	85	7.5 YR 4/6	15	C	M	Loamy Sand	Prominent contrast

[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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: FAC-Neutral test: 1:0. In additiion, the surface soil was moist despite being sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/13/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 12

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 05, 23 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 10-12

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Indianola loamy sand, 5 to 15 percent slopes NWI classification: Unmapped

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: The sample point is positioned on a hillslope extending down from the roadside. It is the associated upland plot for SP-11 and Wetland C. The soil is native, yet not hydric. NWI has wetlands mapped in the depression positioned below. In addition, an EIS from 2003 identified this site as a non-WL.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 30 ft. along contour)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 X 15 ft.along contour)			
1. Rubus armeniacus	75	Yes	FAC
2. Salix scouleriana (s)	10	No	FAC
3.			
4.			
5.			
	85	= Total Cover	
Herb Stratum (Plot size: 5 X 10 ft. along contour)			
1. Calystegia sepium	10	Yes	FAC
2. Polystichum munitum	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 60

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% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 95	x 3 = 285
FACU species 5	x 4 = 20
UPL species	x 5 =
Column Totals: 100 (A)	305 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Fails the Prevalence Index hydrophytic vegetation indicator.

SOIL

Sampling Point: SP-12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/2	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 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 Soil Present? Yes ☐ No ☒

Remarks: Native soil near the edge of the roadway

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/14/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 13

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 04, 22 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Urban land NWI classification: Unmapped

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: The sample points meets the criterion for hydrophytic vegetation, hydric soil, and wetland hydrology; thus, the sample point is determined to be a wetland. The sample point is positioned in Wetland D and what appears to be a mitigation site. The mitigation vegetation/plantings have failed since planting. Specifically, approximately 2% of the Salix sp. were able to successfully establish. An EIS from 2003 identified this site as a WL.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. Salix scouleriana (s)	3	Yes	FAC
2. Cytisus scoparius	2	Yes	N/L
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Poa pratensis	100	Yes	FAC
2. Holcus lanatus	5	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 128	x 3 = 384
FACU species	x 4 =
UPL species 2	x 5 = 10
Column Totals: 130 (A)	395 (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Fails the FAC-Neutral Test and the Prevalence Index hydrophytic vegetation indicator.

SOIL

Sampling Point: SP-13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 3/2	94	7.5 YR 5/2	2	D	M	Sandy Loam	Faint Contrast
		95	7.5 YR 4/6	4	C	PL+M		Prominent contrast.
6-16	10 YR 3/2	95	7.5 YR 4/6	5	C	M	Sandy Loam	Redox concretions. Prom contrast.
16-20+	10 YR 3/2	95	7.5 YR 4/6	5	C	M	Sandy Loam	No concretions. Prominent contrast.

[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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/14/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 14

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 04, 22 N, 04 E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Urban land NWI classification: Unmapped

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: The upland sample point is positioned in a swale in a abandoned golf course. Nearby areas appear to have been used for wetland compensatory mitigation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. Cytisus scoparius	3	No	NL
2.			
3.			
4.			
5.			
	3	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Lolium perenne	60	Yes	FAC
2. Poa pratensis	40	Yes	FAC
3. Holcus lanatus	30	Yes	FAC
4. Ranunculus repens	3	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	133	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The sapling/shrub stratum has less than 5% total plant cover; therefore, is not considered to be a stratum for sampling purposes.

SOIL

Sampling Point: SP-14

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	10 YR 2/1	100					Sandy Loam	
5-20+	7.5YR 4/4	92	5YR 4/6	5	C	M	Sandy Loam	
			5YR 5/2	3	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 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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/14/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 15

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 04, 22 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Urban land NWI classification: Unmapped

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: This sample point is the associated upland for SP-13 and Wetland D.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Poa pratensis	25	Yes	FAC
2. Hypochaeris radicata	15	Yes	FAC
3. Taraxacum officinale	5	No	FACU
4. Erigeron canadensis	5	No	FACU
5. Lactuca serriola	3	No	FACU
6. Plantago lanceolata	1	No	FACU
7.			
8.			
9.			
10.			
11.			
	49	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30

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	x 1 =
FACW species	x 2 =
FAC species 40	x 3 = 120
FACU species 9	x 4 = 36
UPL species	x 5 =
Column Totals: 49 (A)	156 (B)

Prevalence Index = B/A = 3.18

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The vegetation satisfies the Dominance Test but fails the Prevalence Index hydrophytic vegetation indicator.

SOIL

Sampling Point: SP-15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/2	100					Sandy Loam	
3-13	7.5 YR 3/3	90	7.5 YR 5/6	5	C	M	Loamy Sand	
			10 YR 5/2	5	D	M		
13-20	2.5 Y 4/2	95	2.5 Y 4/4	%	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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/14/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 16

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 04, 22 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope depression Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Urban land NWI classification: Unmapped

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: The sample points meets the criterion for hydrophytic vegetation, hydric soil, and wetland hydrology; thus, the sample point is determined to be a wetland. The sample point is positioned in a hillslope depression (Wetland E) in an abandoned golf course. The site was identified as a wetland in the 2003 EIS and appears to be some form of compensatory mitigation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Poa pratensis	95	Yes	FAC
2. Schedonorus arundinaceus	20	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	115	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The site used to be part of a maintained golf course.

SOIL

Sampling Point: SP-16

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Silt Loam	
4-12	10YR 3/1	95	7.5YR 4/6	5	C	M	Clay Loam	
12-16	10YR 3/1	95	7.5YR 4/6	3	C	M	Clay Loam	
			10YR 5/1	2	D	M		
16-20	2.5Y 5/1	88%	10YR 3/1	10	C	M	Clay Loam	
			7.5YR 4/6	2	C	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 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 Soil Present? Yes ☒ No ☐

Remarks: Previously disturbed site. The soil pit was dug next to a plastic pipe that runs through the previously described wetland. This might be an old drainage devise left over from gold course operations.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Sampled during the dry season.The sample point was dug next to a plastic pipe that runs through the previously described wetland. This might be an old drainage devise left over from gold course operations.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 9/14/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 17

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 04, 22 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope depression Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Urban land NWI classification: Unmapped

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: This sample point is the associated upland sample point for SP-16 and Wetland E, positioned in a hillslope depression in an abandoned golf course. This site was identified as upland in the 2003 EIS.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Poa pratensis	40	Yes	FAC
2. Elymus repens	35	Yes	FAC
3. Hypochaeris radicata	8	No	FACU
4. Cirsium vulgare	5	No	FACU
5. Tanacetum vulgare	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	93	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The site used to be part of a maintained golf course.

SOIL

Sampling Point: SP-17

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
0-6.5	10YR 2/2	100					Sandy Loam	A lot of grass roots
6.5-8.0	10YR 2/2	100					Sandy Loam	Absent of roots
9-17.0	10YR 3/2	98%	7.5YR 5/8	2	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:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: Previously disturbed site.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Fails the FAC-neutral test

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 11/30/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 18

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 05, 23 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1-3

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI classification: Unmapped

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: The sample points meets the criterion for hydrophytic vegetation, hydric soil, and wetland hydrology; thus, the sample point is determined to be a wetland. The sample point is positioned in Wetland F.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix scouleriana	30	yes	FAC
2. Prunus emarginata	30	yes	FACU
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft)			
1. Rubus spectabilis	40	Yes	FAC
2. Salix scouleriana	20	Yes	FAC
3. Ilex aquifolium	10	no	FACU
4. Cornus alba	10	no	FACW
5. Rubus ursinus	10	no	FACU
	90	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Polystichum munitum	15	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 65

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: SP-18

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 2/2	95	7.5YR 4/6	5	C	M	Loam	Prominent Contrast
8-20+	10YR 6/1	90	10YR 5/6	10	C	M	Loam	Prominent Contrast

[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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 11

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: The field investigation was conducted during the wet season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 11/30/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 19

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 05, 23 N, 04 E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1-3

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI classification: Unmapped

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: The sample point is the associated upland site for SP-18 and Wetland F. This sample point does not meet the criteria for hydrophytic vegetation, hydric soils, and wetland hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix scouleriana	40	yes	FAC
2. Prunus emarginata	40	yes	FACU
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft)			
1. Cornus alba	30	Yes	FACW
2. Symphoricarpus albus	30	Yes	FACU
3. Rubus spectabilis	20	Yes	FAC
4. Ilex aquifolium	20	Yes	FACU
5.			
	100	= Total Cover	
Herb Stratum (Plot size: r = 5 ft.)			
1. Polystichum munitum	30	Yes	FACU
2. Pteridium aquilinum	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft.)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 38% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 30	x 2 = 60
FAC species 60	x 3 = 180
FACU species 140	x 4 = 560
UPL species	x 5 =
Column Totals: 230 (A)	800 (B)

Prevalence Index = B/A = 3.48

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: SP-19

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
0-12	10YR 2/2	100					Loam	
12-20+	10YR 3/2	97	10YR 2/2	3	C	M	Loam	Faint Contrast

[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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ☐ No ☒ Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): >20

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: L2ST Segment C City/County: SeaTac/ King Sampling Date: 11/14/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 20

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: The sample points meets the criterion for hydrophytic vegetation, hydric soil, and wetland hydrology; thus, the sample point is determined to be a wetland. SP-20 is positioned in Wetland G and occurs in a depression adjacent to the SR-509 right of way. It is described as palustine scrub shrub habitat and a depressional wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft)			
1. Rubus armeniacus	80	Yes	FAC
2. Populus balsamifera (s)	2	No	FAC
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: r = 5 ft)			
1. Polygonum persicaria	60	Yes	FACW
2. Solanum dulcamara	20	Yes	FAC
3. Agrostis stolonifera	20	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft)			
1. none			
2.			
	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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: SP-20

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					Sandy Loam	
7-14	10YR 2/2	95	7.5YR 4/6	3	C	M	Sandy Loam	
14-18	10YR 2/2	90	7.5YR 4/6	7	C	M	Sandy Loam	
			10YR 4/2	3	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 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 Soil Present? Yes ☒ No ☐

Remarks: Water is ponded 3"+,

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 3"

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

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: Field investigation was conducted during the wet season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 11/14/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 21

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): A Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: SP-21 is positioned next to Wetland G and is the associated upland sample point for SP-20.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	75	Yes	FACU
2.			
3.			
4.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: r = 15 ft)			
1. Rubus armeniacus	45	Yes	FAC
2.			
3.			
4.			
5.			
	45 = Total Cover		
Herb Stratum (Plot size: r = 5 ft)			
1. Galium aparine	15	Yes	FACU
2. Pteridium aquilinum	3	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	18 = Total Cover		
Woody Vine Stratum (Plot size: r = 15 ft)			
1. none			
2.			
	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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: SP-21

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Sandy Loam	
5-18	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 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 Soil Present? Yes ☐ No ☒

Remarks: Sample point is positioned on the side/edge of fill.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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: Field investigation was conducted during the wet season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 11/14/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 22

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): gentle hillslope Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: This sample points meets the criterion for hydrophytic vegetation, hydric soil, and wetland hydrology; thus, the sample point is determined to be a wetland. SP-22 is a depressional and palustrine scub shrub wetland sampling point positioned within Wetland H.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: r = 15 ft)			
1. Rubus armeniacus	45	Yes	FAC
2. Spiraea douglasii	35	Yes	FACW
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: r = 5 ft)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: r = 15 ft)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 50

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	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: SP-22

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
0-9.5	10YR 2/1	100					Sandy Loam	
9.5-16+	10YR 2/2	85	10YR 3/4	15	C	M	Sandy Loam	Distinct Contrast

[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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 11"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Field investigation was conducted during the wet season.

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

Project/Site: L2ST Segment C City/County: SeaTac/ King Sampling Date: 11/14/2016

Applicant/Owner: WSDOT State: WA Sampling Point: SP - 23

Investigator(s): Josh Wozniak and Trey Parry Section, Township, Range: 32, 23 N, 04 E

Landform (hillslope, terrace, etc.): gentle hillslope Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: NOTCOM NWI classification: Unmapped

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: SP-23 is the associated upland for SP-22 and Wetland H.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r = 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula pendula	60	Yes	FACU
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r = 15 ft)			
1. Rubus armeniacus	45	Yes	FAC
2. Betula pendula	30	Yes	FACU
3. Berberis aquifolium	5	No	FACU
4.			
5.			
	80	= Total Cover	
Herb Stratum (Plot size: r = 5 ft)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: r = 15 ft)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 75

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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: SP-23

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 2/2	100					Sandy Loam	
5-18+	10YR 3/6	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 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 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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:

Appendix B

Review of Existing Information on Wetlands and Streams

Soil Map—City of Seattle, Washington, and King County Area, Washington
(Lake to Sound Trail - Segment C)

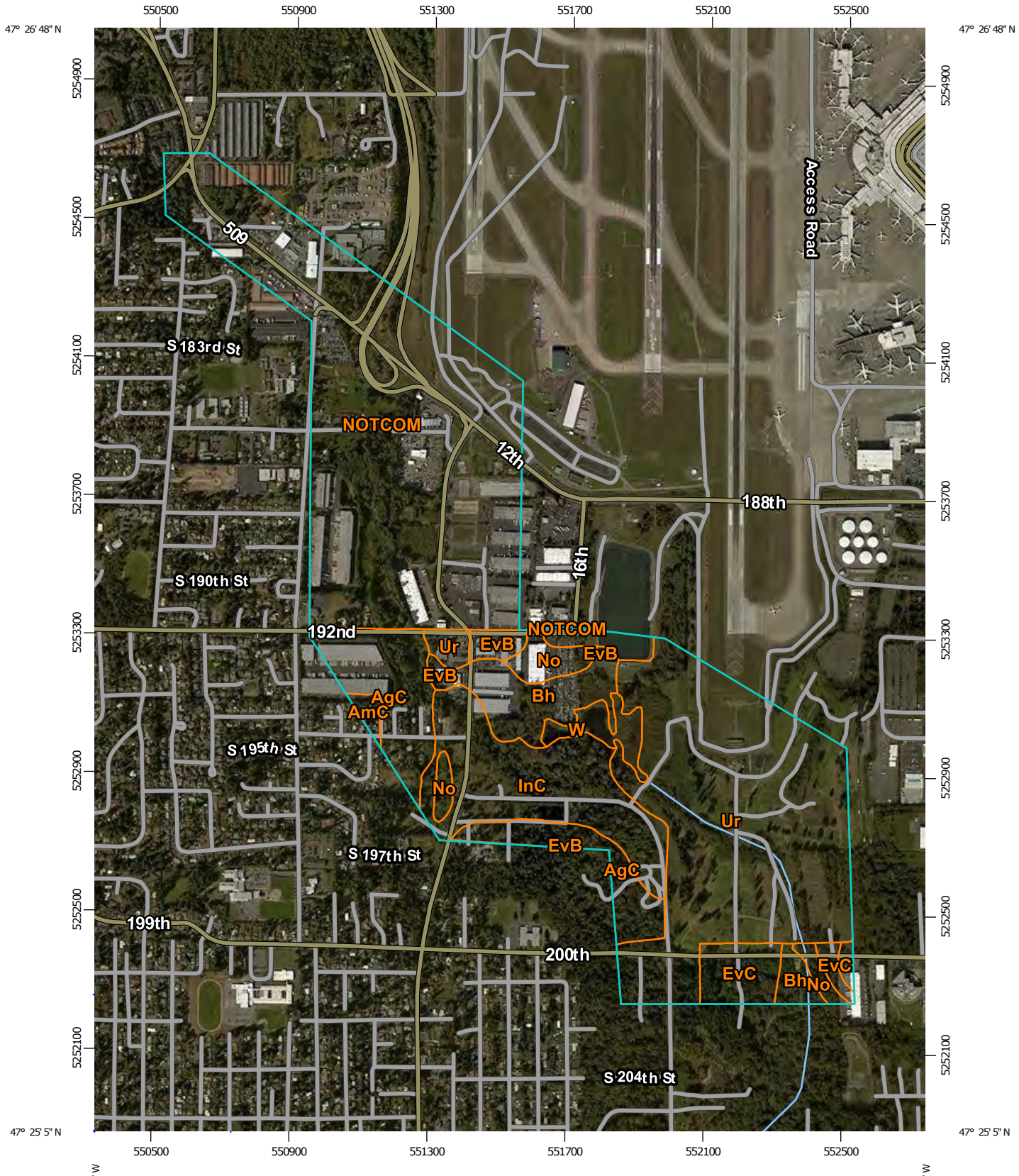


Figure B1

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:24,000 to 1:124,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: City of Seattle, Washington
Survey Area Data: Version 2, Dec 5, 2013

Soil Survey Area: King County Area, Washington
Survey Area Data: Version 11, Sep 14, 2015

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 31, 2013—Oct 6, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Figure B1

Map Unit Legend

City of Seattle, Washington (WA775)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
NOTCOM	No Digital Data Available	170.0	39.0%
Subtotals for Soil Survey Area		**170.0**	**39.0%**
Totals for Area of Interest		**435.6**	**100.0%**

King County Area, Washington (WA633)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AgC	Alderwood gravelly sandy loam, 8 to 15 percent slopes	38.4	8.8%
AmC	Arents, Alderwood material, 6 to 15 percent slopes	1.9	0.4%
Bh	Bellingham silt loam	21.5	4.9%
EvB	Everett very gravelly sandy loam, 0 to 8 percent slopes	9.1	2.1%
EvC	Everett very gravelly sandy loam, 8 to 15 percent slopes	12.0	2.8%
InC	Indianola loamy sand, 5 to 15 percent slopes	44.8	10.3%
No	Norma sandy loam	10.1	2.3%
Ur	Urban land	121.3	27.8%
W	Water	6.6	1.5%
Subtotals for Soil Survey Area		**265.6**	**61.0%**
Totals for Area of Interest		**435.6**	**100.0%**

Figure B1

Hydric Rating by Map Unit—City of Seattle, Washington, and King County Area, Washington
(Lake to Sound Trail - Segment C)

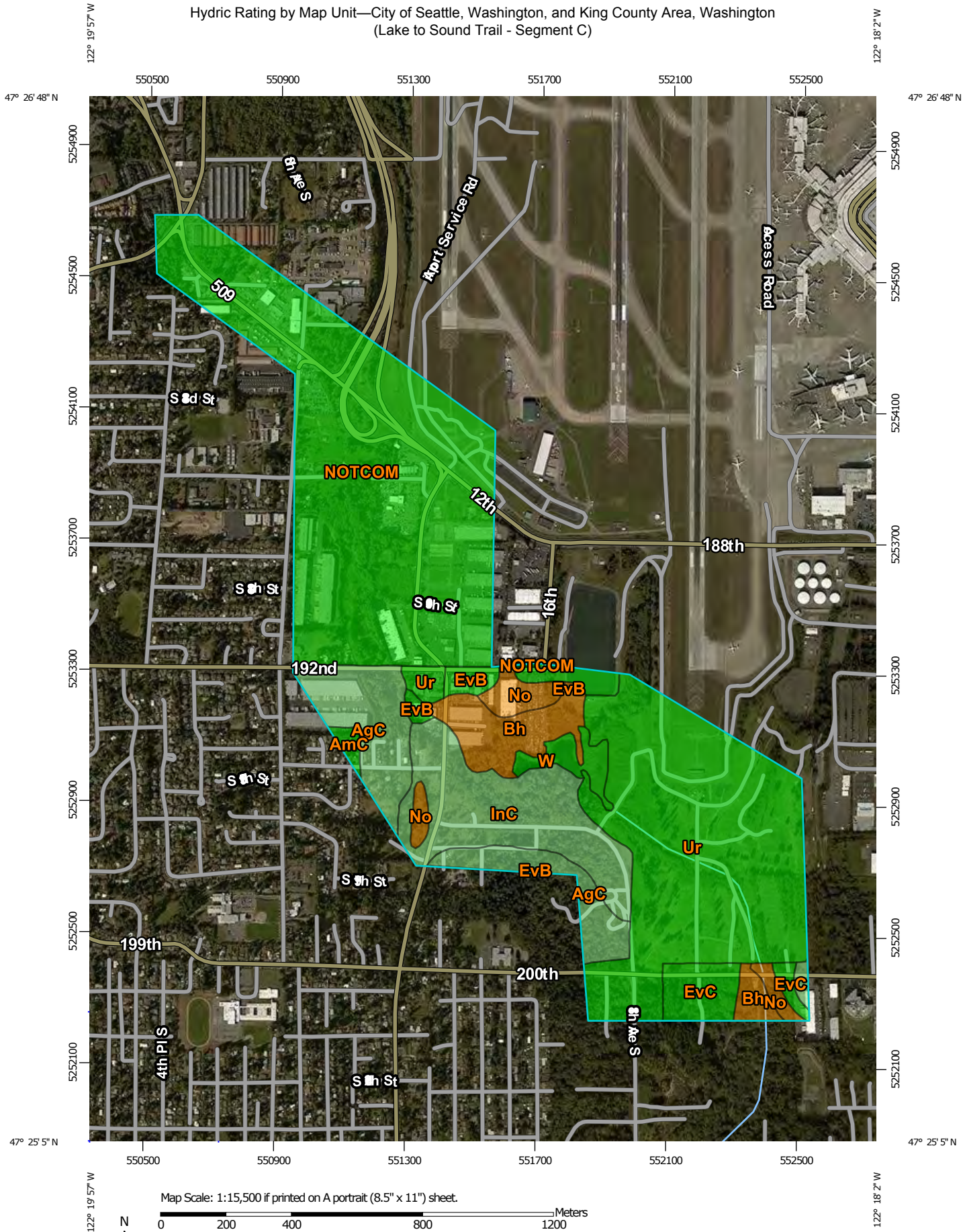


Figure B2

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:24,000 to 1:124,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: City of Seattle, Washington
Survey Area Data: Version 2, Dec 5, 2013

Soil Survey Area: King County Area, Washington
Survey Area Data: Version 11, Sep 14, 2015

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 31, 2013—Oct 6, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Figure B2

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — City of Seattle, Washington (WA775)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
NOTCOM	No Digital Data Available	0	170.0	39.0%
Subtotals for Soil Survey Area			**170.0**	**39.0%**
Totals for Area of Interest			**435.6**	**100.0%**

Hydric Rating by Map Unit— Summary by Map Unit — King County Area, Washington (WA633)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
AgC	Alderwood gravelly sandy loam, 8 to 15 percent slopes	5	38.4	8.8%
AmC	Arents, Alderwood material, 6 to 15 percent slopes	0	1.9	0.4%
Bh	Bellingham silt loam	90	21.5	4.9%
EvB	Everett very gravelly sandy loam, 0 to 8 percent slopes	0	9.1	2.1%
EvC	Everett very gravelly sandy loam, 8 to 15 percent slopes	0	12.0	2.8%
InC	Indianola loamy sand, 5 to 15 percent slopes	2	44.8	10.3%
No	Norma sandy loam	96	10.1	2.3%
Ur	Urban land	0	121.3	27.8%
W	Water	0	6.6	1.5%
Subtotals for Soil Survey Area			**265.6**	**61.0%**
Totals for Area of Interest			**435.6**	**100.0%**

Figure B2

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Figure B2

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: *None Specified*

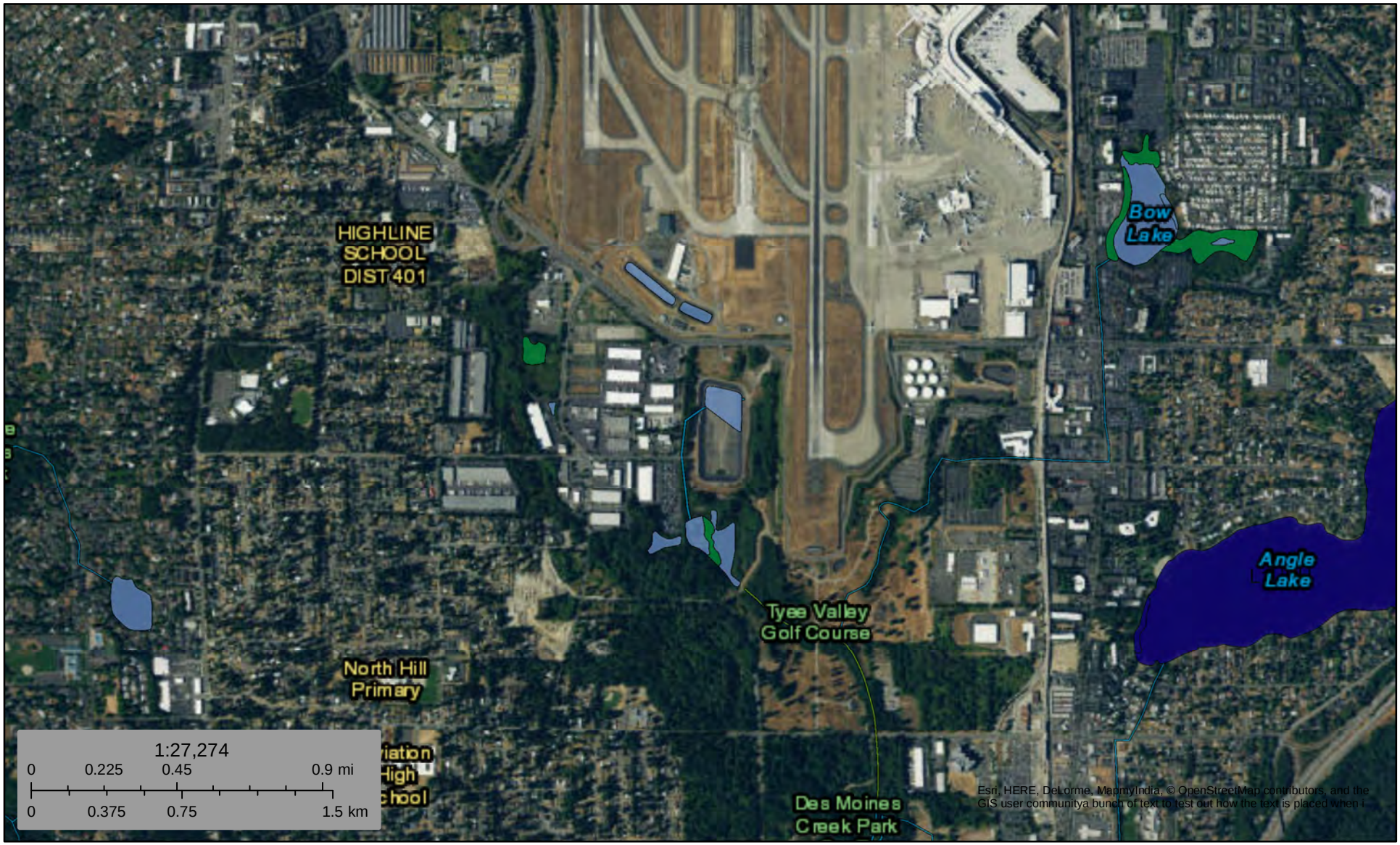
Tie-break Rule: Lower

Figure B2

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands



August 9, 2016

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Figure B3

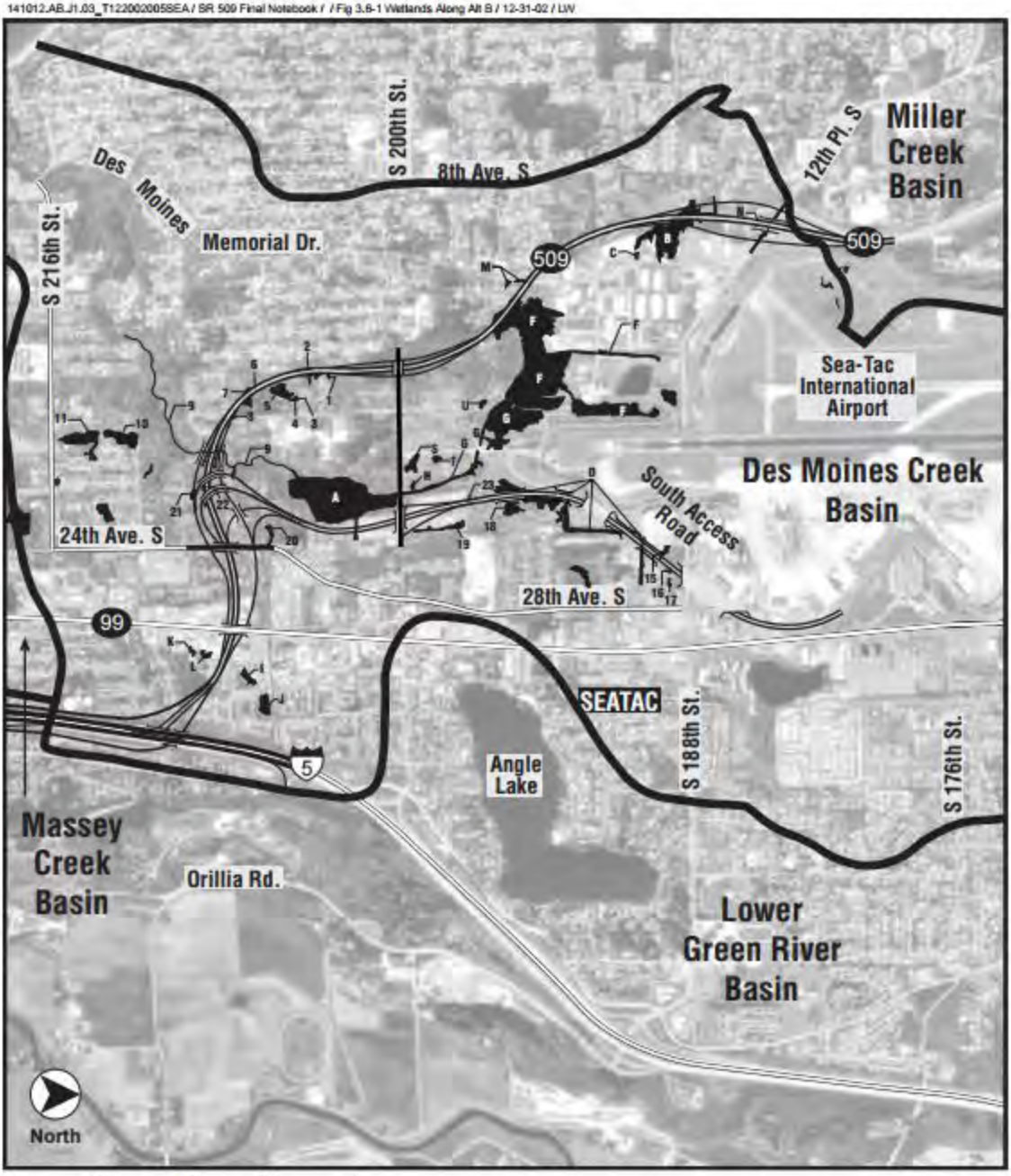


Figure B4

Wetlands Along Alternative B Alignment

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

WETLAND, STREAM, & SHORELINE CLASSIFICATIONS

City of SeaTac

LEGEND

Stream Classification

- Class 2, Perennial; Salmonid Present (100' Buffer)
- Class 2, Perennial; Salmonid Use Undetermined (50' Buffer)
- Class 2 Stream - Perennial; No Salmonids (50' Buffer)
- Class 3 Stream - Intermittent (25' Buffer)
- Unclassified Stream (Buffer to be Determined)

Wetland Classification

- Class 1 Wetland (100' Buffer)
- Class 2 Wetland (50' Buffer)
- Class 3 Wetland (35' Buffer)
- Unclassified (Buffer to be Determined)

Shoreline Management Classification

- Aquatic (65' Buffer)

0 2,000 Feet

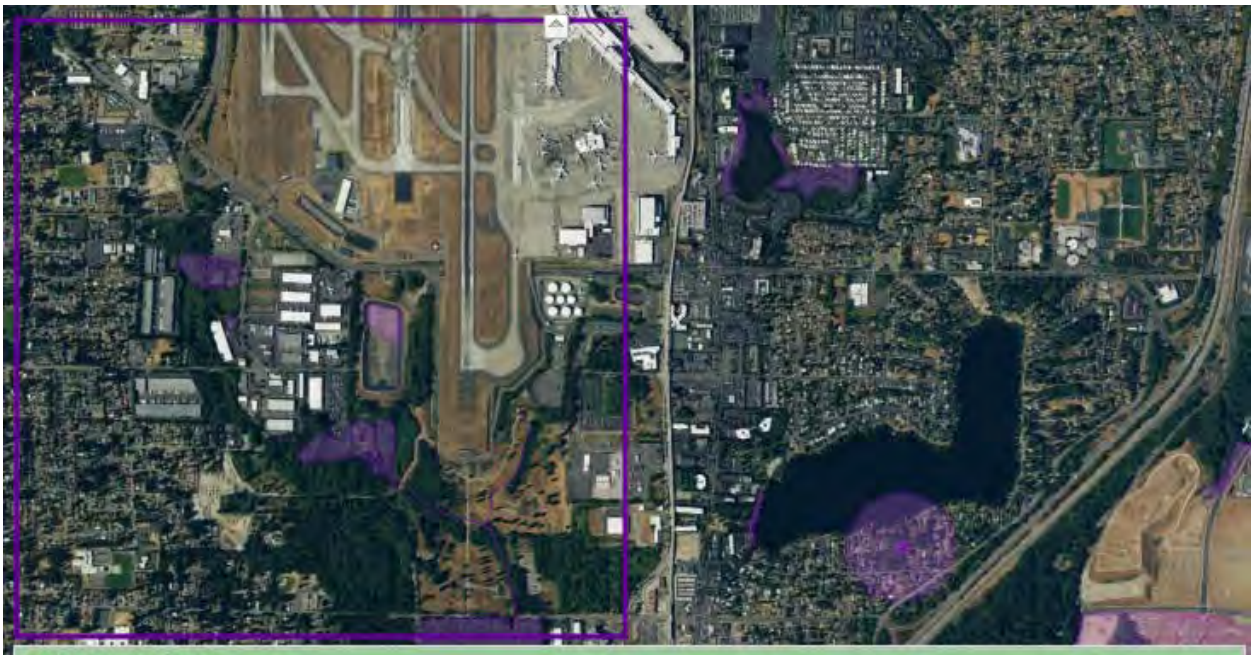
0 0.5 Miles

Date Prepared: June 29, 2010

Source: City of SeaTac

\\geometro\published\Maps\MapProjects\WetlandsStreamsShorelineMap11x17.mxd

Figure B5



PHS Features Found

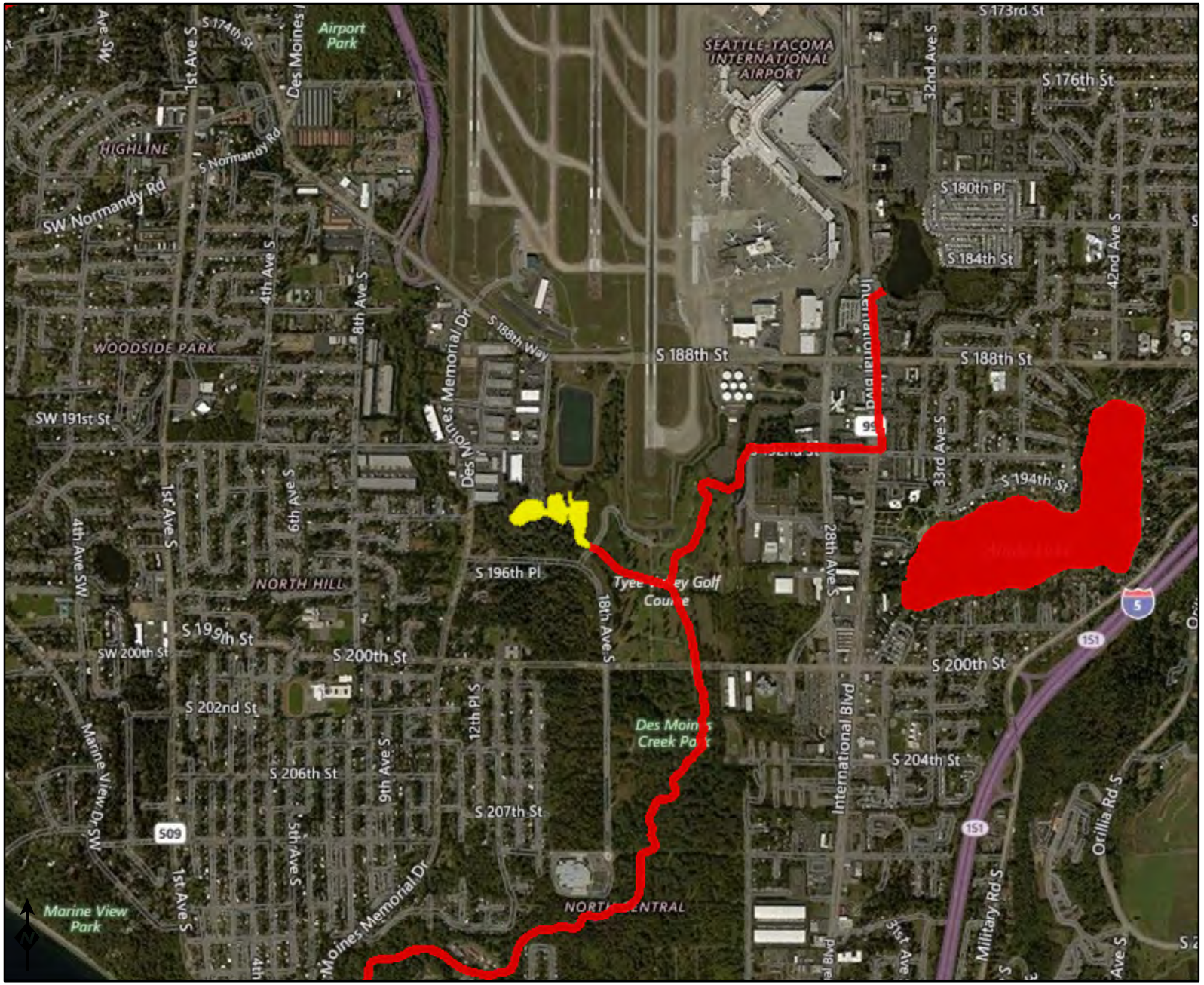
Common Name	Scientific Name	Priority Area	Display Resolution	Feature Type	Full Record
Resident Coastal Cutthroat (show)	Oncorhynchus clarki	Occurrence/Migratio	AS MAPPED	Line	Show Full Record
Resident Coastal Cutthroat (show)	Oncorhynchus clarki	Occurrence/Migratio	AS MAPPED	Line	Show Full Record
Wetlands (show)	Null	Aquatic Habitat	AS MAPPED	Area	Show Full Record
Biodiversity Areas And Corridor (show)	Null	Terrestrial Habitat	AS MAPPED	Area	Show Full Record
Freshwater Forested/Shrub Wetland (show)	Null	Aquatic Habitat	AS MAPPED	Area	Show Full Record
Other (show)	Null	Aquatic Habitat	AS MAPPED	Area	Show Full Record
Freshwater Forested/Shrub Wetland (show)	Null	Aquatic Habitat	AS MAPPED	Area	Show Full Record

Dismiss

Figure B6

August 9, 2016

Water Quality Atlas Map



Assessed Waters/Sediment

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

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

Miles
0 0.25 0.5 1

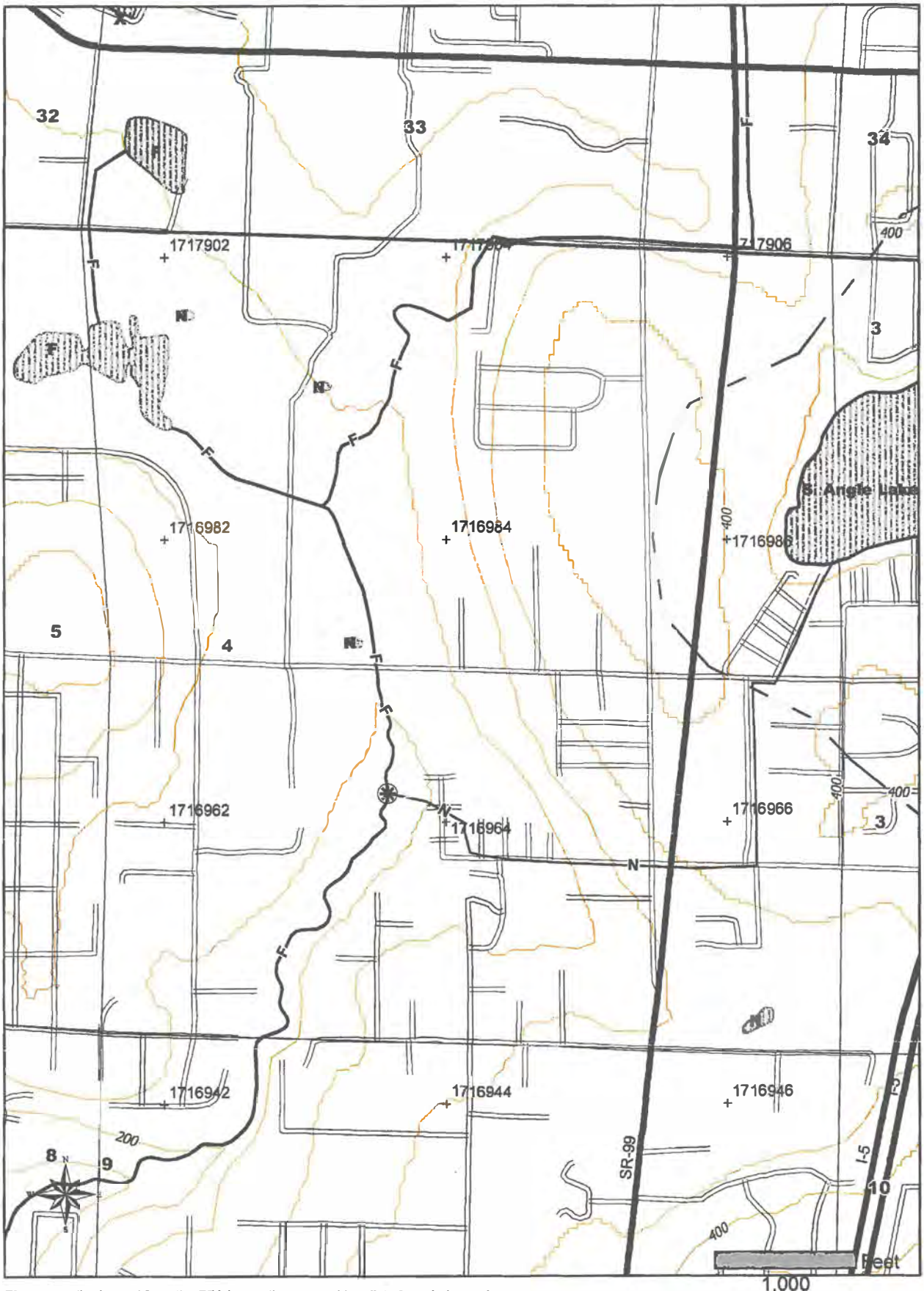
Figure B7

DEPARTMENT OF ECOLOGY
State of Washington

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 22 NORTH HALF 0, RANGE 04 EAST (W.M.) HALF 0, SECTION 4

Application #: _____



Please use the legend from the FPA Instruction or provide a list of symbols used.

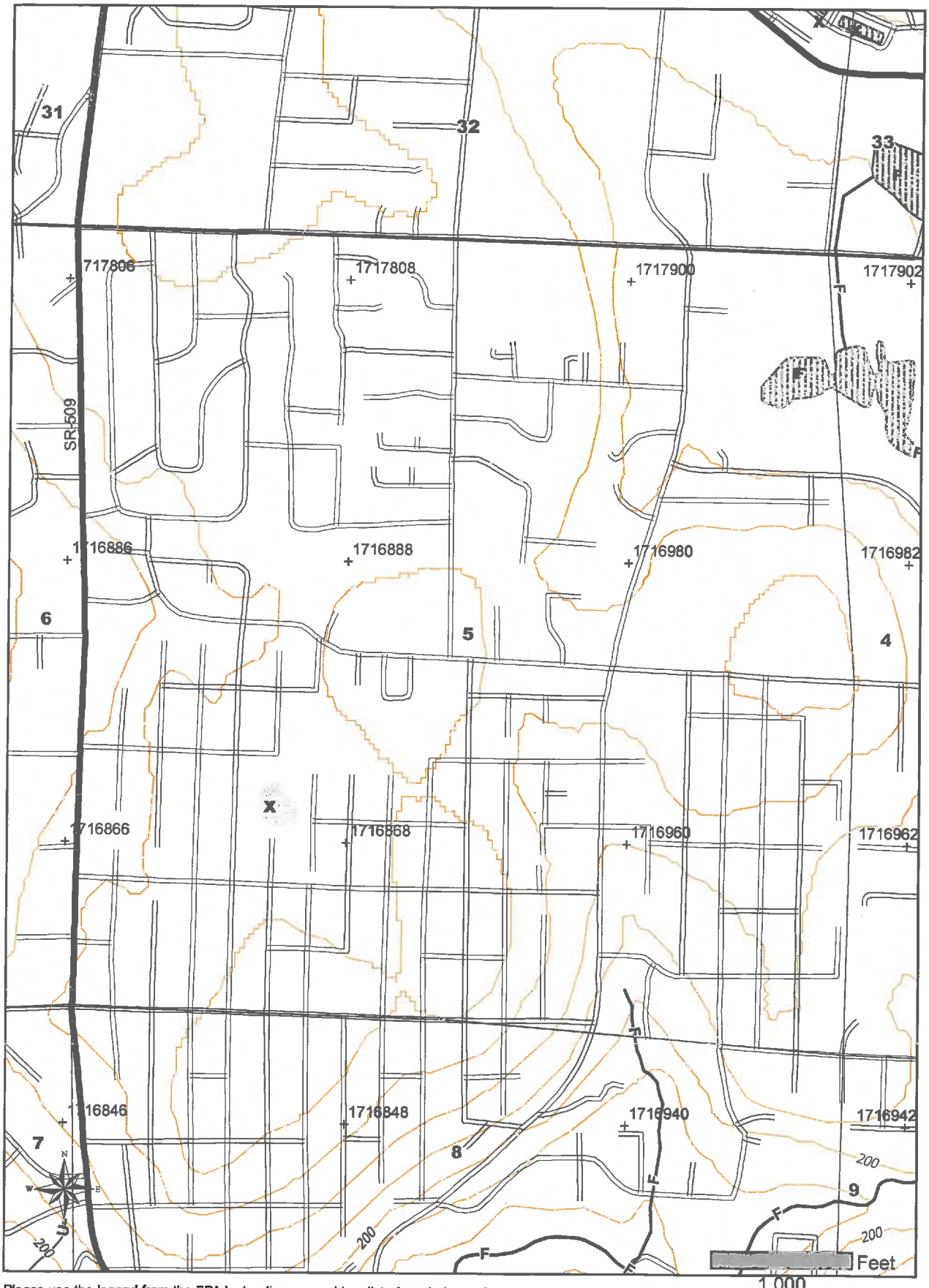
Date: 8/9/2016 Time: 11:23:20 AM
NAD 83
Contour Interval: 40 Feet

Figure B8

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 22 NORTH HALF 0, RANGE 04 EAST (W.M.) HALF 0, SECTION 5

Application #: _____



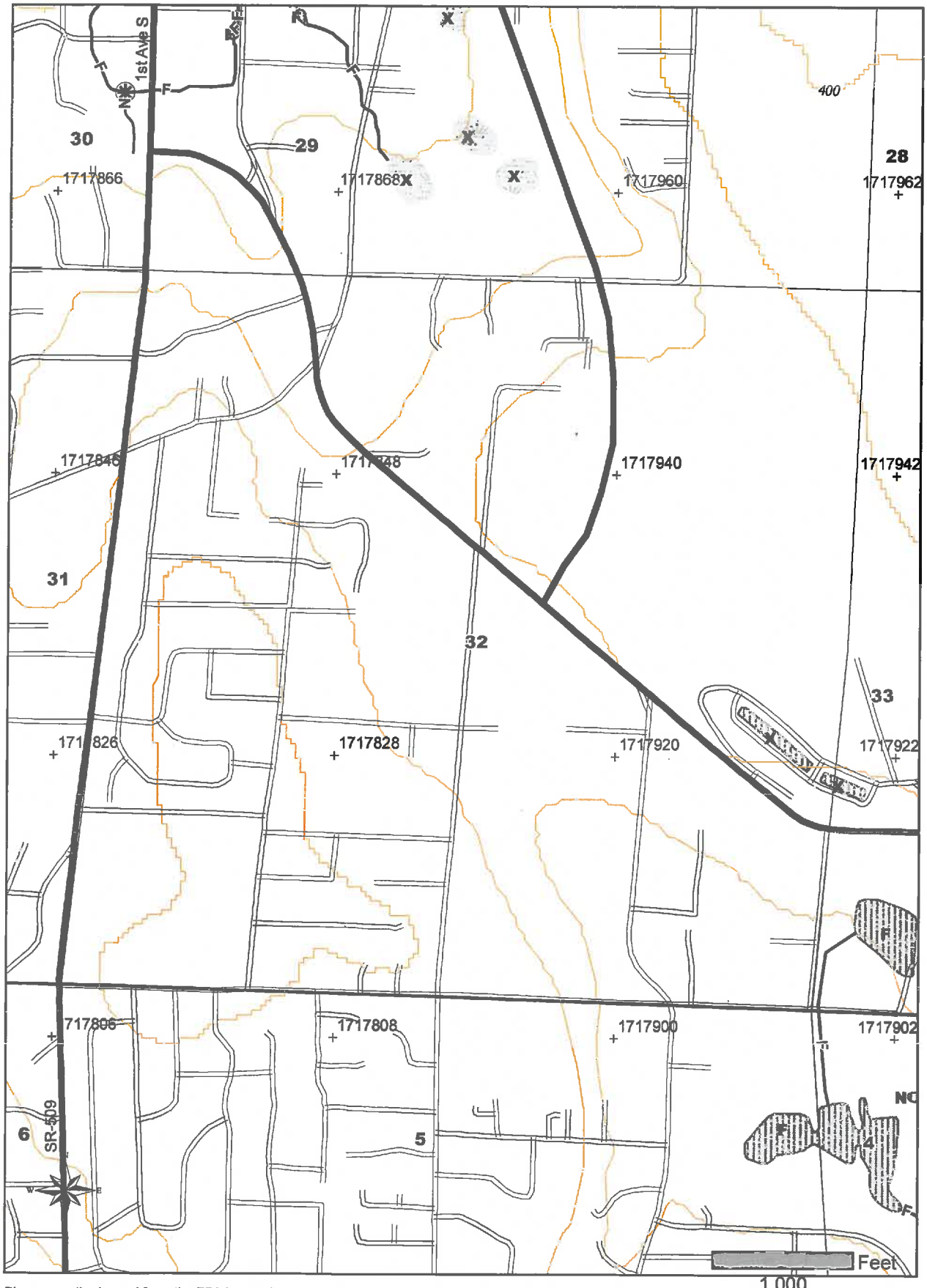
Please use the legend from the FPA Instruction or provide a list of symbols used.

Date: 8/9/2016 Time: 11:04:44 AM
NAD 83
Contour Interval: 40 Feet

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 23 NORTH HALF 0, RANGE 04 EAST (W.M.) HALF 0, SECTION 32

Application #: _____



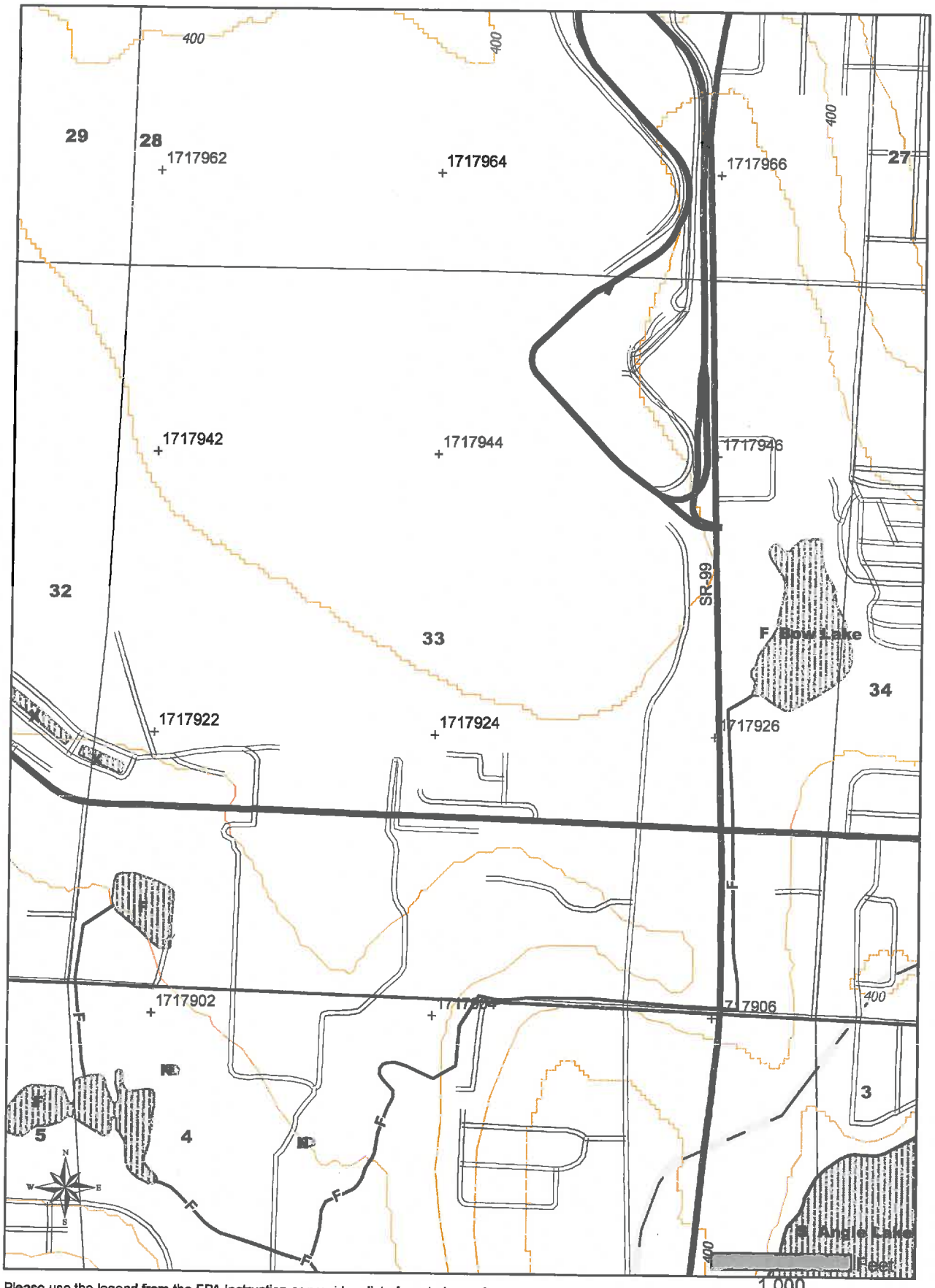
Please use the legend from the FPA Instruction or provide a list of symbols used.

Date: 8/9/2016 Time: 11:03:17 AM
NAD 83
Contour Interval: 40 Feet

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 23 NORTH HALF 0, RANGE 04 EAST (W.M.) HALF 0, SECTION 33

Application #: _____



Please use the legend from the FPA Instruction or provide a list of symbols used.

Date: 8/9/2016 Time: 11:03:27 AM
NAD 83
Contour Interval: 40 Feet

Appendix C

Representative Photographs of the Project

Photograph 1: Wetland A facing south from northern PFO/PSS end of the wetland.

Photograph 2: Wetland A facing north from the center of the wetland, near the storm water ponds.

Photograph 3: Wetland A facing west from the southern PEM end of the wetland.

Photograph 4: West Branch of Des Moines Creek flowing from the north to south through Wetland A as pictured of November 9, 2016.

Photograph 5: Wetland B facing southwest from the intersection of Des Moines Memorial Drive and South Normandy Road.

Photograph 6: Wetland C facing north from the southern edge of the wetland.

Photograph 7: Wetland D facing southwest from the northeast corner of the wetland.

Photograph 8: Wetland E facing east from the center of the wetland.

Photograph 9: Wetland E facing west from the center of the wetland.

Photograph 10: Wetland F facing southwest from 18th Avenue South.

Photograph 11: Wetland G facing north from the western boundary of the wetland.

Photograph 12: Wetland H facing north from the center of the wetland.

Appendix D

Wetland Rating Forms

Wetland name or number

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 9/12/2016

Rated by Josh Wozniak Trained by Ecology? ☒ Yes ☐ No Date of training 9/2015

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☒ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY II (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	H	
Landscape Potential	M	H	M	
Value	M	H	H	**Total**
Score Based on Ratings	6	8	8	22

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Slope + Riverine + Depressional

↓

Depressional

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?

D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).	points = 3	
☑ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	(points = 2)	2
☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 (No = 0)	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):		
Wetland has persistent, ungrazed, plants > 95% of area	(points = 5)	5
Wetland has persistent, ungrazed, plants > ½ of area	points = 3	
Wetland has persistent, ungrazed plants > $^1/_{10}$ of area	points = 1	
Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:		
This is the area that is ponded for at least 2 months. See description in manual.		
Area seasonally ponded is > ½ total area of wetland	points = 4	2
Area seasonally ponded is > ¼ total area of wetland	(points = 2)	
Area seasonally ponded is < ¼ total area of wetland	points = 0	
Total for D 1	Add the points in the boxes above	9

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?

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

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

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

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

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

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

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

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

D 4.1. Characteristics of surface water outflows from the wetland:

Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	(points = 2)	2
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☒ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	(points = 3)	3
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

☐ The area of the basin is less than 10 times the area of the unit	(points = 5)	5
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	

Total for D 4	Add the points in the boxes above	10

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

D 5.0 Does the landscape have the potential to support hydrologic function of the site?

D 5.1. Does the wetland unit receive stormwater discharges?	(Yes = 1) No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	(Yes = 1) No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	(Yes = 1) No = 0	1
Total for D 5	Add the points in the boxes above	03

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

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

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
☑ • Flooding occurs in a sub-basin that is immediately down-gradient of unit.	(points = 2)	2
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 (No = 0)	0
Total for D 6	Add the points in the boxes above	02

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

Wetland name or number

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- ☐ Aquatic bed
- ☒ Emergent
- ☒ Scrub-shrub (areas where shrubs have > 30% cover)
- ☒ Forested (areas where trees have > 30% cover)

If the unit has a Forested class, check if:

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

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

4

H 1.2. Hydroperiods

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

- ☒ Permanently flooded or inundated
- ☒ Seasonally flooded or inundated
- ☒ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☒ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

3

H 1.3. Richness of plant species

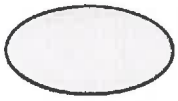
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

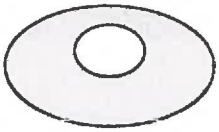
2

H 1.4. Interspersion of habitats

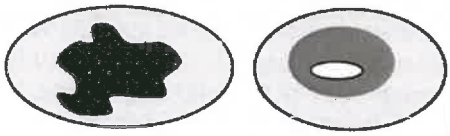
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points



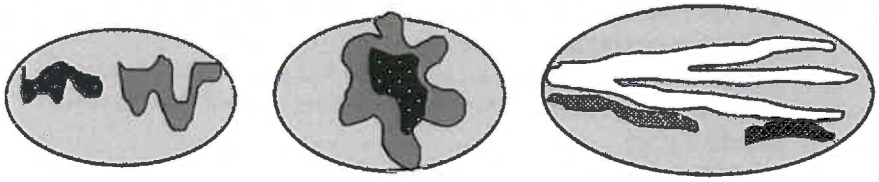
Low = 1 point



Moderate = 2 points

3

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



H 1.5. Special habitat features:
Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- [x] Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)
- [x] Standing snags (dbh > 4 in) within the wetland
- [ ] Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- [ ] Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
- [x] At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
- [ ] Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

3

Total for H 1 — Add the points in the boxes above: 0 15

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?

H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*).
Calculate:
10 % undisturbed habitat + (10 % moderate & low intensity land uses / 2) = 15

If total accessible habitat is:
- > 1/3 (33.3%) of 1 km Polygon — points = 3
- 20 - 33% of 1 km Polygon — points = 2
- 10 - 19% of 1 km Polygon — points = 1
- < 10 % of 1 km Polygon — points = 0

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.
Calculate:
10 % undisturbed habitat + (10 % moderate & low intensity land uses / 2) =

- Undisturbed habitat > 50% of Polygon — points = 3
- Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2
- Undisturbed habitat 10 - 50% and > 3 patches — points = 1
- Undisturbed habitat < 10% of 1 km Polygon — points = 0

2

H 2.3 Land use intensity in 1 km Polygon: If
- > 50% of 1 km Polygon is high intensity land use — points = (-2)
- ≤ 50% of 1km Polygon is high intensity — points = 0

-2

Total for H 2 — Add the points in the boxes above: 1 0

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

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: — points = 2
- [x] It has 3 or more priority habitats within 100 m (see next page)
- [ ] It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- [ ] It is mapped as a location for an individual WDFW priority species
- [ ] It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- [ ] It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1
Site does not meet any of the criteria above — points = 0

2

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

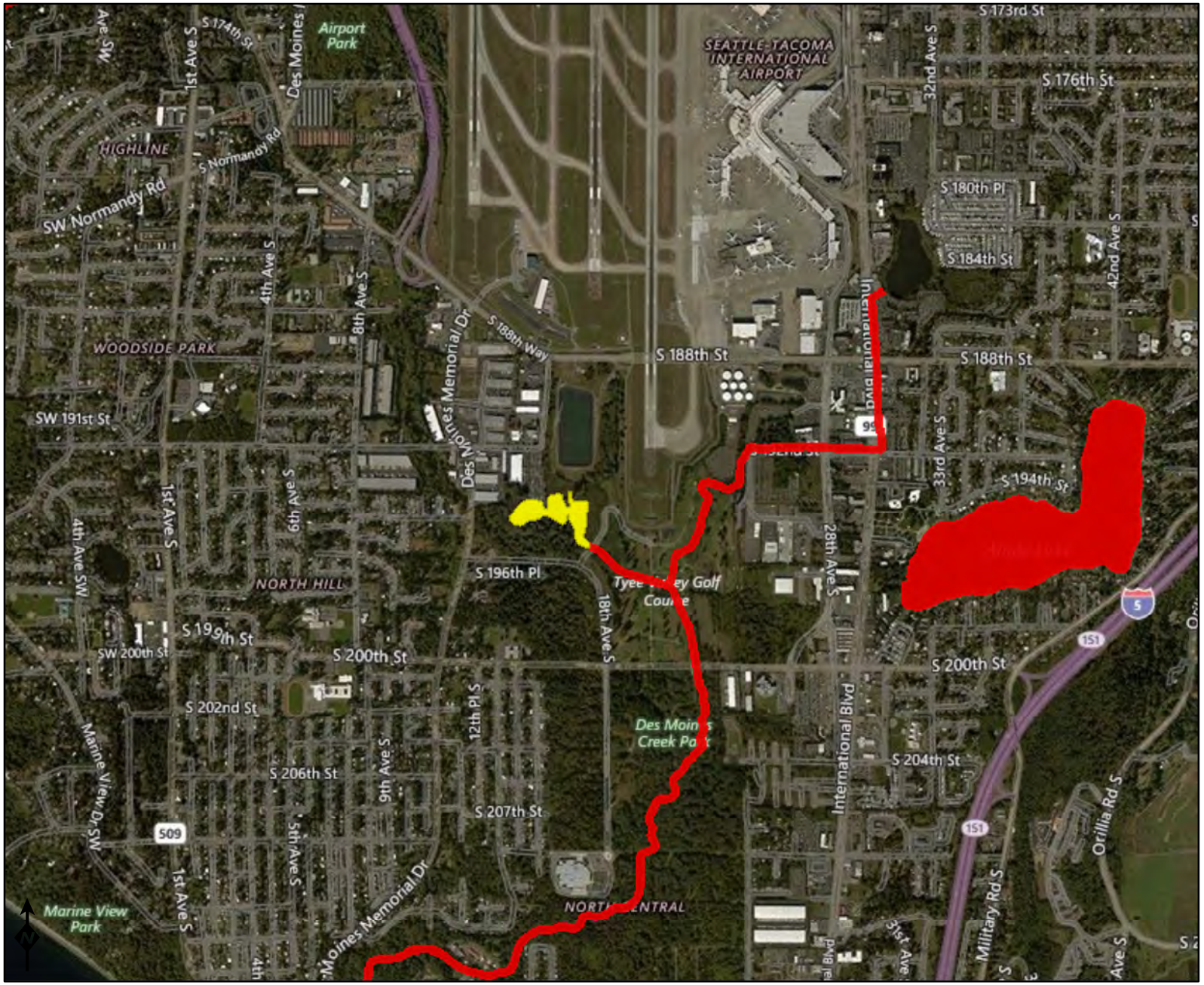
☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

August 9, 2016

Water Quality Atlas Map



Assessed Waters/Sediment

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

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

Miles
0 0.25 0.5 1

DEPARTMENT OF ECOLOGY
State of Washington

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

APPROXIMATE CONTRIBUTING BASIN

L2ST Seg. C 554-1521-151

0 230 460 920 Feet

Legend

- Approximate_Contributing_Basin
- Wetland A

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

COWARDIN PLANT CLASSES

L2ST Seg. C 554-1521-151

Legend

- Wetland A
- POW
- PSS
- PEM
- PFO
- Streams_WBDC
- Concentration_of_Flow

0 87.5 175 350 Feet

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 87.5 175 350 Feet

Legend

- Wetland A
- Perm. Flooded or Inundated
- Seasonally Flooded or Inundated
- Occasionally Flooded or Inundated
- Saturated Only
- Outlet
- Streams_WBDC
- Concentration_of_Flow

HYDROPERIODS

L2ST Seg. C 554-1521-151

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 750 1,500 3,000 Feet

Legend

- Wetland A
- A_150ft
- A_1km

1 KM AND 150 FT POLYGONS

L2ST Seg. C 554-1521-151

Wetland name or number

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 9/13/2016

Rated by Josh Wozniak Trained by Ecology? ☒ Yes ☐ No Date of training 9/2015

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☒ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	L	L	
Landscape Potential	M	M	L	
Value	H	H	L	**Total**
Score Based on Ratings	6	6	3	15

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SLOPE WETLANDS

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

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

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

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

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

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

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

SLOPE WETLANDS

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

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

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

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

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

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- ☐ Aquatic bed
- ☐ Emergent
- ☐ Scrub-shrub (areas where shrubs have > 30% cover)
- ☒ Forested (areas where trees have > 30% cover)

If the unit has a Forested class, check if:

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

4 structures or more: points = 4
3 structures: points = 2
(2 structures: points = 1)
1 structure: points = 0

1

H 1.2. Hydroperiods

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

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☒ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

4 or more types present: points = 3
3 types present: points = 2
(2 types present: points = 1)
1 types present: points = 0

1

H 1.3. Richness of plant species

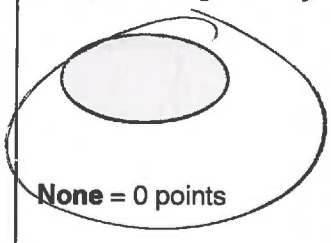
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

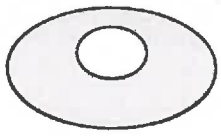
1

H 1.4. Interspersion of habitats

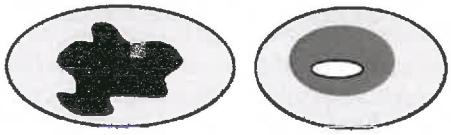
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points



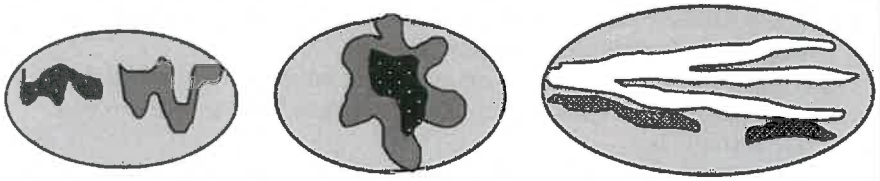
Low = 1 point



Moderate = 2 points

0

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



Wetland name or number 5

H 1.5 Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.*	
☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☒ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 — Add the points in the boxes above	50

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0.5 % undisturbed habitat + (2 % moderate & low intensity land uses / 2) = 1.5%	
If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 10 % undisturbed habitat + (6 % moderate & low intensity land uses / 2) = 13	
Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	0-1

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

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

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

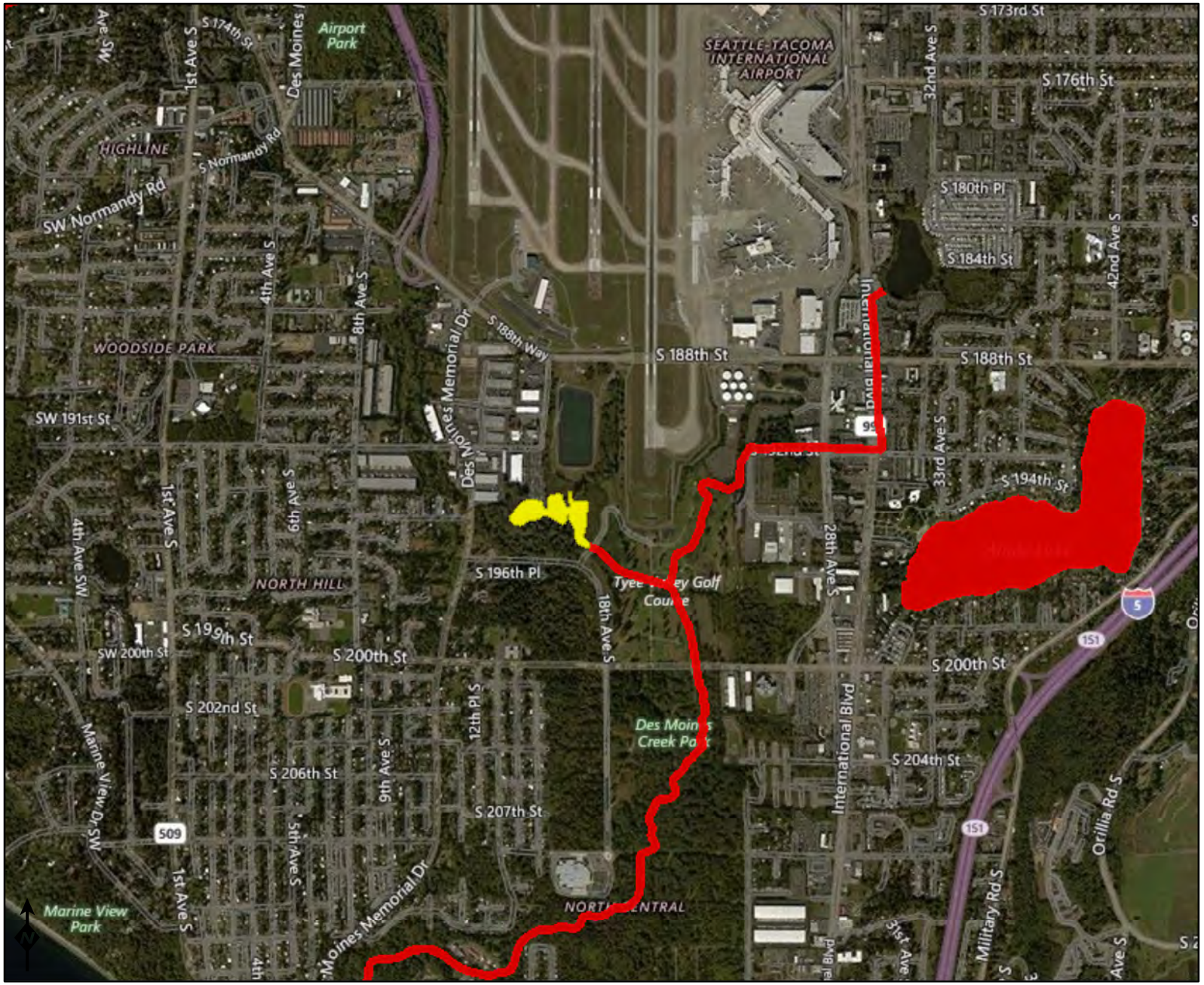
☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

August 9, 2016

Water Quality Atlas Map



Assessed Waters/Sediment

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

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

Miles
0 0.25 0.5 1

DEPARTMENT OF ECOLOGY
State of Washington

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 15 30 60 Feet

Legend

- Wetland B
- PFO
- PSS
- PEM
- POW

COWARDIN PLANT CLASSES

L2ST Seg. C 554-1521-151

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

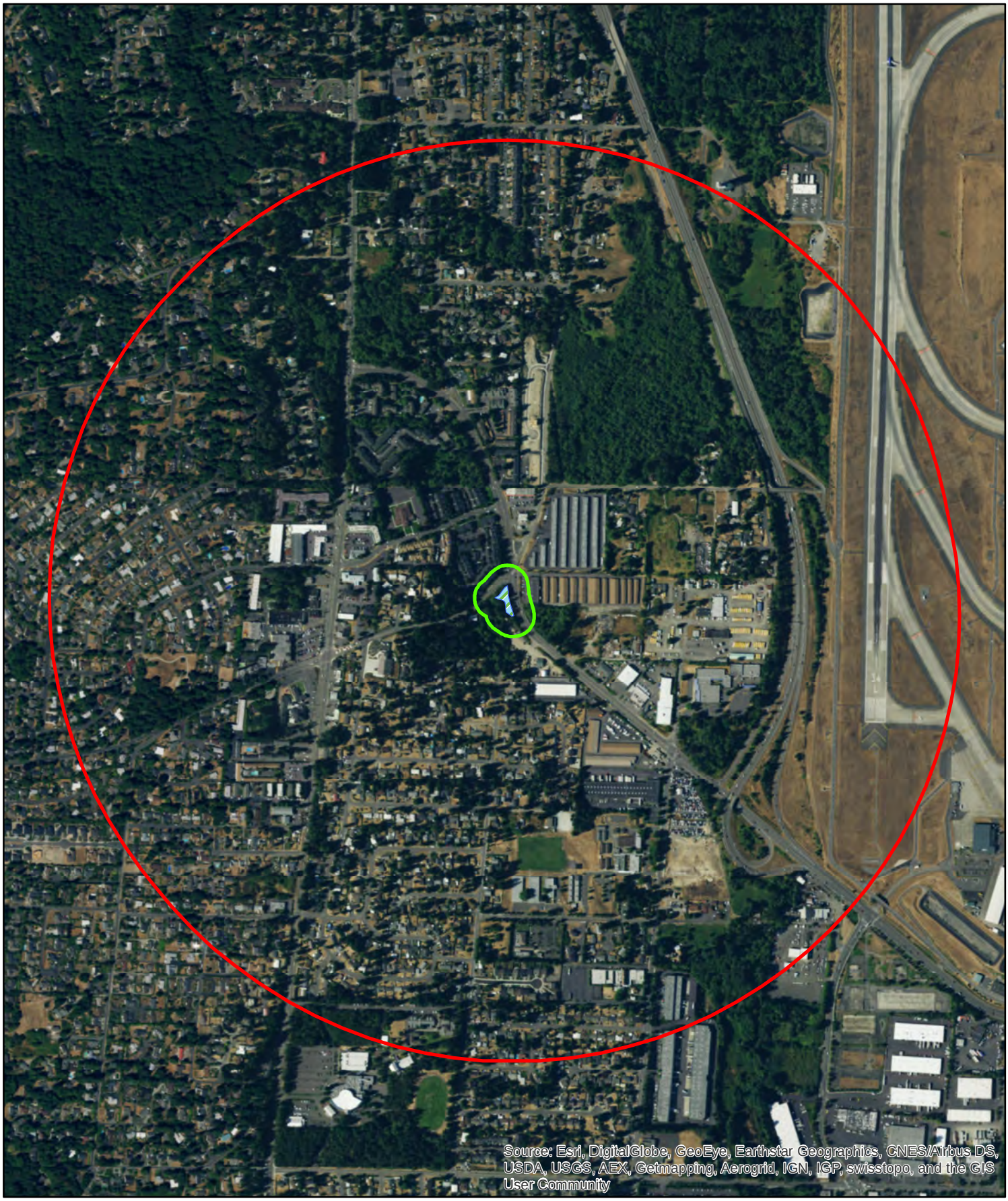
0 15 30 60 Feet

Legend

- Wetland B
- Perm. Flooded or Inundated
- Seasonally Flooded or Inundated
- Occasionally Flooded or Inundated
- Saturated Only
- Outlet

HYDROPERIODS

L2ST Seg. C 554-1521-151



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 650 1,300 2,600 Feet

Legend

- Wetland B
- B_150ft
- B_1km

1 KM AND 150 FT POLYGONS

L2ST Seg. C 554-1521-151

Wetland name or number

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C Date of site visit: 9/14/2016

Rated by Josh Wozniak Trained by Ecology? ☒ Yes ☐ No Date of training 9/2015

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☐ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY I (based on functions ☐ or special characteristics ☒)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	H	H	
Landscape Potential	M	H	L	
Value	H	H	H	Total
Score Based on Ratings	7	9	7	23

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	X
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 ☑ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. (points = 2) ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 (No = 0)	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area (points = 5) Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0		5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland (points = 0)		0
Total for D 1	Add the points in the boxes above	7 0

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	(Yes = 1) No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	(Yes = 1) No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 (No = 0)	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	(Yes = 1) No = 0	1
Total for D 2	Add the points in the boxes above	3 0

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

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

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

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

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

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

D 4.1. Characteristics of surface water outflows from the wetland:

- Wetland is a depression or flat depression with no surface water leaving it (no outlet) — points = 4
- ☑ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet — (points = 2) → 2
- Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch — points = 1
- Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing — points = 0

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

- Marks of ponding are 3 ft or more above the surface or bottom of outlet — points = 7
- Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet — points = 5
- ☒ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet — (points = 3) → 3
- ☐ The wetland is a "headwater" wetland — points = 3
- Wetland is flat but has small depressions on the surface that trap water — points = 1
- Marks of ponding less than 0.5 ft (6 in) — points = 0

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

- ☐ The area of the basin is less than 10 times the area of the unit — points = 5
- The area of the basin is 10 to 100 times the area of the unit — (points = 3) → 3
- The area of the basin is more than 100 times the area of the unit — points = 0
- ☐ Entire wetland is in the Flats class — points = 5

Total for D 4 — Add the points in the boxes above: 8

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

D 5.0. Does the landscape have the potential to support hydrologic function of the site?

D 5.1. Does the wetland unit receive stormwater discharges? (Yes = 1) No = 0 → 1

D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? (Yes = 1) No = 0 → 1

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? (Yes = 1) No = 0 → 1

Total for D 5 — Add the points in the boxes above: 3

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

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

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):

- ☑ • Flooding occurs in a sub-basin that is immediately down-gradient of unit. — (points = 2) → 2
- ☐ • Surface flooding problems are in a sub-basin farther down-gradient. — points = 1
- ☐ Flooding from groundwater is an issue in the sub-basin. — points = 1
- ☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why — points = 0
- ☐ There are no problems with flooding downstream of the wetland. — points = 0

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 (No = 0) → 0

Total for D 6 — Add the points in the boxes above: 2

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

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- [x] Aquatic bed
- [ ] Emergent
- [x] Scrub-shrub (areas where shrubs have > 30% cover)
- [x] Forested (areas where trees have > 30% cover)

If the unit has a Forested class, check if:

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

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

4

H 1.2. Hydroperiods

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

- [x] Permanently flooded or inundated
- [x] Seasonally flooded or inundated
- [ ] Occasionally flooded or inundated
- [x] Saturated only
- [x] Permanently flowing stream or river in, or adjacent to, the wetland
- [ ] Seasonally flowing stream in, or adjacent to, the wetland
- [ ] **Lake Fringe wetland** **2 points**
- [ ] **Freshwater tidal wetland** **2 points**

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

3

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

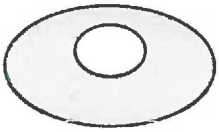
If you counted:
- > 19 species — points = 2
- 5 - 19 species — points = 1
- < 5 species — points = 0

2

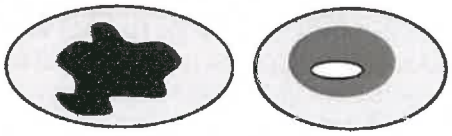
H 1.4. Interspersion of habitats

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

None = 0 points



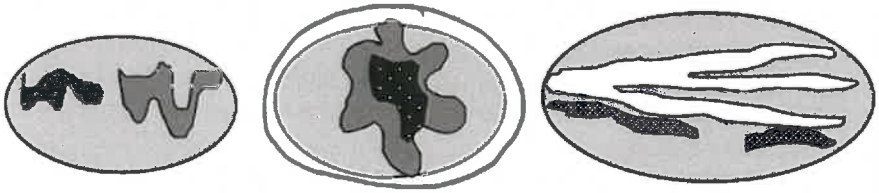
Low = 1 point



Moderate = 2 points

3

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



12

H 1.5. Special habitat features:
Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- [x] Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)
- [x] Standing snags (dbh > 4 in) within the wetland
- [x] Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- [ ] Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
- [x] At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
- [ ] Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

4

Total for H 1 — Add the points in the boxes above: 16 Q

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?

H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*).
Calculate:
4 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) =

If total accessible habitat is:

> 1/3 (33.3%) of 1 km Polygon	points = 3
20 - 33% of 1 km Polygon	points = 2
10 - 19% of 1 km Polygon	points = 1
< 10 % of 1 km Polygon	points = 0

0

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.
Calculate:
20 % undisturbed habitat + (10 % moderate & low intensity land uses / 2) = 25%

Undisturbed habitat > 50% of Polygon	points = 3
Undisturbed habitat 10 - 50% and in 1-3 patches	points = 2
Undisturbed habitat 10 - 50% and > 3 patches	points = 1
Undisturbed habitat < 10% of 1 km Polygon	points = 0

2

H 2.3 Land use intensity in 1 km Polygon: If

> 50% of 1 km Polygon is high intensity land use	points = (-2)
≤ 50% of 1km Polygon is high intensity	points = 0

-2

Total for H 2 — Add the points in the boxes above: 0.0

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

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: points = 2

- [x] It has 3 or more priority habitats within 100 m (see next page)
- [ ] It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- [ ] It is mapped as a location for an individual WDFW priority species
- [ ] It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- [ ] It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) with in 100m	points = 1
Site does not meet any of the criteria above	points = 0

2

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☒ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

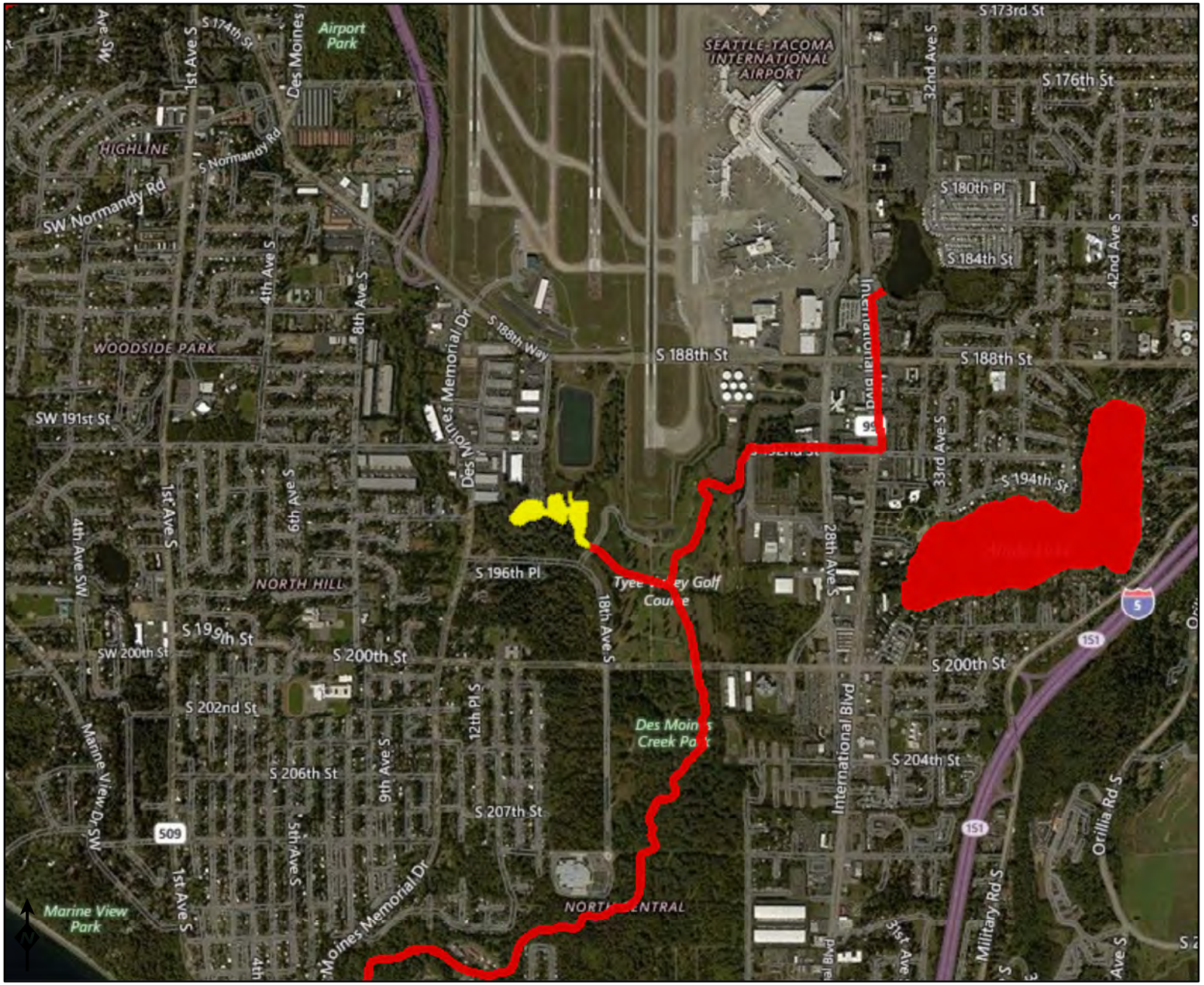
☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

August 9, 2016

Water Quality Atlas Map



Assessed Waters/Sediment

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

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

Miles
0 0.25 0.5 1

DEPARTMENT OF ECOLOGY
State of Washington

Parametrix
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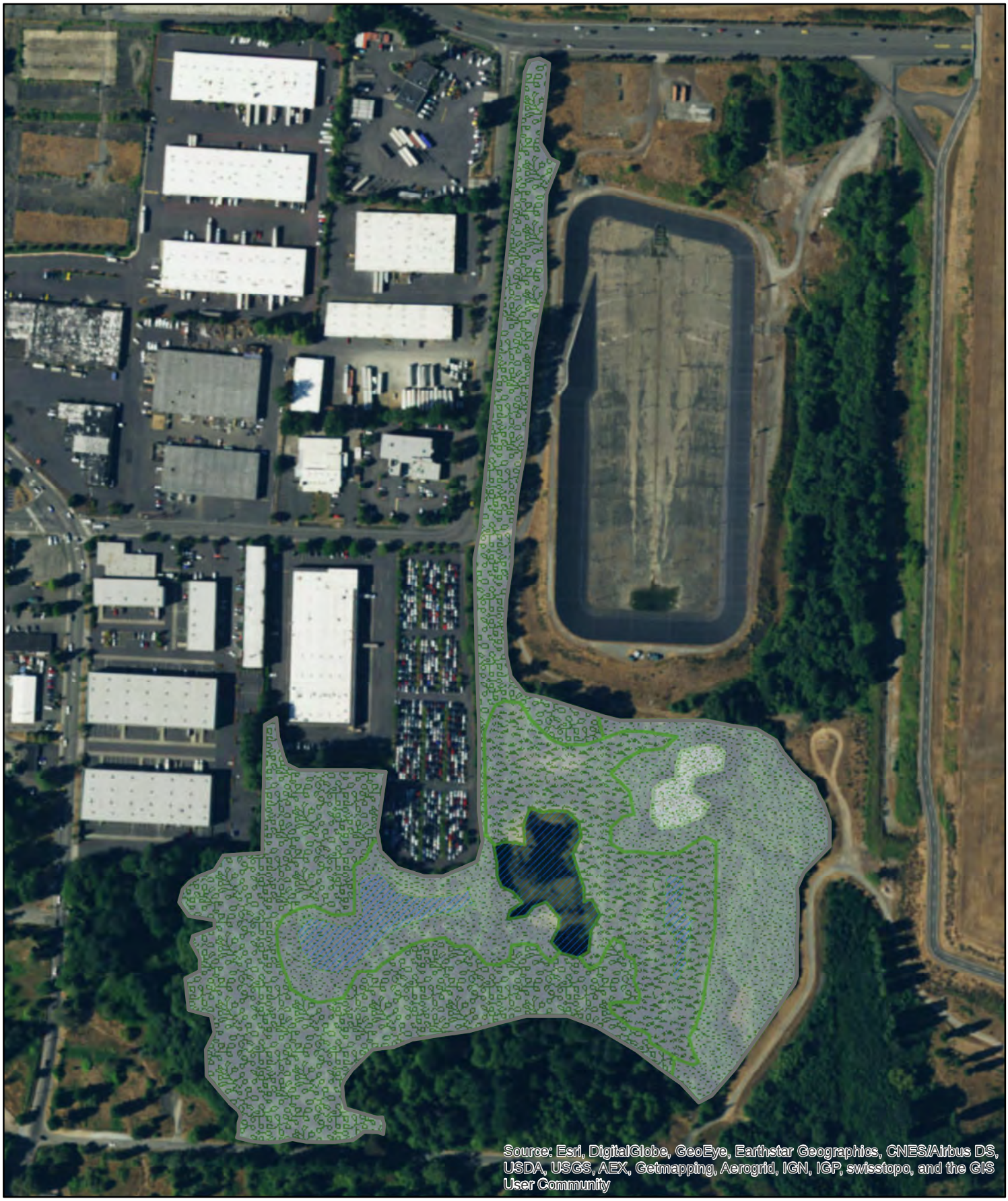
APPROXIMATE CONTRIBUTING BASIN

L2ST Seg. C 554-1521-151

0 500 1,000 2,000 Feet

Legend

- Approximate_Contributing_Basin
- Wetland A
- Wetland C



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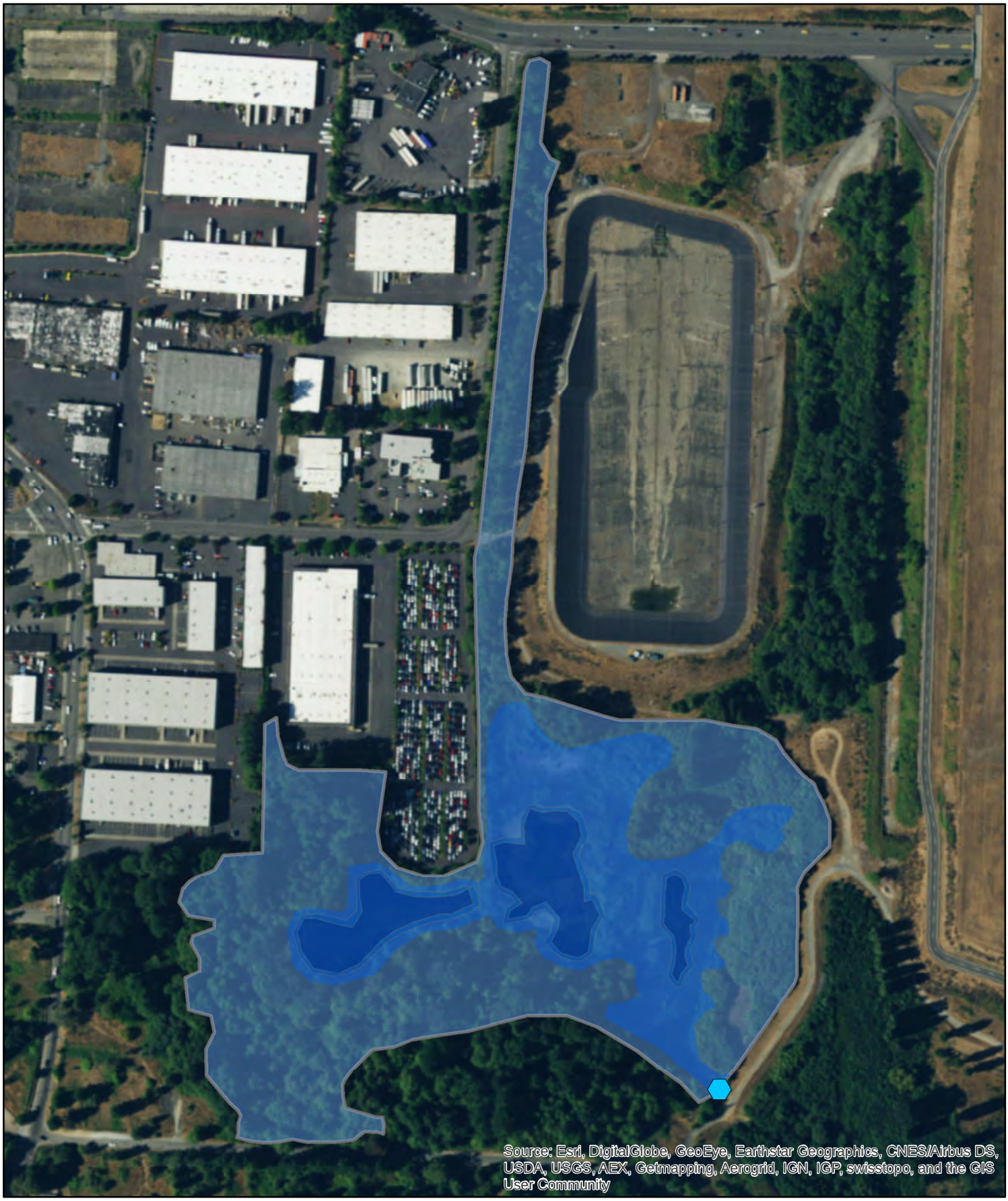
0 225 450 900 Feet

Legend

- Wetland C
- PFO
- PSS
- PEM
- POW

COWARDIN PLANT CLASSES

L2ST Seg. C 554-1521-151



Parametrix
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0 225 450 900 Feet

Legend

- Wetland C
- Perm. Flooded or Inundated
- Seasonally Flooded or Inundated
- Occasionally Flooded or Inundated
- Saturated Only
- Outlet

HYDROPERIODS

L2ST Seg. C 554-1521-151

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Feet
0 800 1,600 3,200

Legend

- Wetland C
- C_150ft
- C_1km

1 KM AND 150 FT POLYGONS

L2ST Seg. C 554-1521-151

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland D Date of site visit: 9/14/2016

Rated by Josh Wozniak Trained by Ecology? ☒ Yes ☐ No Date of training 9/2015

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☒ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map _____

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

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	L	
Landscape Potential	M	M	M	
Value	H	H	L	**Total**
Score Based on Ratings	7	6	4	17

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).	points = 3	
☒ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	points = 2	2
☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 (No = 0)	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):		
Wetland has persistent, ungrazed, plants > 95% of area	(points = 5)	5
Wetland has persistent, ungrazed, plants > ½ of area	points = 3	
Wetland has persistent, ungrazed plants > $^1/_{10}$ of area	points = 1	
Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:		
This is the area that is ponded for at least 2 months. See description in manual.		
Area seasonally ponded is > ½ total area of wetland	points = 4	0
Area seasonally ponded is > ¼ total area of wetland	points = 2	
Area seasonally ponded is < ¼ total area of wetland	(points = 0)	
Total for D 1	Add the points in the boxes above	7 0

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

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

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

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

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

DEPRESSIONAL AND FLATS WETLANDS

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

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

D 4.1. Characteristics of surface water outflows from the wetland:

- Wetland is a depression or flat depression with no surface water leaving it (no outlet) — points = 4
- Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet — (points = 2) **2**
- Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch — points = 1
- Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing — points = 0

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

- Marks of ponding are 3 ft or more above the surface or bottom of outlet — points = 7
- Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet — points = 5
- ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet — points = 3
- ☐ The wetland is a "headwater" wetland — points = 3
- Wetland is flat but has small depressions on the surface that trap water — points = 1
- ☑ Marks of ponding less than 0.5 ft (6 in) — points = 0 **0**

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

- ☐ The area of the basin is less than 10 times the area of the unit — points = 5
- ☑ The area of the basin is 10 to 100 times the area of the unit — (points = 3) **3**
- The area of the basin is more than 100 times the area of the unit — points = 0
- ☐ Entire wetland is in the Flats class — points = 5

Total for D 4 — Add the points in the boxes above: **0 5**

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

D 5.0. Does the landscape have the potential to support hydrologic function of the site?

D 5.1. Does the wetland unit receive stormwater discharges? Yes = 1 (No = 0) **0**

D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? (Yes = 1) No = 0 **1**

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 (No = 0) **0**

Total for D 5 — Add the points in the boxes above: **0 1**

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

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

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):

- ☑ • Flooding occurs in a sub-basin that is immediately down-gradient of unit. — (points = 2) **2**
- ☐ • Surface flooding problems are in a sub-basin farther down-gradient. — points = 1
- ☐ Flooding from groundwater is an issue in the sub-basin. — points = 1
- ☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why — points = 0
- ☐ There are no problems with flooding downstream of the wetland. — points = 0

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 (No = 0) **0**

Total for D 6 — Add the points in the boxes above: **0**

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

Wetland name or number

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- ☐ Aquatic bed
- ☒ Emergent
- ☐ Scrub-shrub (areas where shrubs have > 30% cover)
- ☐ Forested (areas where trees have > 30% cover)

If the unit has a Forested class, check if:

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

4 structures or more: points = 4
3 structures: points = 2
2 structures: points = 1
1 structure: points = 0

0

H 1.2. Hydroperiods

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

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

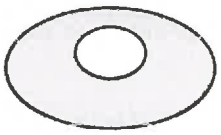
If you counted:
- > 19 species — points = 2
- 5 - 19 species — points = 1
- < 5 species — points = 0

1

H 1.4. Interspersion of habitats

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

None = 0 points

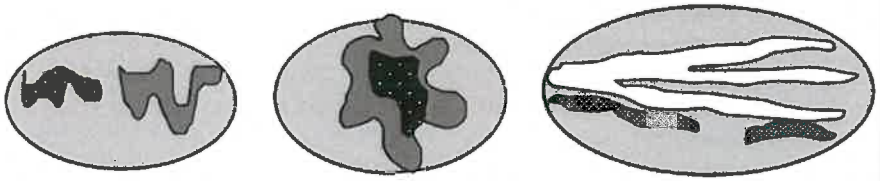


Low = 1 point

Moderate = 2 points

0

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



H 1.5. Special habitat features:
Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)
- ☐ Standing snags (dbh > 4 in) within the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
- ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

0

Total for H 1 — Add the points in the boxes above: 1 0

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?

H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*).
Calculate:
1 % undisturbed habitat + (5 % moderate & low intensity land uses / 2) = 3.5%

If total accessible habitat is:

> 1/3 (33.3%) of 1 km Polygon	points = 3
20 - 33% of 1 km Polygon	points = 2
10 - 19% of 1 km Polygon	points = 1
< 10 % of 1 km Polygon	points = 0

0

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.
Calculate:
30 % undisturbed habitat + (25 % moderate & low intensity land uses / 2) = 42.5%

Undisturbed habitat > 50% of Polygon	points = 3
Undisturbed habitat 10 - 50% and in 1-3 patches	points = 2
Undisturbed habitat 10 - 50% and > 3 patches	points = 1
Undisturbed habitat < 10% of 1 km Polygon	points = 0

2

H 2.3 Land use intensity in 1 km Polygon: If

> 50% of 1 km Polygon is high intensity land use	points = (-2)
≤ 50% of 1km Polygon is high intensity	points = 0

0

Total for H 2 — Add the points in the boxes above: 0 2

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

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: points = 2

- ☐ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) with in 100m: points = 1
Site does not meet any of the criteria above: points = 0

0

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

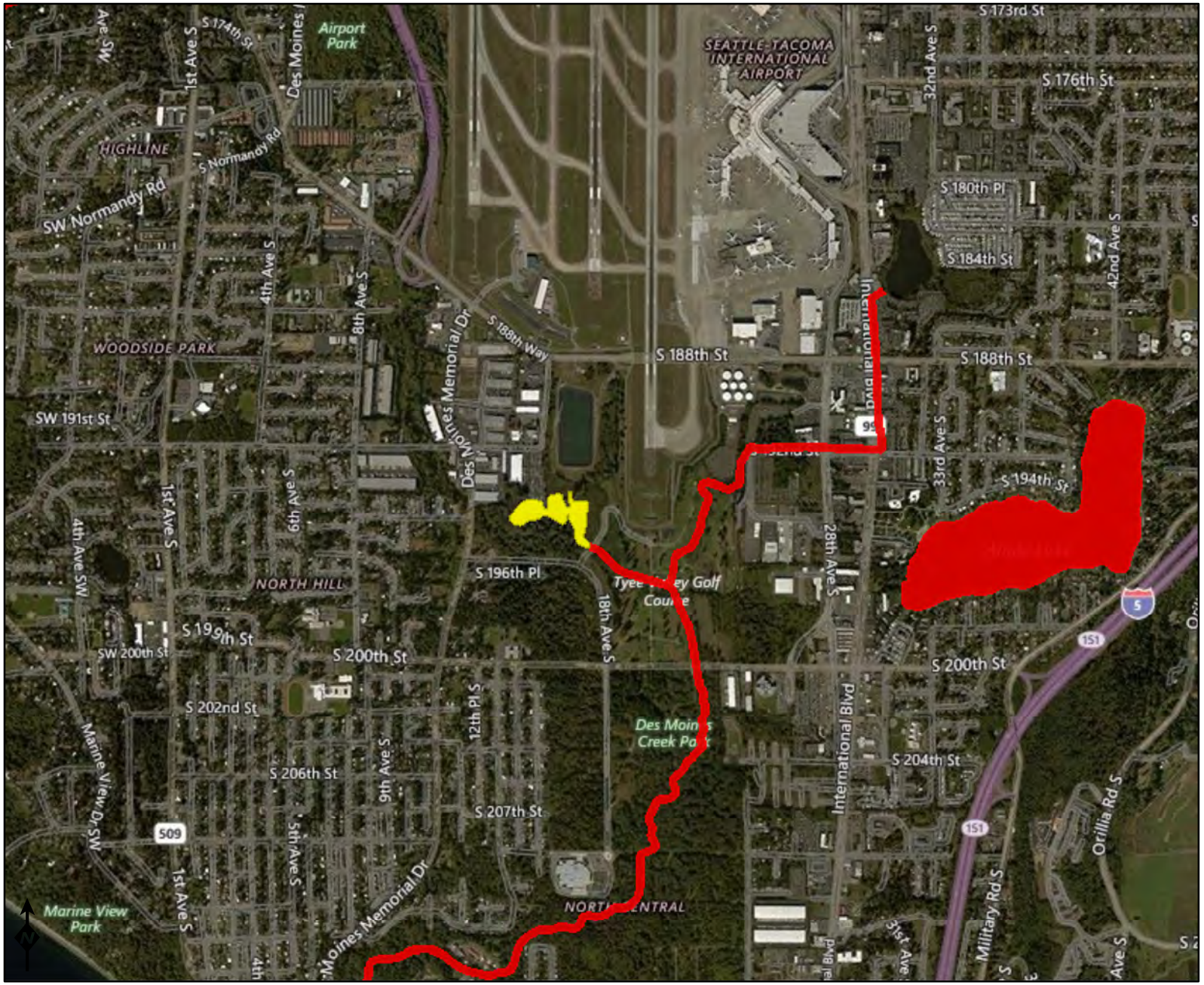
☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

August 9, 2016

Water Quality Atlas Map



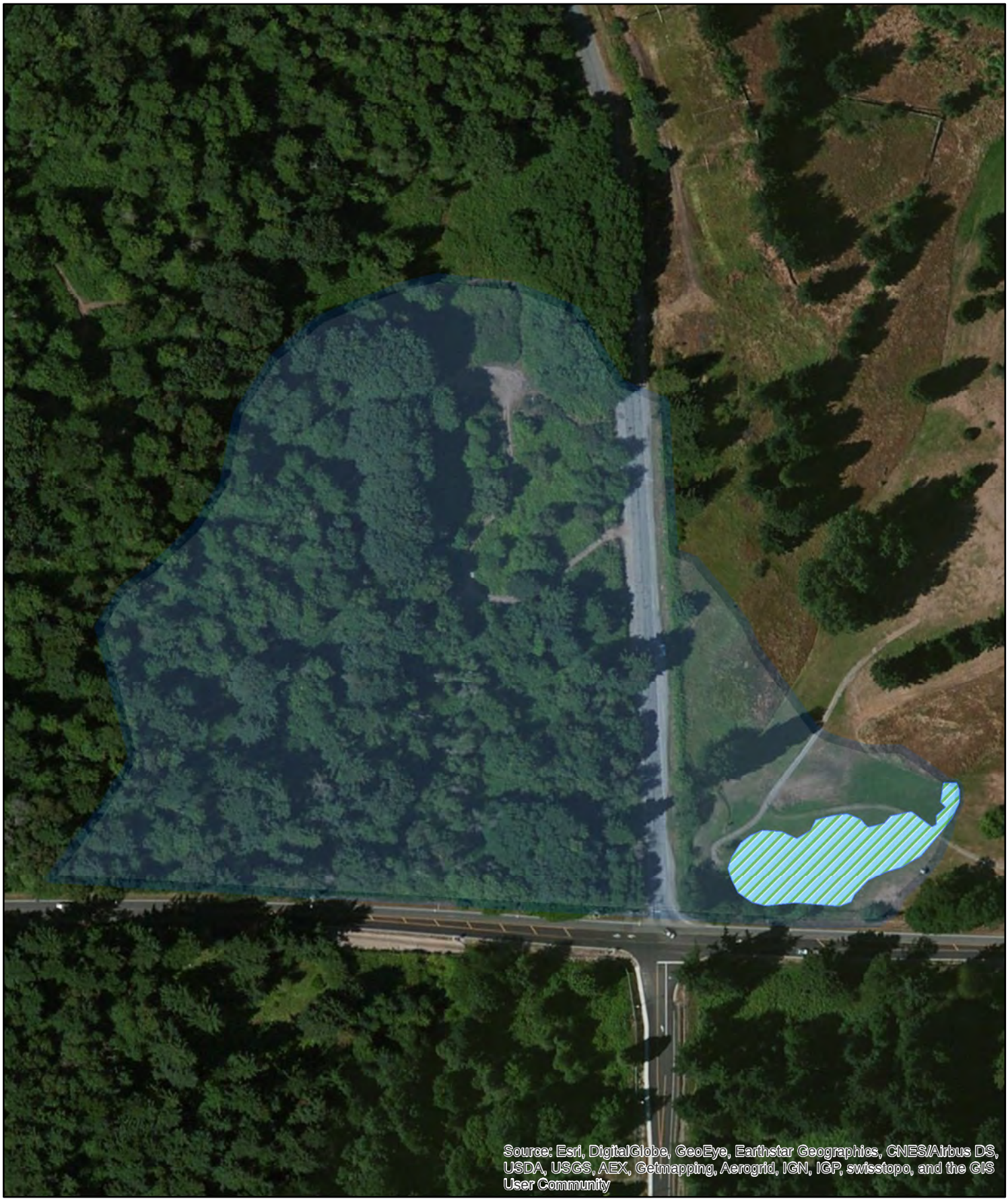
Assessed Waters/Sediment

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

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

Miles
0 0.25 0.5 1

DEPARTMENT OF ECOLOGY
State of Washington



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

APPROXIMATE CONTRIBUTING BASIN

L2ST Seg. C 554-1521-151

0 112.5 225 450 Feet

Legend

- Approximate_Contributing_Basin
- Wetland D

Parametrix
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0 25 50 100 Feet

Legend

- Wetland D
- PFO
- PSS
- PEM
- POW

COWARDIN PLANT CLASSES

L2ST Seg. C 554-1521-151

Parametrix
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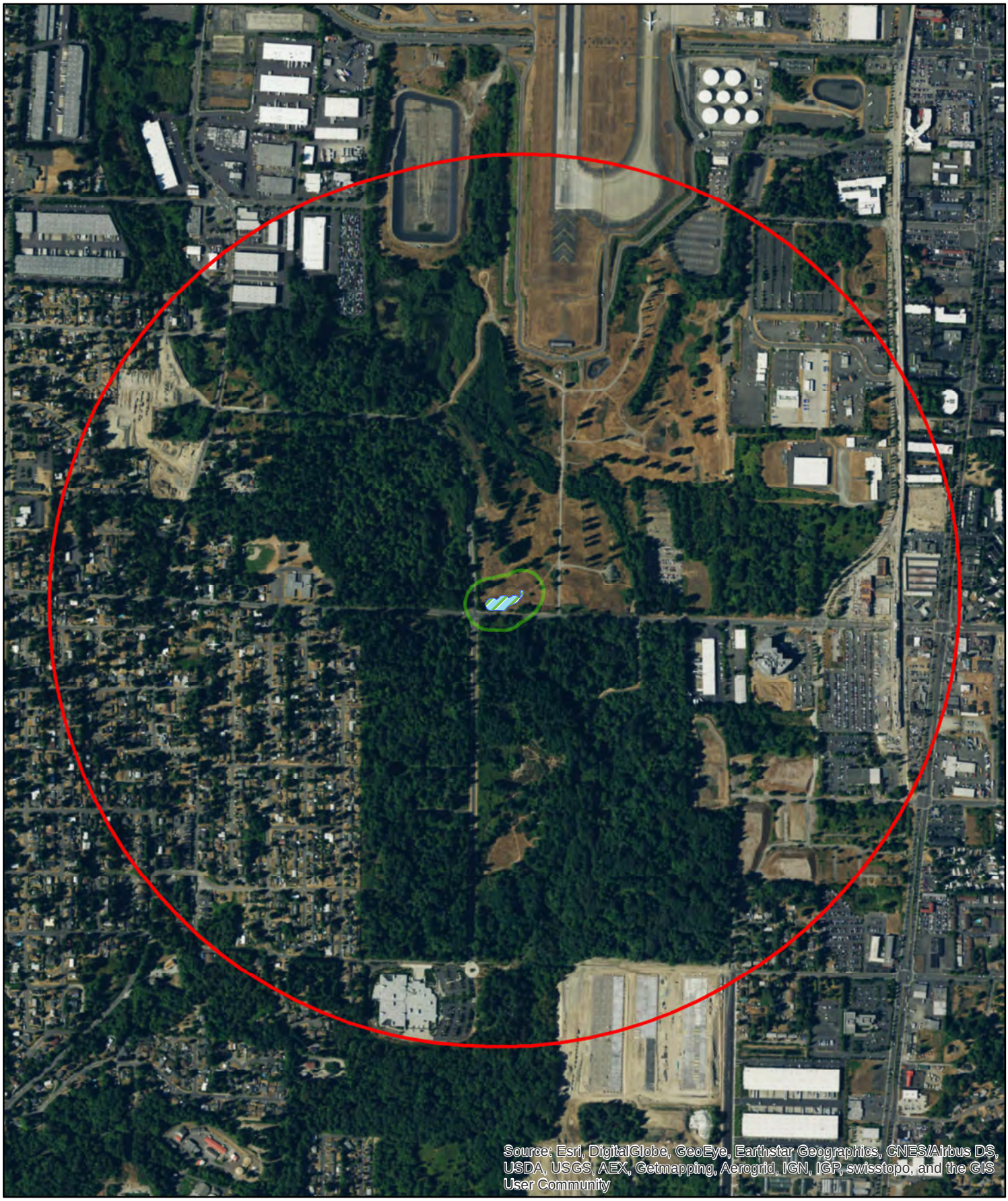
0 25 50 100 Feet

Legend

- Wetland D
- Perm. Flooded or Inundated
- Seasonally Flooded or Inundated
- Occasionally Flooded or Inundated
- Saturated Only
- Outlet

HYDROPERIODS

L2ST Seg. C 554-1521-151



Parametrix
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Legend

- Wetland D
- D_150ft
- D_1km

1 KM AND 150 FT POLYGONS

L2ST Seg. C 554-1521-151

0 650 1,300 2,600 Feet

Wetland name or number

RATING SUMMARY – Western Washington

Name of **wetland** (or ID #): Wetland E Date of site visit: 9/15/2016

Rated by Josh Wozniak Trained by Ecology? ☒ Yes ☐ No Date of training 09/2015

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☐ Yes ☒ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY II (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	M	M	M	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	7	21

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).	points = 3	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	(points = 2)	2
☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 (No = 0)	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):		
Wetland has persistent, ungrazed, plants > 95% of area	(points = 5)	5
Wetland has persistent, ungrazed, plants > ½ of area	points = 3	
Wetland has persistent, ungrazed plants > $^1/_{10}$ of area	points = 1	
Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:		
This is the area that is ponded for at least 2 months. See description in manual.		
Area seasonally ponded is > ½ total area of wetland	points = 4	0
Area seasonally ponded is > ¼ total area of wetland	points = 2	
Area seasonally ponded is < ¼ total area of wetland	(points = 0)	
Total for D 1	Add the points in the boxes above	07

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 (No = 0)	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	(Yes = 1) No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 (No = 0)	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	(Yes = 1) No = 0	1
Total for D 2	Add the points in the boxes above	02

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

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

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

DEPRESSIONAL AND FLATS WETLANDS

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

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

D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	2
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	7
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	0
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	09

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

D 5.0. Does the landscape have the potential to support hydrologic function of the site?

D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	01

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

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

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☒ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	2
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	02

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

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- ☐ Aquatic bed
- ☒ Emergent
- ☒ Scrub-shrub (areas where shrubs have > 30% cover)
- ☒ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

If the unit has a Forested class, check if:

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

2

H 1.2. Hydroperiods

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

- ☐ Permanently flooded or inundated
- ☒ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

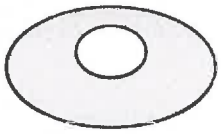
If you counted:
> 19 species — points = 2
5 - 19 species — points = 1
< 5 species — points = 0

1

H 1.4. Interspersion of habitats

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

None = 0 points



Low = 1 point

Moderate = 2 points

2

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

7

H 1.5. Special habitat features:
Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)
- ☐ Standing snags (dbh > 4 in) within the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
- ☒ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

1

Total for H 1 — Add the points in the boxes above: ~~0~~ 7

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?

H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*).
Calculate:
13 % undisturbed habitat + (5 % moderate & low intensity land uses / 2) = 15.5

If total accessible habitat is:

- > 1/3 (33.3%) of 1 km Polygon — points = 3
- 20 - 33% of 1 km Polygon — points = 2
- 10 - 19% of 1 km Polygon — points = 1
- < 10 % of 1 km Polygon — points = 0

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.
Calculate:
25 % undisturbed habitat + (30 % moderate & low intensity land uses / 2) = 40.

Undisturbed habitat > 50% of Polygon — points = 3
Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2
Undisturbed habitat 10 - 50% and > 3 patches — points = 1
Undisturbed habitat < 10% of 1 km Polygon — points = 0

1

H 2.3 Land use intensity in 1 km Polygon: If
> 50% of 1 km Polygon is high intensity land use — points = (-2)
≤ 50% of 1km Polygon is high intensity — points = 0

0

Total for H 2 — Add the points in the boxes above: 02

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

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: — points = 2

- ☒ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1
Site does not meet any of the criteria above — points = 0

2

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

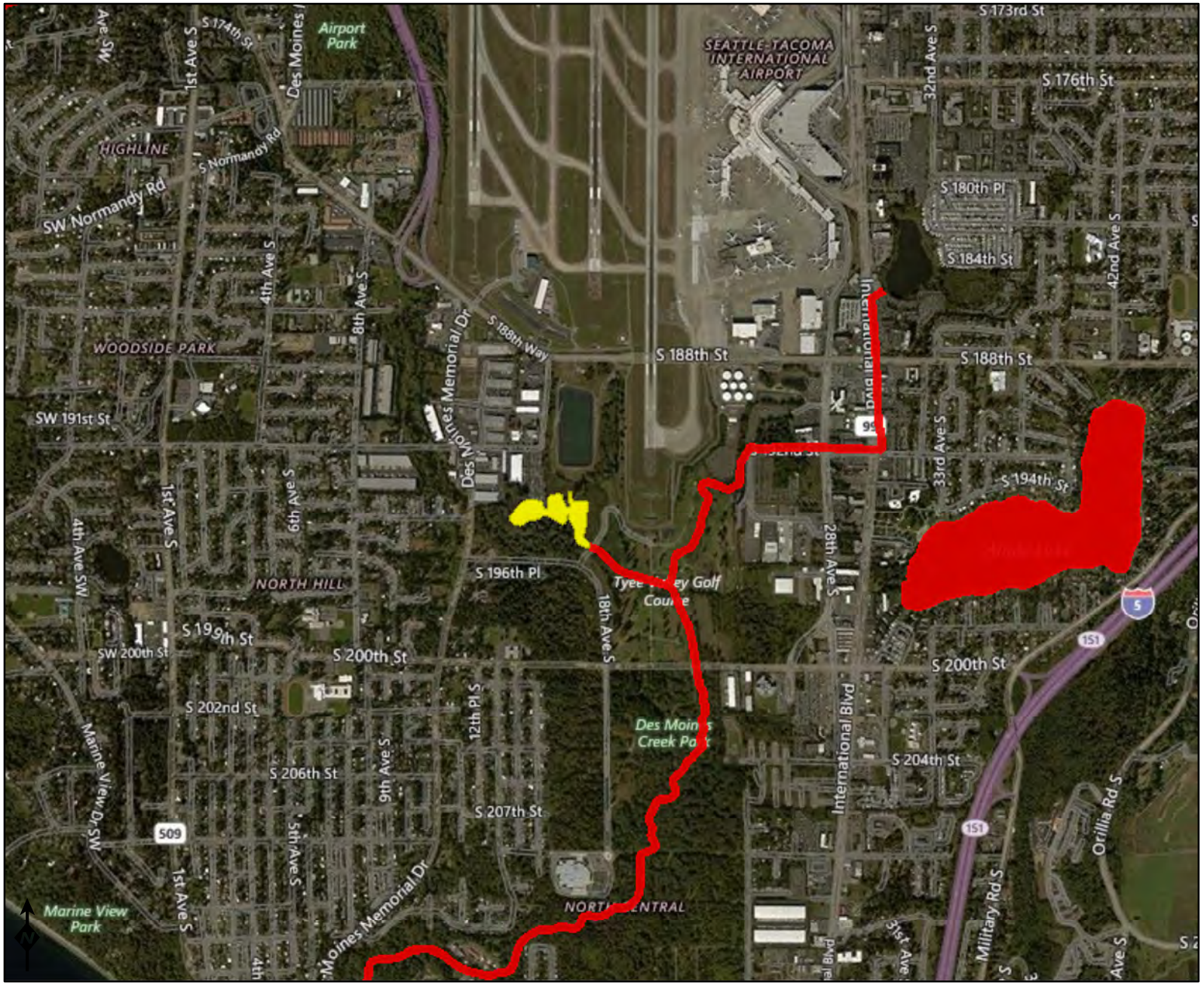
☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

August 9, 2016

Water Quality Atlas Map



Assessed Waters/Sediment

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

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

Miles
0 0.25 0.5 1

DEPARTMENT OF ECOLOGY
State of Washington

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

APPROXIMATE CONTRIBUTING BASIN

L2ST Seg. C 554-1521-151

0 190 380 760 Feet

Legend

- Approximate_Contributing_Basin
- Wetland D
- Wetland E

Parametrix
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0 30 60 120 Feet

Legend

- Wetland E
- PFO
- PSS
- PEM
- POW

COWARDIN PLANT CLASSES

L2ST Seg. C 554-1521-151

Parametrix
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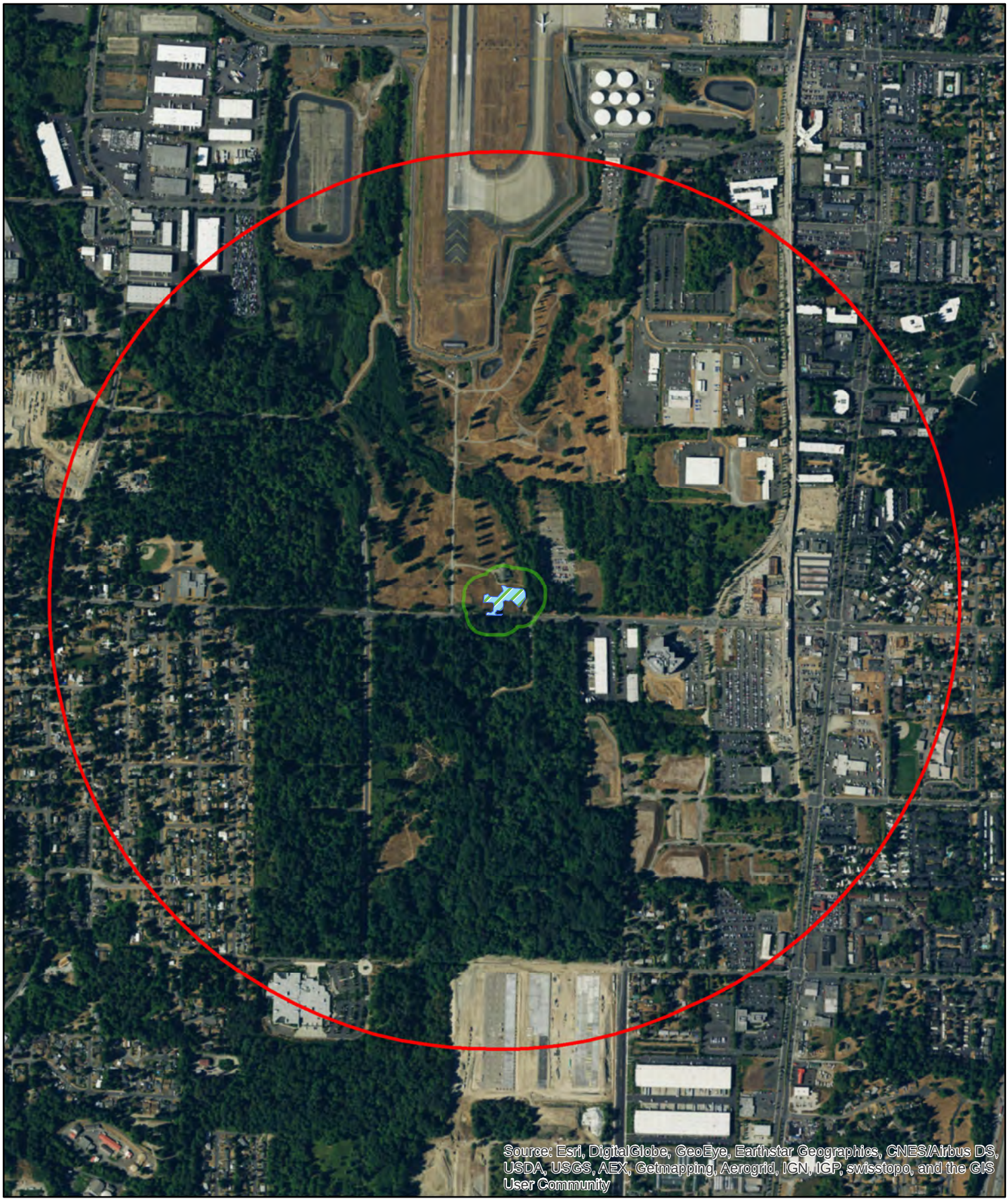
0 30 60 120 Feet

Legend

- Wetland E
- Perm. Flooded or Inundated
- Seasonally Flooded or Inundated
- Occasionally Flooded or Inundated
- Saturated Only
- Outlet

HYDROPERIODS

L2ST Seg. C 554-1521-151



Parametrix
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Legend

- Wetland E
- E_150ft
- E_1km

1 KM AND 150 FT POLYGONS

L2ST Seg. C 554-1521-151

0 650 1,300 2,600 Feet

Wetland name or number

L25T - F

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland F Date of site visit: 10/18/2016

Rated by Josh Wozniak Trained by Ecology? ☒ Yes ☐ No Date of training 9/2015

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☒ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions ☐ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

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

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

X **Category III** - Total score = 16 - 19

_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	L	L	
Landscape Potential	L	L	M	
Value	M	M	L	**Total**
Score Based on Ratings	4	4	4	12

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SLOPE WETLANDS

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

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

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

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

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

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

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

SLOPE WETLANDS

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

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

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

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

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

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	0

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

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

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

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

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- ☐ Aquatic bed
- ☐ Emergent
- ☐ Scrub-shrub (areas where shrubs have > 30% cover)
- ☒ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

If the unit has a Forested class, check if:

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

1

H 1.2. Hydroperiods

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

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

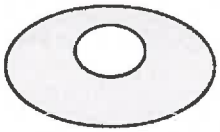
If you counted:
- > 19 species — points = 2
- 5 - 19 species — points = 1
- < 5 species — points = 0

0

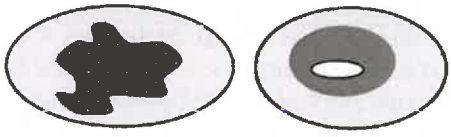
H 1.4. Interspersion of habitats

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

None = 0 points



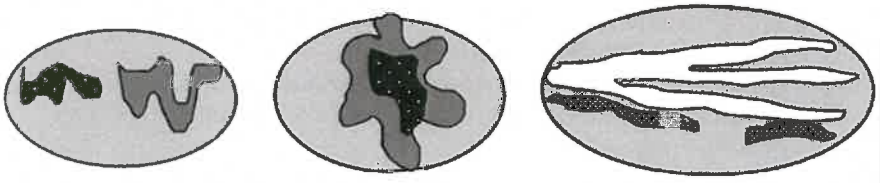
Low = 1 point



Moderate = 2 points

0

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



Wetland name or number

H 1.5. Special habitat features:
Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)
- ☐ Standing snags (dbh > 4 in) within the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
- ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
- ☒ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*) — 1

Total for H 1 — Add the points in the boxes above: 02

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?

H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*).
Calculate:
7 % undisturbed habitat + (0.1 / 5 % moderate & low intensity land uses / 2) = 7.1%

If total accessible habitat is:
- > 1/3 (33.3%) of 1 km Polygon — points = 3
- 20 - 33% of 1 km Polygon — points = 2
- 10 - 19% of 1 km Polygon — points = 1
- < 10 % of 1 km Polygon — points = 0 — 0

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.
Calculate:
36 % undisturbed habitat + (15 % moderate & low intensity land uses / 2) = 43.5%
7.5%

- Undisturbed habitat > 50% of Polygon — points = 3
- Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2
- Undisturbed habitat 10 - 50% and > 3 patches — points = 1 — 1
- Undisturbed habitat < 10% of 1 km Polygon — points = 0

42 73 55 55

H 2.3 Land use intensity in 1 km Polygon: If
- > 50% of 1 km Polygon is high intensity land use — points = (-2)
- ≤ 50% of 1km Polygon is high intensity — points = 0 — 0

Total for H 2 — Add the points in the boxes above: 01

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

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: — points = 2
- ☐ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan — 0

Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1
Site does not meet any of the criteria above — points = 0

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

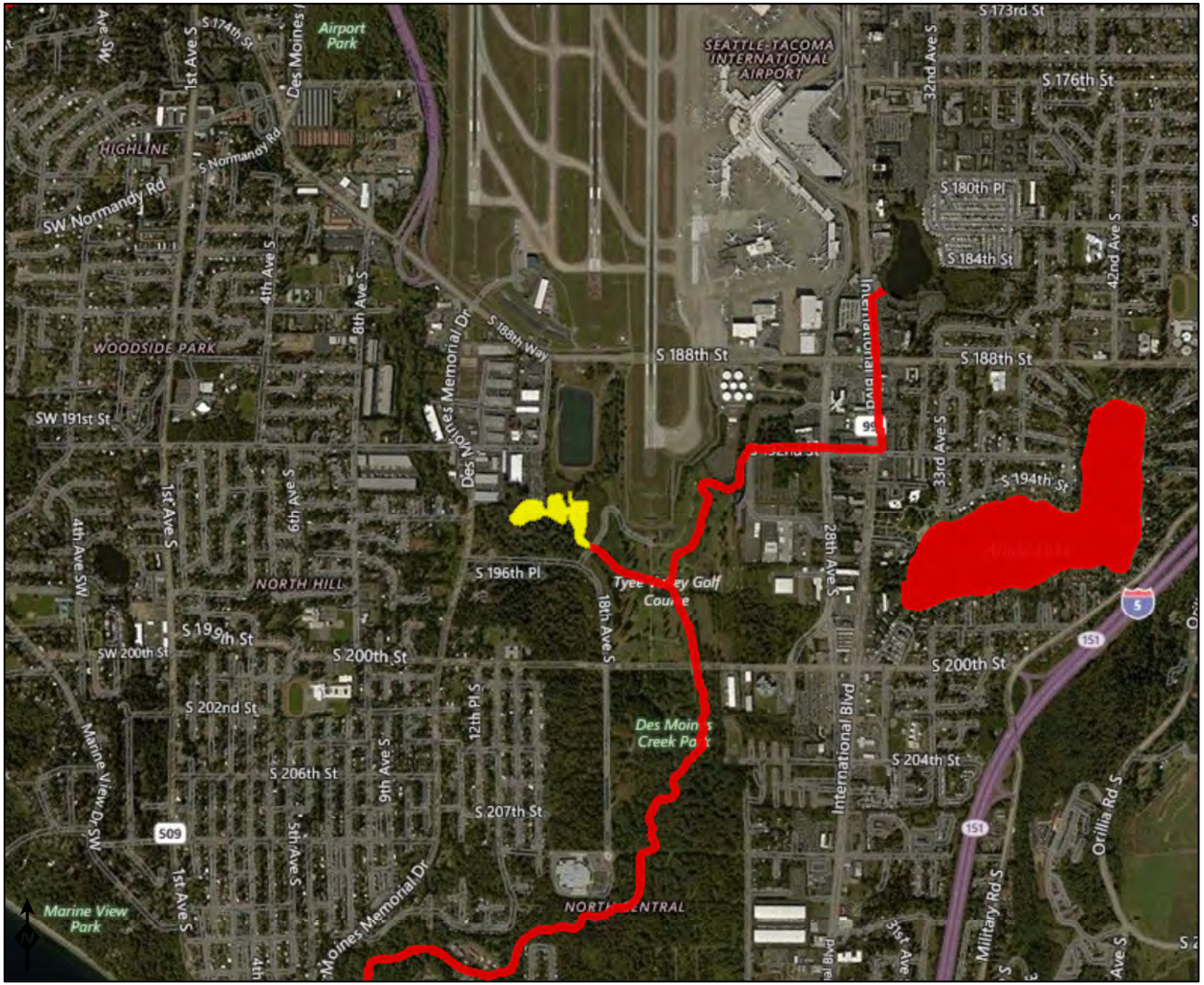
☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

August 9, 2016

Water Quality Atlas Map



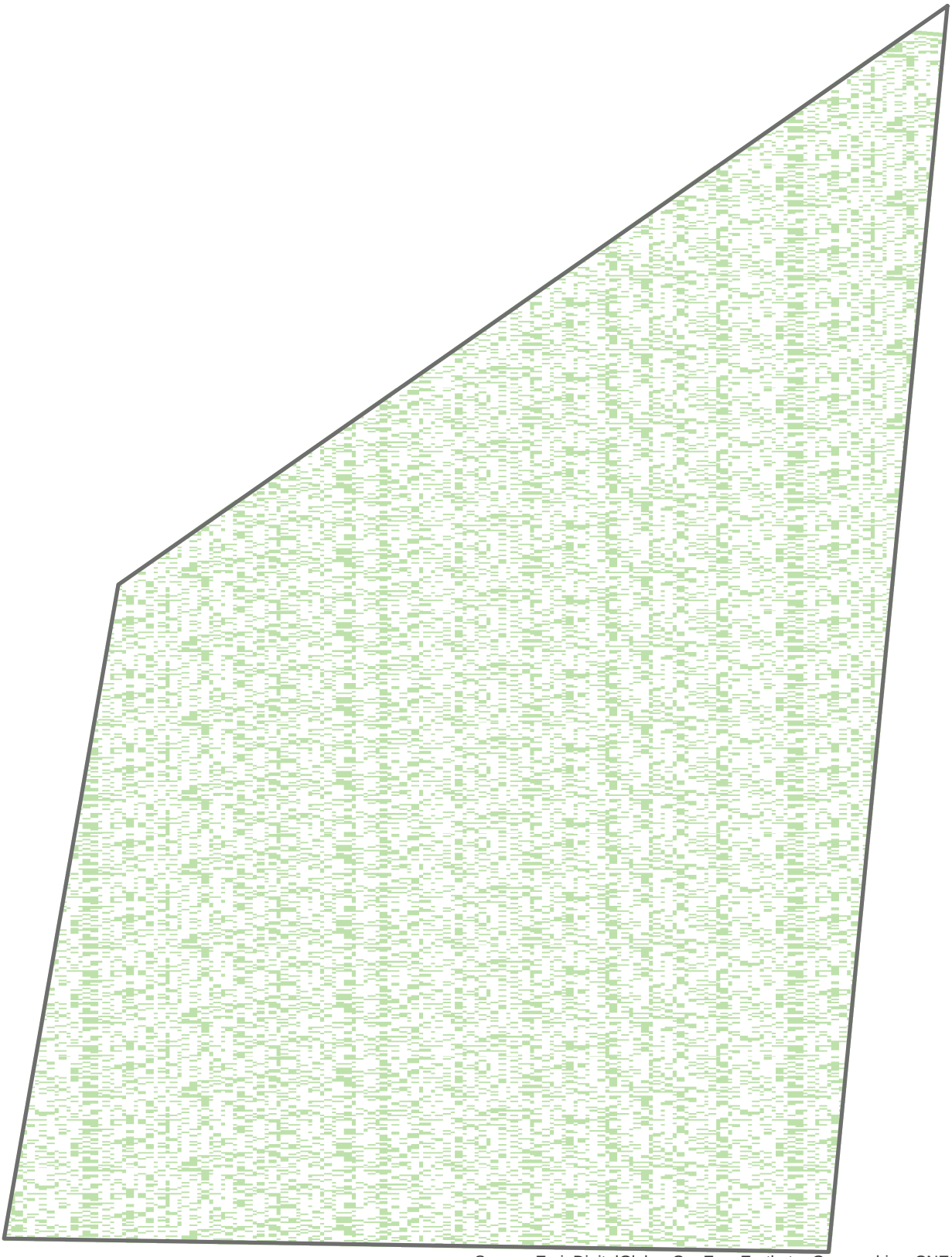
Assessed Waters/Sediment

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

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

Miles
0 0.25 0.5 1

DEPARTMENT OF ECOLOGY
State of Washington



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

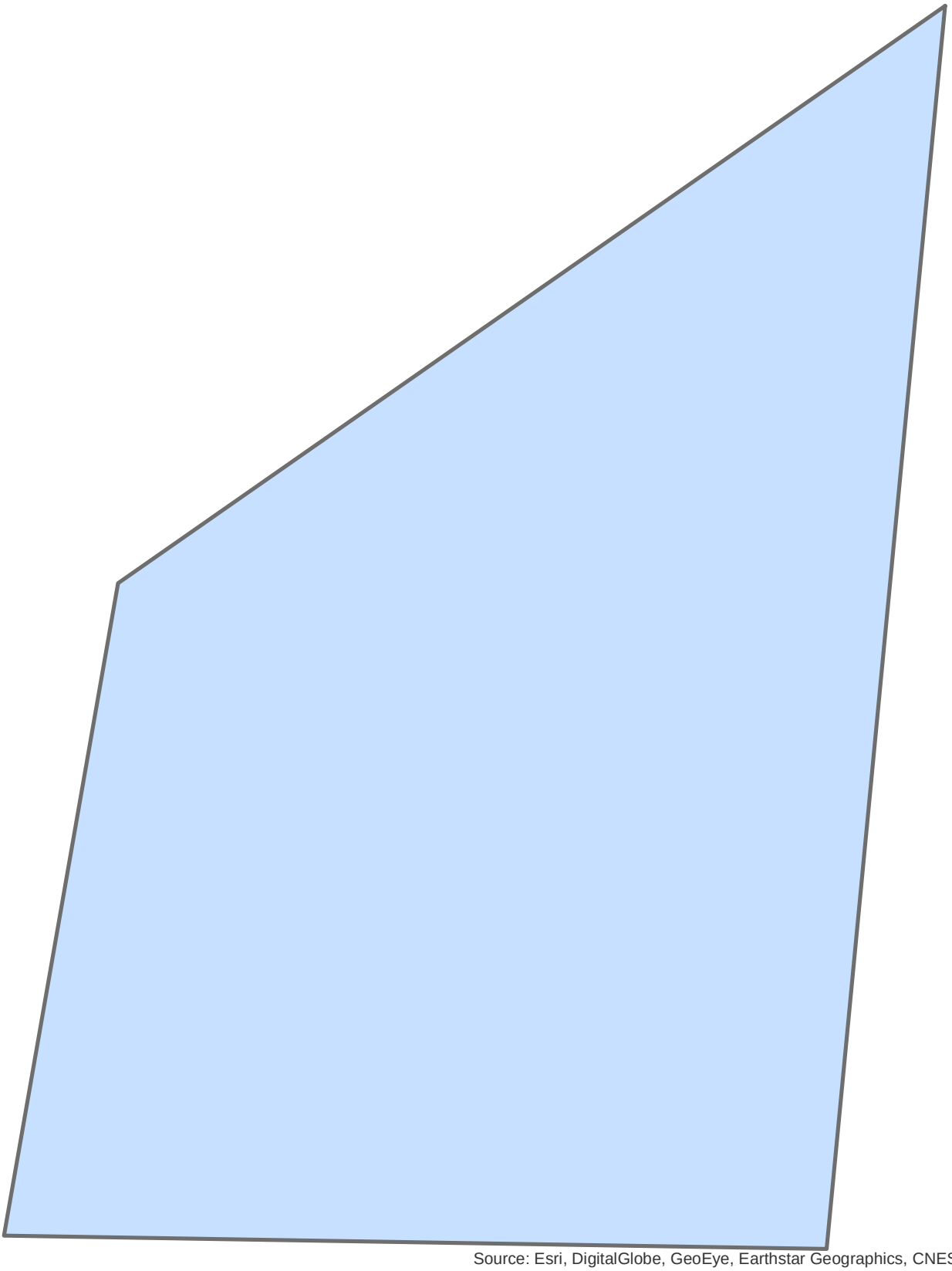
0 2 4 8 Feet

Legend

- Wetland F
- PFO
- PSS
- PEM
- POW

COWARDIN PLANT CLASSES

L2ST Seg. C 554-1521-151



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 2 4 8 Feet

Legend

- Wetland F
- Perm. Flooded or Inundated
- Seasonally Flooded or Inundated
- Occasionally Flooded or Inundated
- Saturated Only
- Outlet

HYDROPERIODS

L2ST Seg. C 554-1521-151

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 650 1,300 2,600 Feet

Legend

- Wetland F
- F_150ft
- F_1km

1 KM AND 150 FT POLYGONS

L2ST Seg. C 554-1521-151

Wetland name or number

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland G Date of site visit: 11/14/2016

Rated by Trey Perry Trained by Ecology? ☐ Yes ☐ No Date of training 09/2016

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☒ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on **functions** ☐ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	L	
Landscape Potential	M	M	L	
Value	H	M	L	**Total**
Score Based on Ratings	6	6	3	15

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number

SLOPE WETLANDS

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

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

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

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

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

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

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

SLOPE WETLANDS

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

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

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

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

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

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- ☐ Aquatic bed
- ☒ Emergent
- ☒ Scrub-shrub (areas where shrubs have > 30% cover)
- ☐ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points = 1
1 structure: points = 0

If the unit has a Forested class, check if:

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

1

H 1.2. Hydroperiods

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

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☒ Occasionally flooded or inundated
- ☒ Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

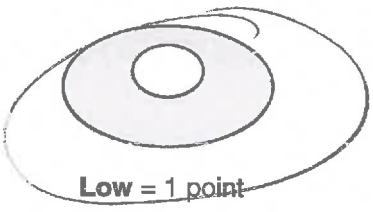
If you counted:
- > 19 species — points = 2
- 5 - 19 species — points = 1
- < 5 species — points = 0

1

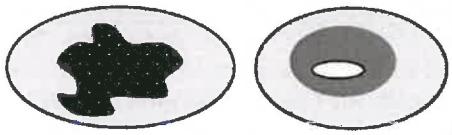
H 1.4. Interspersion of habitats

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

None = 0 points



Low = 1 point



Moderate = 2 points

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

1

H 1.5. Special habitat features:
Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)
- ☐ Standing snags (dbh > 4 in) within the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
- ☒ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

1

Total for H 1 — Add the points in the boxes above: 05

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?

H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*).
Calculate:
35 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 35%

If total accessible habitat is:
- > 1/3 (33.3%) of 1 km Polygon — points = 3
- 20 - 33% of 1 km Polygon — points = 2
- 10 - 19% of 1 km Polygon — points = 1
- < 10 % of 1 km Polygon — points = 0 (circled)

0

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.
Calculate:
15 % undisturbed habitat + (5 % moderate & low intensity land uses / 2) = 10%

- Undisturbed habitat > 50% of Polygon — points = 3
- Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2
- Undisturbed habitat 10 - 50% and > 3 patches — points = 1 (circled)
- Undisturbed habitat < 10% of 1 km Polygon — points = 0

1

H 2.3 Land use intensity in 1 km Polygon: If
- > 50% of 1 km Polygon is high intensity land use — points = (-2) (circled)
- ≤ 50% of 1km Polygon is high intensity — points = 0

-2

Total for H 2 — Add the points in the boxes above: 0 -1

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

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: — points = 2
- ☐ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1

Site does not meet any of the criteria above — points = 0 (circled)

0

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

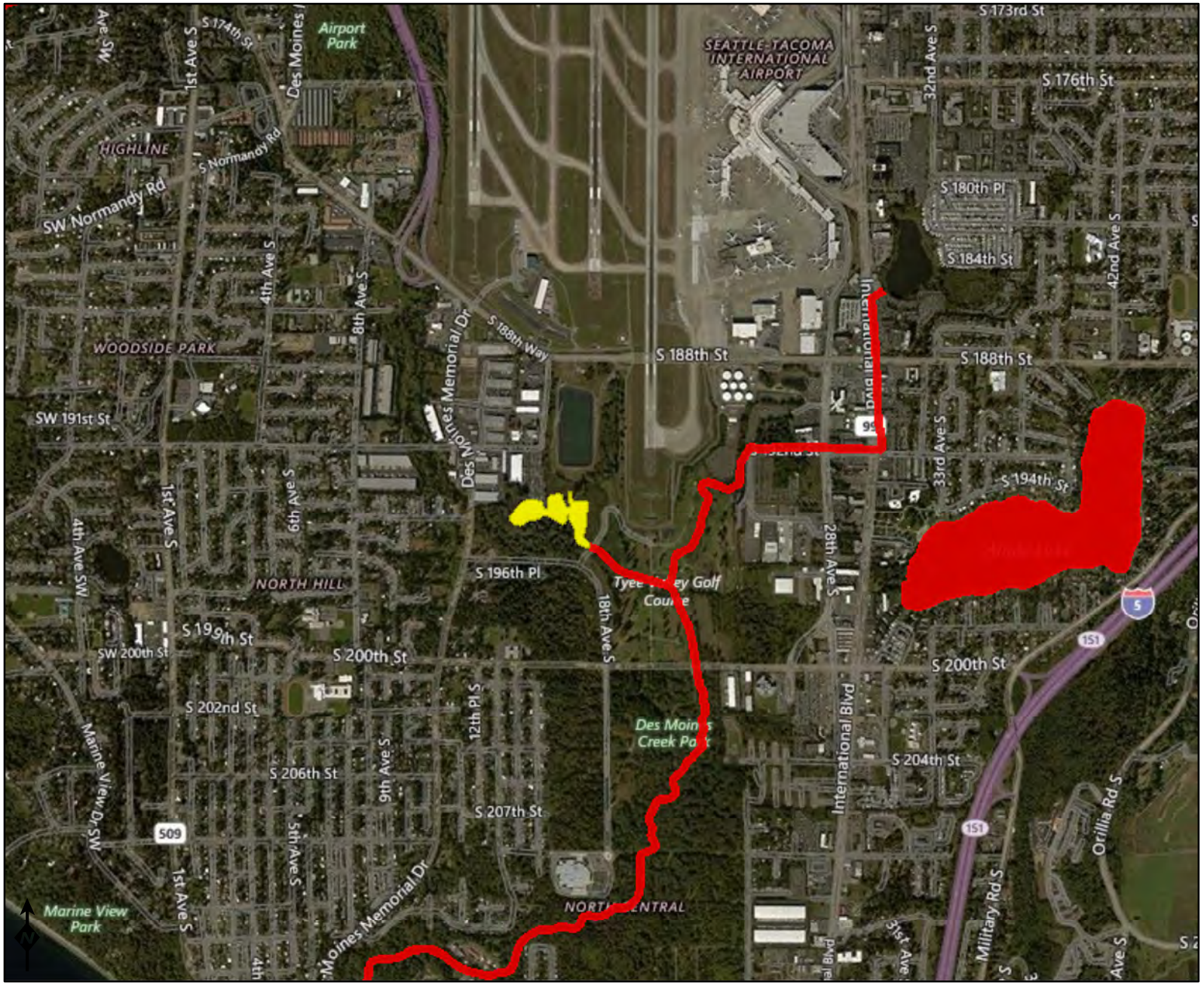
☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

August 9, 2016

Water Quality Atlas Map



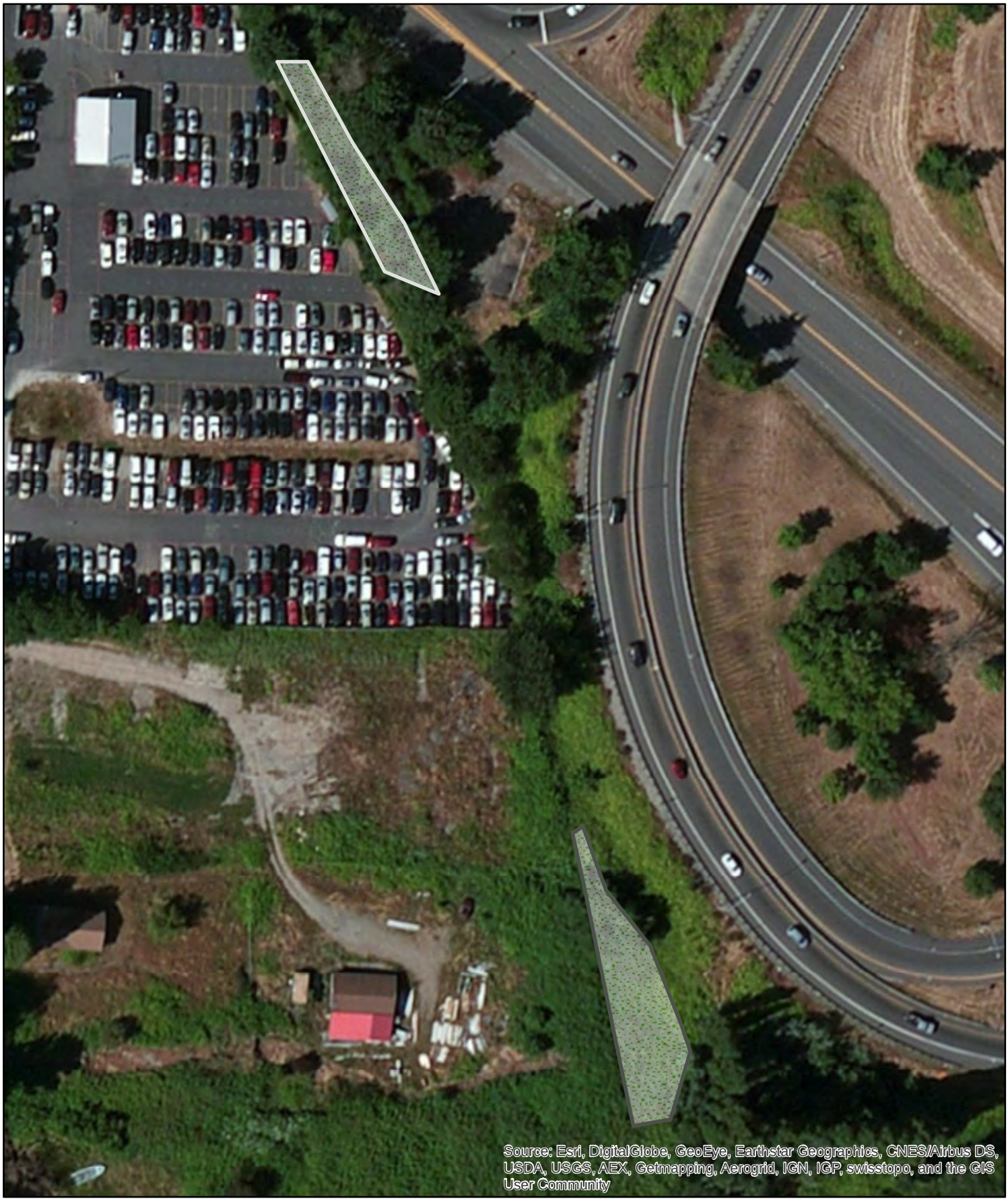
Assessed Waters/Sediment

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

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

Miles
0 0.25 0.5 1

DEPARTMENT OF ECOLOGY
State of Washington



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 55 110 220 Feet

Legend

- Wetland G
- Wetland H
- PFO
- PSS
- PEM
- POW

COWARDIN PLANT CLASSES

L2ST Seg. C 554-1521-151

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 55 110 220 Feet

Legend

- Wetland G
- Wetland H
- Perm. Flooded or Inundated
- Seasonally Flooded or Inundated
- Occasionally Flooded or Inundated
- Saturated Only
- Outlet

HYDROPERIODS

L2ST Seg. C 554-1521-151

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 650 1,300 2,600 Feet

Legend

- Wetland G
- G_150ft
- G_1km

1 KM AND 150 FT POLYGONS

L2ST Seg. C 554-1521-151

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland H. Date of site visit: 11/14/2016

Rated by Trey Parry Trained by Ecology? ☐ Yes ☐ No Date of training 09/2016

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions ☐ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	L	
Landscape Potential	M	M	L	
Value	H	M	L	**Total**
Score Based on Ratings	6	6	3	15

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SLOPE WETLANDS

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

S 1.0. Does the site have the potential to improve water quality?

S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*)		
Slope is 1% or less	points = 3 (circled)	3
Slope is > 1% - 2%	points = 2	
Slope is > 2% - 5%	points = 1	
Slope is greater than 5%	points = 0	
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*):	Yes = 3 No = 0 (No circled)	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.*		
Dense, uncut, herbaceous plants > 90% of the wetland area	points = 6	
Dense, uncut, herbaceous plants > ½ of area	points = 3	
Dense, woody, plants > ½ of area	points = 2 (circled)	2
Dense, uncut, herbaceous plants > ¼ of area	points = 1	
Does not meet any of the criteria above for plants	points = 0	
Total for S 1	Add the points in the boxes above	05

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

S 2.0. Does the landscape have the potential to support the water quality function of the site?

S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?	Yes = 1 (circled) No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?		1
Other Sources *Homeless Camp, Airport Activities, Ind. Construction*	Yes = 1 (circled) No = 0	
Total for S 2	Add the points in the boxes above	02

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

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

S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0 (No circled)	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.*	Yes = 1 (circled) No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which the unit is found?*	Yes = 2 (circled) No = 0	2
Total for S 3	Add the points in the boxes above	03

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

SLOPE WETLANDS

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

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

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

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

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

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	1

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

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

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- ☐ Aquatic bed
- ☐ Emergent
- ☒ Scrub-shrub (areas where shrubs have > 30% cover)
- ☐ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

If the unit has a Forested class, check if:

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

0

H 1.2. Hydroperiods

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

- ☐ Permanently flooded or inundated
- ☒ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☒ Saturated only
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

1

H 1.3. Richness of plant species

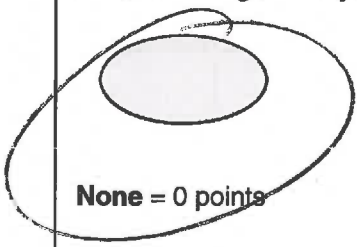
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

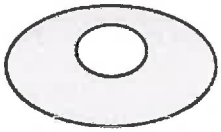
1

H 1.4. Interspersion of habitats

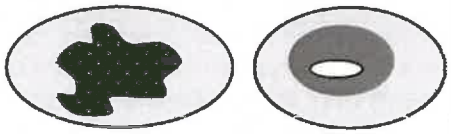
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points

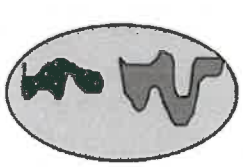


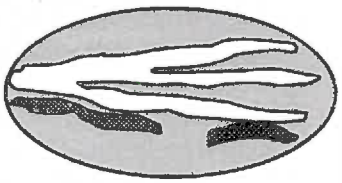
Low = 1 point



Moderate = 2 points

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





0

H 1.5. Special habitat features:
Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)
- ☐ Standing snags (dbh > 4 in) within the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
- ☒ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

1

Total for H 1 — Add the points in the boxes above: 03

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?

H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*).
Calculate:
35% undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 35

If total accessible habitat is:
- > 1/3 (33.3%) of 1 km Polygon — points = 3
- 20 - 33% of 1 km Polygon — points = 2
- 10 - 19% of 1 km Polygon — points = 1
- < 10 % of 1 km Polygon — points = 0 (circled)

0

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.
Calculate:
7.5% undisturbed habitat + (5 % moderate & low intensity land uses / 2) = 10

Undisturbed habitat > 50% of Polygon — points = 3
Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2
Undisturbed habitat 10 - 50% and > 3 patches — points = 1 (circled)
Undisturbed habitat < 10% of 1 km Polygon — points = 0

1

H 2.3 Land use intensity in 1 km Polygon: If
- > 50% of 1 km Polygon is high intensity land use — points = (-2) (circled)
- ≤ 50% of 1km Polygon is high intensity — points = 0

-2

Total for H 2 — Add the points in the boxes above: 0-1

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

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: — points = 2
- ☐ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1
Site does not meet any of the criteria above — points = 0 (circled)

0

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

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

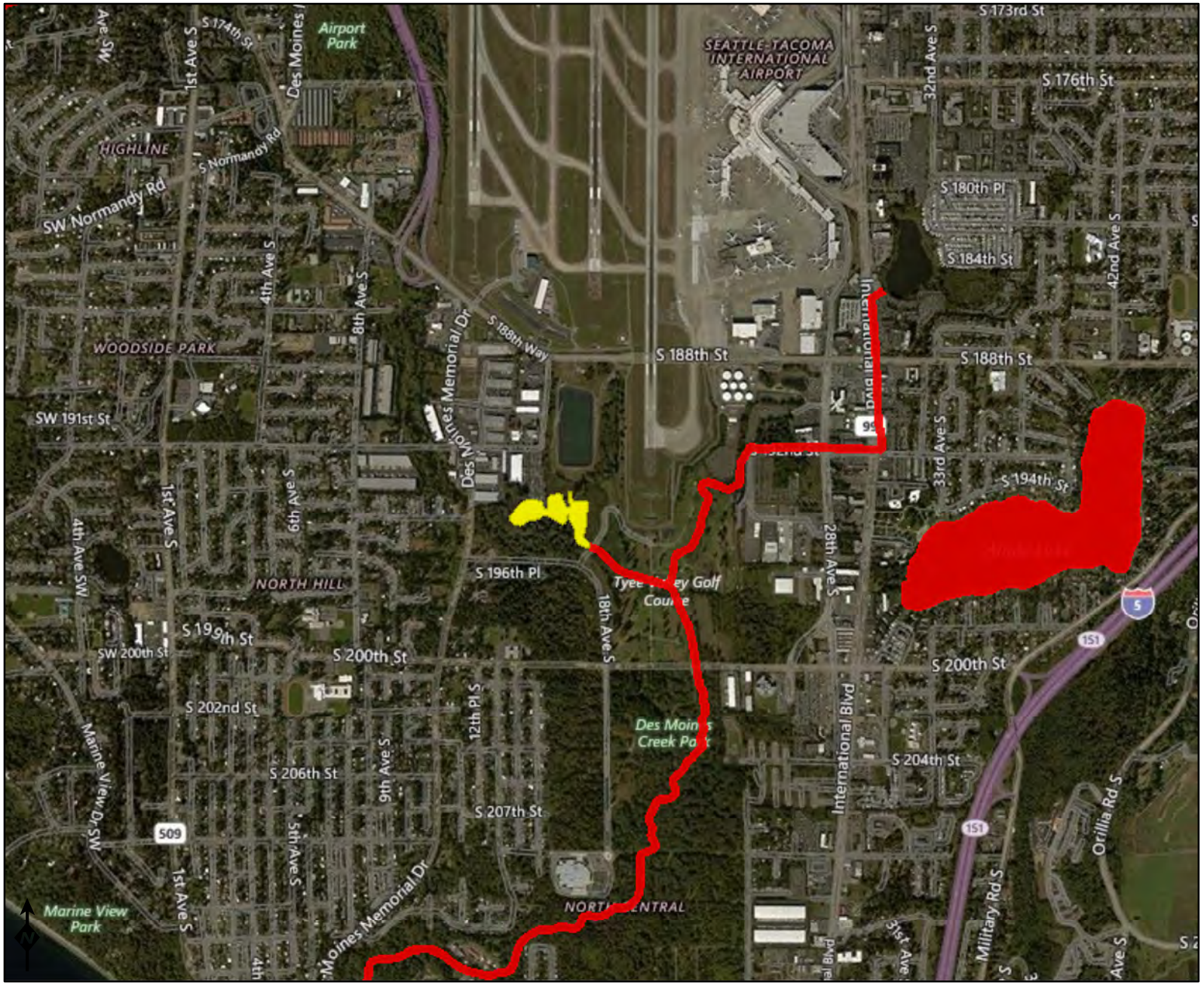
☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

August 9, 2016

Water Quality Atlas Map



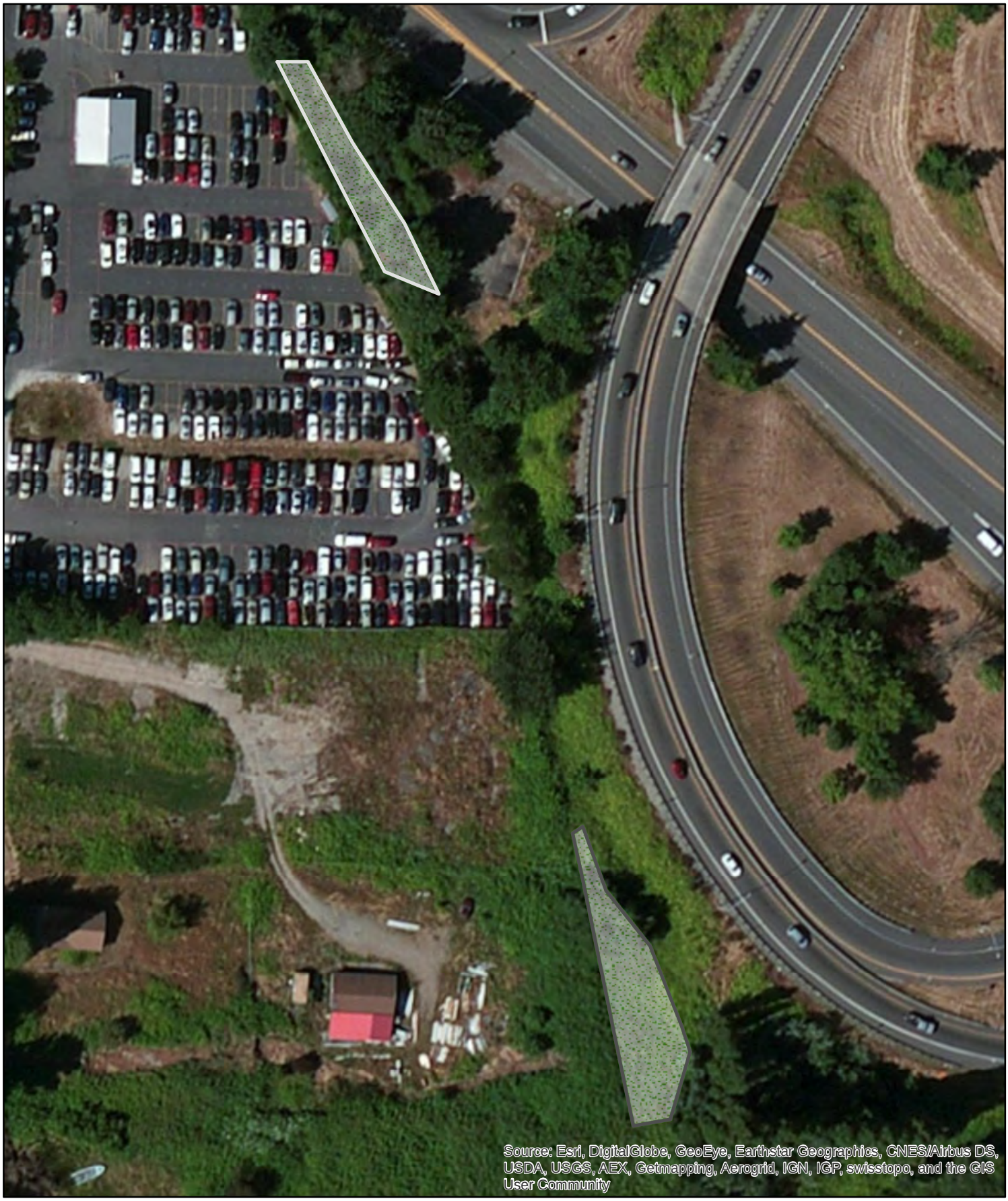
Assessed Waters/Sediment

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

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

Miles
0 0.25 0.5 1

DEPARTMENT OF ECOLOGY
State of Washington



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 55 110 220 Feet

Legend

- Wetland G
- Wetland H
- PFO
- PSS
- PEM
- POW

COWARDIN PLANT CLASSES

L2ST Seg. C 554-1521-151

Parametrix
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0 650 1,300 2,600 Feet

Legend

- Wetland H
- H_150ft
- H_1km

1 KM AND 150 FT POLYGONS

L2ST Seg. C 554-1521-151

Parametrix
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0 55 110 220 Feet

Legend

- Wetland G
- Wetland H
- Perm. Flooded or Inundated
- Seasonally Flooded or Inundated
- Occasionally Flooded or Inundated
- Saturated Only
- Outlet

HYDROPERIODS

L2ST Seg. C 554-1521-151

Appendix E

Mitigation Site Screening Memorandum

Parametrix
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719 2ND AVENUE, SUITE 200 | SEATTLE, WA 98104 | P 206.394.3700

TECHNICAL MEMORANDUM

DATE:	October 22, 2016
TO:	Jason Rich King County Parks and Recreation Division
FROM:	Josh Wozniak, PWS
SUBJECT:	Lake to Sound Trail--Segment C: Wetland Mitigation Opportunities
CC:	Jenny Bailey
PROJECT NUMBER:	554-1521-151
PROJECT NAME:	Lake to Sound Trail: Segment C

Mr. Rich:

Parametrix biologists conducted a site visit on October 21, 2016 looking for wetland and buffer mitigation opportunities for the Lake to Sound Trail, Segment C project. We focused our search on areas within the Washington State Department of Transportation (WSDOT) right-of-way for the State Route (SR) 509 extension that were outside of those areas planned for roadway construction. We reviewed five sites. Attributes and limitations for each site are summarized in Table 1 and discussed in the sections below.

Table 1. Summary of Mitigation Opportunities for the Lake to Sound Trail: Segment C

Site	Location	Wetland Creation Potential	Wetland Enhancement Potential	Buffer Enhancement Potential	Limitations
1	NE of Des Moines Memorial Drive and S 196th Street Intersection	None	Extensive; at least 1 acre	Extensive; several acres	Topography not suitable for creation
2	West of Des Moines Memorial Drive and north of S 196th Street	None	Present; at least 0.5 acre	Extensive; at least 1 acre	Within or near SR 509 footprint
3	Above and south of S 196th Street, west of 18th Avenue S	Limited and problematic	Very limited due to small wetland areas	Some potential; likely less than 1 acre of buffer areas	Might not be any wetlands (and therefore no regulated buffers on this site)
4	Northeast of the intersection of 18th Avenue S and S 200th Street	Possibly 0.5 acre	None (no wetland in this area)	Would be extensive opportunities if wetland was created	WSDOT right-of-way occurs mid-slope, well away from potential wetland areas
5	West of Des Moines Memorial Drive, south of S 188th Street	Up to 0.25 acre. Limited to areas outside of WSDOT right-of-way, mainly road fill removal	Extensive; several acres	Extensive; several acres	Portions not WSDOT right-of-way (private property)

Site 1

This site is located northeast of the intersection of Des Moines Memorial Drive and S 196th Street. This is the location where the proposed bicycle trail alignment makes a diagonal cut from Des Moines Memorial Drive to meet S 196th Street. A large wetland complex (Wetland C in our wetland discipline report) occurs downslope of the proposed trail. The buffer of the wetland in this area is heavily infested with several invasive species. Several acres of buffer enhancement opportunities are present here. In addition, the wetland has large patches of invasive plants. Although we saw only a small portion of the wetland, it is assumed that at least an acre of wetland enhancement is present here. A more thorough investigation of this wetland may reveal more infestation areas that could be enhanced. No wetland creation opportunities were observed in this area.

Site 2

This is a WSDOT-fenced property located across Des Moines Memorial Drive (to the west) from Site 1. The site contains forested wetland, including fairly uncommon aspen stands. The wetland and buffer are heavily infested with invasive species. Further investigation is needed to determine if there are wetland creation opportunities here. This site is very close to (and may be within) the proposed SR 509 footprint and may not be viable from a WSDOT property management standpoint.

Site 3

This site is a forested hill above S 196th Street and 18th Avenue S. The site is primarily upland, with some small wetland pockets near 18th Avenue S. The wetland areas include very small pockets supported by groundwater seeps. The upland buffer (and uplands outside of the buffer) contain mature native trees, an understory heavily infested with invasive species, lots of garbage, and a network of informal 4WD trails. There are some small areas where wetland creation is possible, pending groundwater studies, but overall this site appears to be too dry to support reliable wetland creation.

Site 4

This is part of the Port of Seattle property, which formerly was a golf course. The WSDOT right-of-way occurs near and northeast of the intersection of 18th Avenue S and S 200th Street. The site is dominated by non-native grasses and contains areas where willow stakes were installed, but not maintained. Many of the stakes did not successfully establish and the reasons for the failure are not clear. It is our understanding that the site was planned as a mitigation site, then abandoned when mitigation was determined not to be required. However, given the presence of groundwater seeps on the hillside near this area, this site appears to have strong potential. If considered for a mitigation opportunity, a more complete analysis of the site would be required. Namely, a groundwater study is needed to determine the location and depth of groundwater, and to advise if any grading is needed. At the time of the investigation, the site does not appear to be a jurisdictional wetland, and literature review did not previously identify the site as a wetland. Therefore, this would have wetland creation opportunities, with at least ½ acre of wetland creation likely to be feasible within the right-of-way.

Site 5

This site is west of Des Moines Memorial Drive, south of S 188th Street. It is part of the large wetland complex that the trail alignment passes through. It is constrained by having the proposed SR 509 footprint within a part of the area. However, in areas away from the proposed road footprint, there are abundant wetland and buffer enhancement opportunities. Within the right-of-way, there are large parts of the wetland and buffer with extensive cover of invasive species. No wetland creation opportunities were observed.

Within the private property (Hertz), there are extensive wetland and buffer enhancement opportunities, in addition to potential creation opportunities (removal of road fill). Wetlands here are dominated by reed canarygrass and Himalayan blackberry.